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# Systemic Shocks and Social Protection

## Role and Effectiveness of Public Works Programs

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**Africa Region Human Development  
Working Paper Series**

# **Systemic Shocks and Social Protection**

**Role and Effectiveness  
of Public Works Programs**

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**Africa Region  
The World Bank**

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Human Development Sector  
Africa Region  
The World Bank

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## Foreword

In much of Sub-Saharan Africa, poor households are exposed to systemic risks ranging from natural disasters to sudden changes in economic policies. One immediate result of such systemic shocks is the loss of employment and livelihood. Depressed formal sectors in much of Africa offer little protection to workers in such times. AIDS is further exacerbating the condition of poor households: as more breadwinners fall ill or die, the pressure on informal social protection networks increases to the breaking point. In this context, public workfare programs assume great importance as counter-cyclical interventions providing short-term employment to poor, unskilled workers who are impacted by adverse risks.

Public workfare programs have been in operation in many regions, including Sub-Saharan Africa, for several decades. Given its risk-prone environment, Africa's extensive use of public workfare programs is not surprising. Governments in different contexts have resorted to such programs, both as self-standing programs as well as components of large multi-sectoral interventions such as Social Investment Funds. Yet to date, there has not been a synthesis of experience of public workfare programs in countries of Asia, Latin America and Africa.

I welcome this study as an important overview of the various issues involved in the design and implementation of public workfare programs. The paper pulls together available evidence on design issues, cost-effectiveness, and evaluation of outcomes and impacts of workfare programs. Based on the evidence reviewed, the paper offers some good practice design features that can enhance the scope for self-selection, enable a higher participation of women, lower transaction costs of participation by the poor, and to a greater degree, involve the private sector or non-governmental agencies in the implementation of the program. It is hoped that the study will be of use not only to Bank staff engaged in the implementation of multi-sectoral, programmatic lending operations but also to governments interested in reforming their existing programs or embarking on new workfare programs.

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## Executive Summary

**P**ublic works programs have been important counter-cyclical program interventions in developed as well as developing countries. In the developing world in general, and in Asia and Africa in particular, public works programs have been significant policy instruments to mitigate the impacts of climatic risks on poor farmers and farm laborers. These programs typically provide short-term, unskilled manual labor employment on projects such as road construction and maintenance, irrigation infrastructure, reforestation, and soil conservation. They have been used to counter climatic risks in several countries, including Bangladesh, India, Ethiopia, Kenya, Zimbabwe, South Africa, Tanzania, and Ghana. In Korea in 1997, public works programs were the main program instrument to counter financial risk-induced unemployment. Though known as “public” works programs, the actual implementation responsibilities are now being handled in several countries by small-scale private contractors, NGOs, or social funds.

The rationale for public works programs rests on six considerations. First, the program provides income transfer benefits to poor households at critical times. Second, with good timing, the program also confers consumption-smoothing benefits, thus countering the risk of consumption shortfalls during agricultural slack seasons/years. Third, well-designed workfare programs help construct the much-needed infrastructure and thus minimize the trade-off between public spending on income transfer versus spending on developmental activi-

ties. Fourth, the durable assets created will have the potential to generate second-round employment benefits. Fifth, the program is highly amenable to geographic targeting. Finally, in many countries the program has helped the development of small-scale private contracting capacity.

The success of the program depends very much on the design features. A critical design feature is the level of the wage rate. Self-selection can be promoted if the public works wage is slightly below the market wage for unskilled labor. Cross-country experience reviewed in this paper suggests that though there is much variation in the ability of governments to fix a wage rate that is consistent with self-selection, several countries have adopted innovative approaches to facilitate wage setting that promoted self-selection. The mode of wage payment also influences the degree to which the program is targeted to the poor in general and women in particular. In some African countries, women favored task-based wage payment because it enabled them to dovetail household chores with income-generating activities.

An important determinant of the cost-effectiveness of the program is the share of the wage bill in total cost. Experience reviewed in this paper suggests that it is not easy to achieve high labor intensity even when known labor-based methods of production are available. Careful attention to detail is needed to attain a high labor intensity without compromising the quality of assets created. Evidence bearing on cost-effectiveness of public works

programs suggests that the program is highly recommended when attention is paid to the quality of assets created, and when possibilities exist for such assets to create second-round employment benefits.

A word of caution is needed in interpreting the cost-effectiveness calculations cited in this paper. These calculations take into account only the transfer benefits conferred to the poor. The risk benefits of the program—the benefits of reduced risks due to consumption smoothing—are rarely factored into the calculations of cost-effectiveness. This is one reason why the cost-effectiveness calculations often appear less favorable. Another limitation of cost-effectiveness calculations is that only the direct transfer benefits are factored into account. Indirect benefits of workfare programs in terms of short- and medium-term impacts on the rural market wage rate and the (indirect) social beneficial

impacts of female empowerment have not been taken into account in the available estimates of benefits and costs. Also, when comparing the cost-effectiveness calculations of workfare programs with other transfer programs, it is important to bear in mind the savings in administrative costs effected by self-selection, in addition to other factors.

The main constraint in implementing public works programs in much of Africa is the lack of capacity. This constraint can be eased if donor activities are coordinated and assistance is provided to build private contracting capacity. In all countries, and particularly in Sub-Saharan Africa, assured funding, community participation, sound technical assistance, and proper understanding of societal structures and communities where projects are located can vastly improve the effectiveness of workfare programs.

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## Introduction

**P**ublic works programs<sup>1</sup> have been important counter-cyclical interventions in developed as well as developing countries over the last century. In England, workhouse relief, to which the able-bodied poor were restricted after England's 1834 Poor Law Amendment Act, explicitly self-targeted on the poor by aiming to provide pay and conditions less eligible than the meanest available alternative (Himmelfarb 1984). Several Western countries adopted different types of public works programs during the Depression years (1931–36) and again during milder recessions. In much of South Asia, public works programs began in the 1950s as “food for work” programs financed by food aid received from Western countries. These programs now operate as government programs of cash for work, providing short-term employment at low wages. In Korea, the public workfare program was a core safety net during the financial crisis of 1997–98.

Public works programs typically provide short-term employment at low wages for unskilled and semi-skilled workers on labor-intensive projects such as road construction and maintenance, irrigation infrastructure, reforestation, and soil conservation. Public works programs are now best viewed as a means of providing income support to the poor at critical times rather than as a way of getting the unemployed back into the labor market. The lessons from experience of public workfare are relevant for all risk-prone countries generally, and for countries of Sub Saharan Africa and Asia particularly, because of their considerable potential to help

the poor cope with co-variate risks associated with climatic and systemic shocks. Table 1 provides

**Table 1**  
**Scale of operations of public works programs in selected countries**

<b>A. NATIONAL PROGRAMS</b>	
<b>Country</b>	<b>Person days of employment created</b>
Botswana (1992-93)	7 million person days
Ghana (1988-91)	0.5 million person days
Kenya (1992-93)	0.6 million person days
India National (1994)	800-900 million person days
Chile (1987)	40-45 million person days
Egypt (no date)	27-30 million person days
Argentina (1998-2000)	400,000 persons
<b>B. PROGRAMS IMPLEMENTED UNDER SOCIAL INVESTMENT FUNDS (MID-1980s TO EARLY 1990s)</b>	
<b>Country and program</b>	<b>Employment generated</b>
Bolivia: FSE	731,000 person-months
Honduras: HSIF	140,000 person-months
El Salvador: FIS	55,400 person-months
Peru: FONCODES	24,500 person-months
Panama: FES	28,000 person-months and 3,000 permanent jobs
Nicaragua: FISE	73,000 person-months

Source: World Bank 1994; Subbarao 1997.

information on the scale of the public works programs in selected developing countries. As can be seen from this table, in some countries the program has been implemented on a national scale, whereas in others the program has operated on a small scale as one of the components of multi-sectoral intervention, *viz.*, Social Investment Fund.

There is much confusion about the meaning and scope of public works programs (also known as workfare programs) across countries. The term "public works" often creates an impression of a government-run program to create jobs. This was indeed the case in much of former Soviet Union and Eastern Europe, where public works programs were understood to mean a "wage subsidy" program, that is, the government paid the entire wage bill to encourage private entrepreneurs and state enterprises to hire more workers and thus "solve" the unemployment problem. This view is slowly changing. Some Central Asian republics are trying to introduce public works at low wages as a short-term income transfer program for the poor along the lines of programs in South Asia.

In recent years, the implementation arrangements for public works programs have changed, so the word "public" in "public works" has become somewhat inaccurate. "Old school" public works programs, typically financed and implemented by the public works departments of central governments, tended to display the drawbacks of other centralized programs, namely, the creation of large bureaucratic structures, lack of accountability, and

little consultation with or involvement of communities or local governments in the selection and execution of projects. Recent years have seen changes in the financing and implementation arrangements. In particular, in some countries, the scheme "provider" or "financier" (usually the government, but also NGOs or international aid agencies such as the World Food Program (WFP)) has been separated from the scheme "implementer," which could be the line ministries of the government, a private contractor, an NGO, or a Social Investment Fund.

This paper is organized as follows. It begins with a brief discussion in Section 2 of the rationale of workfare programs in the developing world. Section 3 provides an overview of the conceptual issues. Section 4 discusses the design features of a public workfare program, reviewing "real world" country experience with reference to each of the design features. Section 5 deals with implementation problems and financing issues and gives a brief overview of available evaluations, with particular reference to benefits and costs and to the distributional outcomes of workfare programs. The last section provides a synthesis of how to plan, implement, and evaluate a public workfare program.

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1. In this paper, the terms "public works programs" and "workfare programs" are used interchangeably. Both refer to programs in which participants must work to obtain benefits. These programs offer temporary employment at a low wage rate, and have been widely used for fighting poverty.

## 2

# Rationale

**T**he argument for public works in nineteenth century England centered around the ethic of work, often dirty and nasty work. The justification for such public works during the Depression years stemmed largely from the macro imperative of restoring the aggregate demand. In many low-income countries today, the rationale is vastly different from the motivations of programs launched in the West in the past.

In low-income countries, public workfare programs are undertaken with four objectives in mind:

- First, the program provides transfer benefits to the poor. The transfer benefit is equal to the wage rate, net of any costs of participation incurred by the worker. In countries with high unemployment rates, transfer benefits from a good workfare program can prevent a worsening of poverty, especially during periods of adjustment or transition.
- Second, depending on its timing, the program may also confer consumption-smoothing or stabilization benefits. The stabilization benefits arise mainly from the scheme's effect on the risk of a decrease in consumption by the poor typically during agricultural slack seasons. For example, if the program's timing synchronizes with the agricultural slack seasons when the market demand for labor is low, workers are most likely to gain from the resulting income stabilization and consequent consumption smoothing. The benefits of

any policy intervention that lessens the risk of starvation for those surviving on the edge are to be valued highly.

- Third, if well designed, the program can help construct much-needed infrastructure. For example, the famous Maharashtra Employment Guarantee Scheme of India, which has been in operation for over three decades, has created considerable irrigation infrastructure and rural roads in the state of Maharashtra. Some of the durable assets created by the program have generated (or can generate) additional second-round employment benefits.
- Fourth, the program is amenable to geographic targeting. Poor areas and communities can benefit directly from the program (in terms of transfer benefits), and indirectly from the physical assets created and/or maintained. To this extent, well-designed workfare programs can contribute directly to enhancing the growth potential of less endowed regions.

In addition there can be other (often unintended) spin-offs from a public works program. For example, workfare programs can build the capacity of communities to manage their own affairs, strengthening local governments and other institutions. If the design features are carefully thought through (see Section Four), public works programs can encourage the participation and empowerment of

women. Private contracting capacities could also develop. In some countries, the private sector and NGOs have been involved in the implementation of public works programs. Finally, the links between workfare programs and household food security deserves special mention. In much of Africa and South Asia, public works programs originated as “food-for-work” programs that paid wages in food, usually donated food. Even now, some donor-driven programs (such as the World Food Program)

run public works programs in many African countries, providing food as wages, the motivation being provision of household food security.

Thus, in low-income countries, public works programs are undertaken with the multiple objectives of temporary income transfer benefits to the poor, consumption smoothing, household food security, asset creation, and poor area development. The programs are often regarded as vital for coping with climatic risks pervasive in much of Africa and Asia.

# 3

## Conceptual Issues

The *transfer* benefit to a worker amounts to the wage he/she gets from the scheme, net of the costs of participation (such as the cost of transport) and the earnings lost from alternative employment. If the costs of participation and income from alternative sources are negligible, and if the program has no effect on the labor market and the structure of market wages, the transfer benefit approximately equals the program wage times the duration of employment. In reality, these assumptions are unlikely to hold. For example, the costs of participation and foregone earnings are only rarely zero. Most workers have to walk long distances to the work sites or incur transport costs. In the absence of the scheme, workers typically work for a few days in alternative jobs, which they give up when slightly longer-term employment is offered by a public works project. Moreover, unless the scale of the public works program is very limited, the program is likely to put an upward pressure on the market wage rate. In that case, the net transfer benefit (the *direct* program wage benefit plus the *indirect* benefit of an increment in market wage resulting from the program) may be higher than the program wage. Thus, depending on the impact of the scheme on the wage rate, the amount of the foregone earnings, and the costs of participation, the net transfer benefit may be higher or lower than the program wage.

In order to enable workers to self-select into the program, it is desirable to keep the program wage low, that is, somewhat lower than the prevailing

market wage for unskilled labor. A low wage is most likely to render the program unattractive to the non-poor. A low wage will keep the *overall* participation rate low and at the same time ensure that a greater proportion of *poor* workers will participate in the program than would be the case if the program wage were higher. Given a budget, a low wage would avoid job rationing. Thus, a low program wage has several merits. However, a low wage rate will also result in lower transfer earnings per (poor) participant.

Finally, in some situations the poor may incur transaction costs that may further reduce the transfer benefit. For example, if the implementing agencies and the institutional framework are subject to corruption and leakage, the poor who participate in the program may have to pay part of their wage to scheme organizers. This may further reduce the transfer benefit of the program. The particular implementation arrangements, the institutional framework, and the overall efficiency of scheme administration greatly influence the transfer benefits accruing to participants.

The longer the period of employment, the larger the sum of *total* transfer earnings going to *all* participants can be, and the higher the share of wages in total cost of the program will be. These two parameters—the share of wages and the duration of employment—vary depending on the nature of the project. As mentioned in later sections, there is much cross-country variation in both the share of wages and the duration of employment.

The *potential* welfare gains from a public works program also depend on the *source* of financing. If a public works program is entirely aid-financed, the transfer benefits to workers are a *net addition* to all other benefits flowing from programs funded out of general tax revenues. However, if the program is to be funded out of general tax revenues, it would be important to look at the counterfactual situation, that is, what would have been the benefits to participants from alternative ways of spending the same amount of budgetary resources. Also, it is useful to know if a public works program has been extended *at the expense* of other activities that confer non-labor income to poor participants, such as education or hospital services. Rarely is it possible to evaluate this counterfactual element empirically, but in order to understand the true benefits of public works programs, it is important to bear in mind the issues arising from the source of the program's financing.

The *stabilization* benefit of the program reflects the program's "insurance" function. It depends on the timing of the program. In predominantly agricultural societies, household incomes move up or down depending on seasonal activities. Poor house-

holds often suffer precipitous shortfalls in consumption and nutritional status in slack seasons and during periods/years of drought. A workfare program targeted in time and space to the regions most affected by monsoon failures or seasonal drops in economic activity can give poor participants "consumption smoothing" or "risk reduction" benefits. Income stabilization can prevent acute distress and prevent poor households from onerous adjustments such as distress-selling of assets during years/seasons of crop failure. In other words, to poor households who lack avenues or who cannot afford to insure themselves, the risk benefits of a public works program can be as important as the transfer benefits. However, it is not always possible to implement the program when the poor are likely to sustain consumption shortfalls. For example, during periods of heavy rainfall when all economic activities come to a halt, logistics may not permit implementation of a public works program, especially in hinterland villages. Therefore, a workfare program may not be the appropriate instrument to protect the poor during the "hungry" season.

# 4

## Design Features: Cross-Country Evidence

**T**his section discusses the design features of a public works program using three broad criteria: (a) how to self-target the program to the poor and maximize the benefits to participants, (b) how to improve the cost-effectiveness of the program, and (c) how to implement the program. The first two sub-sections cover only the major national-level programs, whereas the third sub-section includes both the national level programs and the small-scale workfare programs implemented under the rubric of Social Investment Funds.<sup>1</sup>

### Design features that enhance program benefits to the poor

#### The level of the wage rate

The wage rate is a key element in determining the degree to which the poor self-select into the program thus determining the distributional outcomes of the program. In order to promote self-selection, it is best for a public works program to offer a wage slightly below the market wage, that is, to maintain the level of wage rate low enough so as to attract only the poor to work sites. Experience with respect to setting a wage below the prevailing market wage varies across countries (see Table 2). Some governments were unable to set a wage lower than the minimum wage, which happened to be higher than the market wage in the informal sector and in rural farm activities in which other poorest are engaged. If the minimum wage is set at a level higher than

**Table 2**  
**Public works: Program wage (PW), minimum wage (MNW) and market wage (MW) in selected countries**

Country/Program	PW in relation to MNW and/or MW
Bangladesh: Cash For Work, 1991-92	PW<MW
India: (a) Cash For Work, JRY, 1991-92 (b <sub>1</sub> ) MEGS: up to 1988 (b <sub>2</sub> ) After 1988	PW=MNW>MW PW=MNW<MW PW=MNW>MW
Pakistan: IGPRA* III, 1992	PW<MW
Philippines: Cash For Work 1990 Food For Work 1987	PW>MW PW**>MW
Botswana: Cash For Work	PW<MNW, but >MW
Kenya: Cash For Work 1992-93	PW=MNW>MW
Chile: Cash For Work 1987	PW<MNW=MW
Argentina: (a) 1997-2000 (b) 2000	PW = MNW<MW PW<MNW<MW
Korea: 1998	PW=MNW<MW
Thailand: 1998	PW=MNW
Indonesia (Reformed program, 1999)	PW<MW

Source: Subbarao (1997, 1999), Ravallion (2000).

the market-clearing wage and is strictly enforced then the ability of a public works program to set its wage level lower than the minimum wage is somewhat limited. However, some countries, such as Argentina, have adopted innovative methods to overcome the problem.

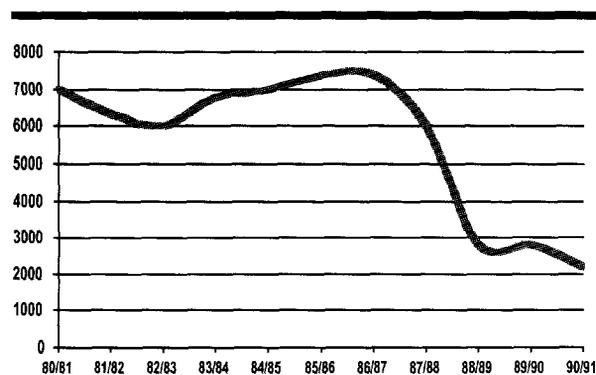
Table 2 shows there is much cross-country variation in the level of the program wage rate relative to the market and minimum wages rates. In Chile, the program wage rate was maintained at about 70 percent of the minimum wage, facilitating self-targeting of the poor. Almost 25 percent of the participants were women. In Kenya, the program wage was equal to the minimum wage, and the latter was typically much higher than the prevailing market wage. In The Philippines too, the program wage was 25 percent higher than the agricultural market wage. The Philippine case is interesting. The program's cash wage was equal to the minimum wage. However, in addition to the cash wage, an additional in-kind wage of a certain quantity of food was given to every participant, so that total compensation (cash plus food) turned out to be much higher than the ruling market wage for unskilled labor. Not surprisingly, substantial numbers of the nonpoor were attracted to the program (Subbarao, Ahmed and Teklu 1995).

The targeting effectiveness achieved by setting the public works wage rate below the minimum wage depends on whether or not that minimum wage is really the market minimum. This is clearly illustrated by the experience of the Employment Guarantee Scheme (MEGS) in the Indian state of Maharashtra. In this program, all registered participants are guaranteed employment at the minimum wage within a five-kilometer radius of their homes. The program was enormously successful in drawing vast numbers of the poor, especially women, to work sites. From its inception in 1973, the program wage was equal to the minimum wage, which was low enough to promote self-selection of the poor into the program. In 1988, the minimum wage was doubled, so the program wage had to be doubled. The consequence has been a significant drop in the person days of employment generated (Subbarao 1993, 1997; see also Figure 1). Research by Datt and Ravallion (1994) has confirmed that the upward revision of the wage rate in 1988 contributed to job

rationing and eroded the guarantee of employment expected of the program. Gaiha (2000) also noted that, following the wage hike in 1988, that targeting efficiency eroded. The relatively more affluent have joined the program, while some poor participants have been rationed out of it. In Tanzania and Botswana, too, because the program wage was maintained at a level higher than the market wage in comparable unskilled activities, jobs had to be rationed, particularly during droughts when the poor's need for participation in public works was greatest (Teklu 1994). In Burkina Faso, Senegal, and Sri Lanka, the program wage was lower than the market wage for unskilled labor.

In Argentina in 1996, the government responded to high levels of unemployment by starting the *Trabajar* program, a public workfare program to provide temporary employment benefits to poor participants. The main targeting mechanism was a low wage rate, supplemented by a sub-project selection process that geographically targeted poor areas to receive projects. More than 400,000 persons participated in this program in 16,000 projects, many of which were located in poor communities. In 2000, Argentina faced the issue of setting and maintaining a low wage. To promote self-selection, the wage rate was further lowered from 200 pesos a month to 160 pesos a month, which is below the minimum wage. There was no legal impediment because the labor relation entered into between the worker and the implementing agency was not the typical one. For example, the payment to worker is not called a wage. It is called "subsistence" or "eco-

**Figure 1**  
**MEGS labour attendance**



conomic assistance." Moreover, this system attracted some skilled and semi-skilled workers who were also needed to execute the projects. Skilled workers were hired as "foremen" in each project at a somewhat higher wage rate. Clearly, Argentina represents a case where a low wage rate enabled self-selection of the poor into the program and geographic targeting gave poor households significant indirect benefits to the extent the selected projects were located in poor areas.

South Africa's recent experience is also worth noting. Evidence from 101 Western Cape public works projects shows that only 36 percent managed to offer a wage lower than the prevailing market wage for unskilled labor (See Table 3). Some projects in some districts were more successful than others in setting a low wage. For example, greening and vegetation projects could offer a wage less than

the market wage but construction projects could not. The reasons are not entirely clear, but there is probably more wage bargaining in the construction industry. Or maybe construction projects could attract labor only if they offered a higher wage. Research by Adato and others (1999) shows that the wage-setting process in South Africa is extremely complex and varied a great deal by district and by project. In general, it was felt that sharing information with the community on the broader goals of public works projects helped workers to understand why the wages offered were low.

Korea used public workfare programs on two occasions, once prior to the boom period and again in the wake of the financial crisis of 1997. In the 1970s, the program offered temporary employment at the going market wage for unskilled labor and executed a number of infrastructure projects, especially road construction. As the economy entered the boom period in the late 1970s and early 1980s, the market wage levels of labor soared. As a result, the workfare program began to attract only the very old and less active labor. Consequently, the program's productivity suffered and its utility in creating useful assets diminished. The program was then abandoned. The elderly in the economy began to be served largely by their extended family and also by a small-scale cash transfer program. In terms of introduction and abandonment of the program, Korea's timing was perfect.

Equally appropriate was Korea's re-introduction of a low wage public works program early in 1998, following the onset of the financial crisis, in order to partly cushion the impact of the sharp increase in unemployment and poverty. Korea took considerable care to get the design of the program right. The program wage was set at a level slightly lower than the prevailing market wage for unskilled labor. During the crisis, the market wage rate fell. The government responded by adjusting the public works wages rate downward. Why was Korea able to do this?

The minimum wage in Korea, set in the early 1980s, was never changed or revised upwards. During the economic boom, the market wage in Korea rose dramatically, and remained several times higher than the legislated minimum wage. In fact, few workers bothered much about the level of

**Table 3**  
**Proportion of public works projects that set project wages below district-level market wages for unskilled labor**

Program	Proportion of projects setting wages below district market wage	Number of projects
All projects	0.356	101
Cleaning and greening	0.800	10
Community-based public works programs administered by the Dept. of Public Works, Govt. of South Africa.	0.389	18
Community-based employment program, administered by an NGO, Independent Development Trust	0.091	22
Working for water	0.357	14
PILOT-National Department of Public Works program	0.000	2
Transport-road development program	0.167	6
National Economic Forum/Western Cape Economic Development Forum	0.448	29

Source: M. Adato and others (1999).

the minimum wage, which remained very low. With the onset of the crisis, market wages for all categories of labor fell; nonetheless the market wage for unskilled labor during the period of the crisis was still slightly higher than the (low) minimum wage. Hence, the government found no difficulty in adjusting the public works program wage downwards with the fall in the market wage, since the program wage was still slightly above the legislated minimum wage (Subbarao 1999).

Thailand's experience differed from Korea's. During the boom period, Thailand had continually raised the minimum wage in order to attract labor from the depressed northeast to Bangkok to work in the construction industry. When the crisis set in late 1997, a downward adjustment of the market wage proved difficult due to the prevailing high minimum wage. For the same reason, the public works program wage, too, was implemented at a relatively high level. The targeting efficiency of the program and its impact on poverty are not known.

The above overview suggests that setting the public works wage at a level lower than the unskilled market wage may be difficult, but several countries have managed to get around the problem. At different times, several countries, including India, Argentina, Chile, Korea, and South Africa, managed to set the program wage at a level conducive to promote self-selection (thus enabling the poor to benefit disproportionately). Much depends on a country's circumstances, but there appears to be considerable scope for innovative solutions. In general, the ability to set the program wage at the right level depends on the responses of the communities where the projects are located and on the political economy at the national level. For example, the Argentine program allowed different localities to set a lower wage rate than the national program wage, if they wished to do so. Several provinces chose to pay a lower wage that better reflected their local labor conditions and thus were able to expand the possible participation of the poor. Flexibility clearly improves the chances of setting an appropriate wage rate.

In some countries, however, the political economy at the national level may be a binding constraint to setting a wage at a low enough level to promote self-selection. Often the past history of a

country makes it very difficult to set a low wage for workfare programs. For example, in the countries of Eastern Europe and Central Asia, past history includes workers' rights, strong trade unionism, and a generally hostile attitude toward a downward adjustment of wages even when economies are in a downturn. On the other hand, in some economies where the decentralization process is proceeding rapidly, an appropriate (low) wage-setting process might be facilitated if communities are fully informed and the decisions are taken by communities themselves so that workers (who live there) actually see the merits of a low wage (Adato and others 1999). In all circumstances, the wage setting process must be transparent if it is to be acceptable to workers, scheme providers, and the implementing agencies.

One question that often comes up in the design of workfare programs is, how low should the program wage be? There is really no theoretical optimum, although in practice, any level slightly lower than the prevailing market wage for unskilled labor may be appropriate. However, it is important bear in mind that the program wage should not be so low as to stigmatize the work and thus cause "the poor but proud" people to go hungry rather than take part in public works. That was one of the problems with the English Poor Law workhouses after 1834 (Lipton 1996).

### **Mode of wage payment**

Wages in workfare programs can be paid in cash or in kind, and wage rate can be set on a daily basis or on a piece-rate basis. Ideally, the best form of payment is cash since it gives participants freedom to spend their meager earnings in the optimal way. However, payment of wages in kind is often facilitated by the availability of food aid. Payment in early public works programs in India and Bangladesh was largely in kind, usually food staples made available through food aid. Wage payment in food staples continues in some countries, especially in Sub-Saharan Africa. The problems with wages paid in food staples are obvious: food is messy to transport, it is costly (due to handling charges), and it requires considerable overall supervision. The advantages in terms of self-targeting or

better targeting are mixed. In Lesotho and Zambia, payment of 50 percent of wage in kind (food) attracted more women than men to work sites (Subbarao and others 1997). Given the role that women play in household food security, this may have great spin-off or indirect benefits in Africa. On the other hand, in several other countries, both men and women demanded wages to be paid in cash.

Piece rates and task-based payments seem to be especially attractive to women (Dev 1994; Subbarao and others 1997). Under time-rate systems, small persons and others who may prefer more time to do more intensive tasks are often excluded or feel compelled to exclude themselves. Piece rates may also have the advantage that several members of a large, poor family can share the work. Task-based payment methods give women the flexibility to do the multiple tasks that are often required of them in poor countries. In theory, the task-based system rewards and encourages higher labor productivity. In some African countries, women favored task-based payment because it enabled them to dovetail household chores with income earning opportunities.

Experience suggests that task-based payments can have disadvantages too. In South Africa, workers did not understand how the task was calculated, were constantly confused by their paychecks, and thought they were paid less than they were owed (Adato and others 1999). One major problem was that workers did a lot of preparatory work that was not considered part of the task. Participatory surveys in South Africa showed there was real confusion about the meaning of task-based wage payment. In summary, difficulties of administration may be considerable in a task-based wage payment system.

The above discussion underscores the need to adapt the mode of payment to local situations and demands and also to allow for temporal flexibility. Local organizations of the poor may help program administrators to understand the perceived needs of the poor and help them determine the wage payment system that maximizes the participation of the poor in general and women in particular.

#### **Duration and timing of public works activity**

How many person days of employment *per household* should a workfare program provide? It

depends on the duration and frequency of climatic (or systemic) risk in a given region, the degree of uninsured risk confronted by the poor, and the level of the poverty gap. Country experience thus far suggests that workfare programs have a much greater role to play in regions/countries subject to periodic monsoon failures. Since the program can be geographically targeted, the poor living in any specific region subject to drought conditions could benefit from the program. The poor find it hard to insure against risks, both natural and idiosyncratic. For example, in very few countries can poor farmers and landless laborers insure themselves against monsoon failures and other natural risks, so the degree of uninsured risk tends to be very high for most poor households. In countries and in regions within countries where the degree of uninsured risk is high and the poverty gap is great, the reliance of the poor on public workfare programs may also be high because they offer significant risk reduction benefits to poor households.

Evidence on employment provided *per person per year* by public works programs is hard to come by. Most available data provide the *total* number of person days of employment created. From this information, it is not possible to derive numbers for employment *per person or per household*. Nor do we have information (based on household data sets) on the extent to which a poor person's or household's consumption has been supplied by a public works program. The admittedly limited evidence reviewed below is only for two countries, India and Argentina.

In India's nationwide program of Jawahar Rojgar Yojna (JRY), a total employment of over 800 million person days is generated annually. The employment provided per person per year varies across the country, ranging from 15 to 30 days. The annual transfer benefit from the program may not be as high as in Argentina (see below), but the program operates intensively, employing as many as 55 million persons annually during the off-season. In other words, the JRY confers significant stabilization (consumption-smoothing) benefits, even though the transfer benefits of the scheme are modest. In the Maharashtra Employment Guarantee Scheme (MEGS), the transfer benefit has been substantially higher (at about 100 person days per

year) than under the JRY. The transfer benefit may have declined following the wage hike in 1988, since fewer person days of employment per person were generated. However, Walker and Ryan (1990) show that the risk (stabilization) benefits conferred by MEGS remained significant even after 1988 because the scheme continued to operate intensively in off-peak agricultural seasons (Subbarao 1997). See Figure 2 which shows the percent distribution of MEGS employment in 1980–81 (before the wage hike) and in 1990–91 (after the wage hike).

In Argentina's Trabajar program, the income from participation in the program accounted for about 60 percent of household income. Unlike in India, workers in Argentina participated in a project for about five months on average. After finishing one project, about a third of the workers are able to get a Trabajar job in another project. The data for 1997–98 show that about 400,000 workers obtained temporary jobs in the program, each worker receiving a transfer benefit averaging about \$1300 a year. The number of beneficiaries represented about 20 percent of the target population of the unemployed poor.

Evidence from Kenya and Tanzania (Teklu 1994a) shows not only that the program wage rate was higher than the prevailing market wage for unskilled labor, but also that the timing of the public works program coincided with the busy agricultural season, thereby significantly diminish-

ing both the transfer and the stabilization benefits to the poor. In Bangladesh, too, the program coincided with the busy agricultural season.

In sum, the transfer benefit is important for the poor, especially if the level of seasonal unemployment is high. For some segments of the very poor, stabilization (risk reduction) benefits may be as important as transfer benefits. Careful timing of the program can enhance such benefits.

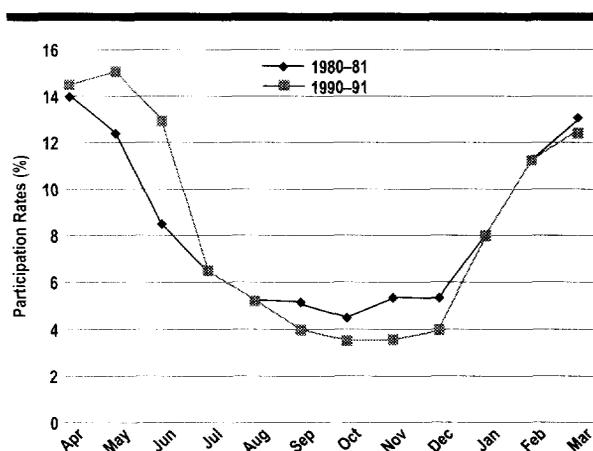
### Labor intensity of public works programs

An important determinant of the cost-effectiveness of the program is the share of the wage bill in total cost. Many factors determine the share of labor in total cost, especially the nature of the asset created and the availability of technically and economically feasible labor-based methods of production. In most road construction projects, labor's share ranged from 40 to 50 percent of total cost, whereas in road or drainage maintenance projects and in soil conservation and forestation projects, the labor intensity ranged from 70 to 80 percent. In the MEGS, the wage bill represented 60 to 70 percent of total cost. Similar ratios were realized in the Bangladesh Food for Works programs.

In Argentina's Trabajar program, depending on the type of project, the share of labor costs ranged from 30 to 70 percent. The average share of labor costs for the program as a whole was 40 to 50 percent of total project costs. In Korea, too, labor intensity was close to 70 percent.

Achieving high labor intensity is not easy in practice, even when known labor-based methods of production are available. Case studies of 101 South African projects showed that most construction engineers were averse to adopting labor-based methods, largely because they were unfamiliar with labor-based methods of production and because extra supervisory inputs (expenses) are needed as the size of labor gangs increase (Adato and others 1999). Where the work has been entrusted to private contractors, the outcome with respect to labor intensity is unpredictable. Evidence from Ghana suggests that timely availability of project funds is important for the adoption of labor-based methods. Where a program was financed with donor funds and payments were quick and guaranteed, contrac-

**Figure 2**  
**Seasonality of MEGS employment**



tors would resort to labor-based methods. Where the program was funded by government funds, which were uncertain and often arrived after enormous delays, contractors did not favor labor-based methods, fearing strikes for delayed wage payments (Subbarao and others 1997). The incentives worked exactly in the opposite way in Argentina. If private contractors were in charge and had to meet contract standards, they were unlikely to choose labor-intensive methods. In Argentina, the federal government paid only the wage cost. The payments to workers were generally on time and not subject to any significant problem. The issue was more the availability of materials (non-wage inputs). So municipalities, particularly the poor ones, had an incentive to choose more labor-intensive projects because of the difficulty in obtaining non-wage inputs. The challenge for project management was to get the labor to do projects that had a reasonable value for communities.

Development and dissemination of labor-intensive designs, coupled with quick payments, can encourage implementing agencies to adopt labor-based methods. Where works are entrusted to private contractors, innovative incentive systems need to be developed to promote labor-intensive methods.

The reviewed experience suggests that some countries managed to incorporate many of the ideal design features of a public workfare program (see Box 1). Much can be accomplished if countries are aware of these ideal design features before launching a workfare program.

### Cost effectiveness

Four variables determine the cost-effectiveness of public works programs. These are labor intensity (the proportion of total wage bill going to poor workers), targeting performance, net wage gain (gross wages minus all costs of participation incurred by workers), and the indirect benefits flowing from the assets created. In some countries, governments require co-financing from nonpoor communities for implementing sub-projects that benefit those neighborhoods. In such instances, the budget leverage, that is, the share of the government's outlay that actually benefits the poor, can be

an additional determinant of the cost-effectiveness of the program. Ravallion (1999:34-35) defined these five variables as follows:

- (a) *Budget leverage.* The government can require co-financing from nonpoor neighborhoods for subprojects that will benefit them. Let government (central plus local) spending be  $G$ , and let this spending be leveraged up to result in a total budget of  $G + C$ , including private co-financing ( $C$ ).
- (b) *Labor intensity.* Some of the participants may not be poor, so let the share of all wages paid in total operating cost be  $(W + L)/(G + C)$ , where  $W$  is the wage received by the poor and  $L$  denotes leakage to the nonpoor.
- (c) *Targeted labor earnings.* This is the proportion of the wages paid out to poor workers,  $W/(W + L)$ .
- (d) *Net wage gain.* This is the share of the gross wage received by the poor after subtracting all cost of participation, including income forgone from other work. The net wage gain is  $NW/W$ , where  $NW$  stands for wages net of forgone income or other costs of participation.
- (e) *Indirect benefit.* Let  $IB$  denote the indirect benefits to the poor, such as when the assets created are local public goods in poor neighborhoods.

Ravallion's simulations (Table 4) show the cost of transferring \$1 of income to the poor for a typical middle-income country (with a poverty rate of 20 percent) and for a typical low-income country (with a poverty rate of 50 percent). If only current benefits are considered, the cost to transfer \$1 of income to the poor is \$5.00 for middle-income countries and \$3.60 for low-income countries. But if future gains from the assets created are also included in the benefits, the cost of transferring a \$1 gain to the poor drops to \$2.50 for both middle- and low-income countries. Nevertheless, at first sight, it appears that

**Box 1****What are the key design features of a good public works program?**

To realize the full potential of a workfare program as a poverty-reducing and risk-coping instrument, it is recommended that:

- The wage rate should be set no higher than the prevailing market wage for unskilled manual labor in the setting in which the scheme is introduced.
- Restrictions on eligibility should be avoided; the fact that an individual wants work at this wage rate should ideally be the only requirement for eligibility.
- If rationing is required (because demand for work exceeds the budget available at the wage set), the program should be targeted to poor areas, as indicated by a credible "poverty map." However, flexibility should be allowed in future budget allocations across areas to reflect differences in demand for the scheme.
- The labor intensity (share of wage bill in total cost) should be as high as possible. The level of labor intensity will depend on the relative importance attached to immediate income gains versus (income and other) gains to the poor from the assets created. This will vary from setting to setting.
- The projects should be targeted to poor areas and should try to ensure that the assets created are of maximum value to poor people in those areas. Any exceptions—in which the assets largely benefit the non-poor—should require co-financing from the beneficiaries, and this money should go back into the budget of the scheme.
- Public works should be timed to coincide with agricultural slack seasons.
- In order to encourage female participation, the appropriate form of wages is important. For example, women can benefit from piece rates or task-based wages. Sometimes wages in the form of food have attracted more women to work sites. Also, provision of childcare or pre-school services can improve participation by women.
- Transaction costs to the poor should be kept low. One important means to accomplish this is by locating project sites close to villages. It is also necessary to ensure appropriate mediation of NGOs for protecting the rights of the poor in relation to program managers.
- The program should include an asset maintenance component.

Sources: Ravallion (1999) and Subbarao (1997).

a public works program is not an inexpensive way to transfer income and consumption-smoothing benefits to the poor.

It is important to bear in mind some of the limitations of the cost-effectiveness calculations and associated simulations. First, it may be helpful to generate similar numbers for other programs and compare the cost-effectiveness ratios across programs and countries. When such a comparison is done, important limitations of the cost-effectiveness calculations of workfare programs in Table 4 will become evident. First, to the extent that a well-designed public works program is self-targeted and does not incur administrative costs of targeting, the cost savings in public works may render the

program more cost-efficient than other targeted programs. Second, other targeted programs implemented via administrative targeting may also have high costs of leakage. Subbarao and others (1997) estimate the leakage to the nonpoor from targeted food programs in several developing countries and suggest that the proportion of total transfer benefits to the poor ranges from 19 to 93 percent across countries. For food subsidy programs in India, Radhakrishna and Subbarao (1997) estimate the share of expenditure reaching the poor to be 16 to 19 percent. For housing subsidies in various countries, the same source estimated the share going to households below the median income to be between 10 and 50 percent, implying very high levels of leakage

**Table 4**  
**Cost-effectiveness of the two workfare**  
**programs under the base-case assumptions**

	Middle-income Country (poverty rate=20%)	Low-income Country (poverty rate=50%)
Budget leverage: $(G+C)/G$	1.0	1.0
Labor intensity: $(W+L)/(G+C)$	0.33	0.5
Targeting: $W/(W+L)$	1.0	0.75
Net wage gain: $NW/W$	0.6	0.75
Poor people's share of total benefits: $IB/SB$	0.2	0.25
Benefit/cost ratio: $SB/(G+C)$	1.0	0.5
Current + future gains to the poor		
per \$ of spending: $B/G$	0.40	0.41
Cost of \$1 gain to the poor	\$2.50	\$2.50
Current earnings gain per \$ of program spending: $CB/G$		
	0.20	0.28
Cost of \$1 extra current earnings	\$5.00	\$3.60

Source: Ravallion (1999).

of benefits to the non-poor. Thus, available estimates of leakage and administrative costs suggest that after a careful comparison, one might well find that *other programs might do a lot worse than public works programs in terms of cost-effectiveness* (see also section 5, table 4).

A third limitation of cost-effectiveness calculations as shown in Table 4 is that the benefits estimates consider only the transfer benefits. The risk benefits, that is, the benefits of reduced risks due to consumption smoothing, are rarely factored into calculations of cost-effectiveness. We have noted that these risk benefits may be extremely important for poor people who lack access to risk-coping instruments or who cannot afford to insure themselves against potential risks of income or consumption shortfalls. If work is easily obtained at sites closer to the homes of participants, workfare programs can be more responsive than most other safety net programs to risks of sudden shortfalls in consumption of poor households.

Fourth, the cost-effectiveness calculations shown in Table 4 take into account only the *direct* transfer benefits. Indirect benefits in terms of short- and medium-term impacts of the program on the rural market wage rate are rarely evaluated. If public

works programs offer a reasonable degree of guarantee of employment during off-peak seasons, it is possible that market wage rates for unskilled labor may increase as a result of the higher reservation wage induced by the public works program. There is only one study that estimates these indirect gains for the Maharashtra Employment Guarantee Scheme (MEGS) (Gaiha 2000). With an analytical model, the study tracks the interdependence between the agricultural market wage, the MEGS wage, and non-farm wages. The study finds that the program has had substantive indirect benefits: if MEGS wages rose by Rs.1, rural farm wages would increase by Rs.0.17 in the short run and by Rs.0.28 in the long run.

Finally, the future benefits of a public works program could be substantial. A recent study for MEGS noted that the benefits in terms of asset creation to the rural economy of Maharashtra have been considerable (Gaiha 2000).

To sum up, cost-effectiveness calculations are important, but the numbers need to be interpreted with caution. On the cost side, it is important to bear in mind the implicit savings in costs induced by self-selection. Both the direct costs and the opportunity costs need to be factored into the calculations. On the benefits side, the failure to recognize the indirect and second-round benefits as well as the direct ones may underestimate the benefits, yielding unfavorable cost-benefit ratios. Thus, a simple cost-effectiveness calculation of a works program that does not take into account the above factors might show the program to be expensive, compared to other transfer programs. But after taking into account both the direct and indirect benefits, the program may well turn out to be cost-effective.

### Implementation issues

Although labor-intensive public works programs have the potential to create short-term employment to improve risk management by poor households, several implementation issues may arise. Institutional capacity for designing and implementing public works programs is quite diverse across countries. Countries such as India and Bangladesh have over time built within-country capacity to implement public works programs, especially during

periods of crop failures. Within-country capacity to implement workfare programs is somewhat limited in African countries. International agencies (WFP, ILO, bilateral agencies) have been active in public works programs in many African countries. "Although recorded on efficiency and effectiveness appears to be mixed, some successful examples are emerging" (von Braun, Teklu and Web 1992:31). The major implementation issues are how funds flow, how projects are selected, how much self-selection participants practice, and how well the program is monitored.

Among the world's largest and best known rural and urban public works programs are India's nationwide Jawahar Rojgar Yojana (JRY) and the Employment Assurance Scheme (EAS), both designed to help ensure gainful employment for poor households and to contribute to creation of rural and urban infrastructure. The two programs are administered very differently. The JRY is administratively complex. Of the total fund made available, 75 percent is earmarked for various rural infrastructure schemes; and the rest goes to social forestry projects. All, however, are allocated to the states according to a set formula based on the proportion of poor persons residing in each one. States in turn allocate JRY funds to districts based on population shares and an index of backwardness. From there JRY funds pass down to block and village level strictly according to population shares. Unique in its decentralization—work plans and contracts are administered by the village panchayats (elected local bodies), subject to the basic program guidelines and overall clearance of the work program by the District Rural Development Authority (DRDA)—the JRY generates an estimated one billion person days of employment each year, an achievement which translates into the likely participation of some 30 to 40 percent of potential beneficiaries (World Bank 1998:38). Text should resume flush left. Thus the program is largely supply-driven, implemented by local bodies but subject to pre-determined centrally-driven guidelines. In contrast, the EAS is demand-driven. District authorities apply directly to the central administration for funding, and allocations are made based on the size and backwardness of blocks included in each district. In the EAS, unlike the JRY, the District Collec-

tor has overall responsibility for coordinating the work and allocating funds among blocks within a district.

Participatory assessments of both programs in India's largest state of Uttar Pradesh have pointed to poor implementation of the program. Decisions on who participates in the program are made by the elected officials at the village level, who often excluded members of some of the socially deprived communities in some provinces. The poor participant's perceptions of the main objective of public works programs differed from the professed objectives of these programs. For example, most poor participants perceived the JRY and EAS as infrastructure projects to build roads and bridges and not as programs intended to provide employment and income support to the poor to prevent off-seasonal shortfalls in consumption. These findings from the participatory evaluation suggest that, regardless of the differences in the flow of funds and the differing approaches of the two programs (supply-driven versus demand-driven), implementation problems persist even in the country with the longest experience.

The implementation experience of the Trajabar workfare program in Argentina has been positive. Like the Indian programs, it is a large-scale undertaking, but several factors have enabled a more effective implementation. In Argentina, there were very clear and transparent *guidelines* from the central government, leaving implementation *details* in a decentralized fashion to local and municipal authorities. The project staff were highly committed, funds were distributed across municipalities following transparent and objective criteria (according to the distribution of the poor unemployed), and there was a sharp focus on monitoring and evaluation so that problems could be identified early and dealt with. Proven project evaluation and supervision procedures were adapted from those of social funds and were successfully implemented. To further enhance transparency, the selected projects were published, as were lists of selected project beneficiaries.

In some Latin and Central American countries, including Bolivia, Honduras, El Salvador, Peru, Panama, and Nicaragua, small-scale public works projects have been implemented under the aegis of

Social Investment Funds (SIFs). Unlike India's JRY and EAS programs, these projects are submitted by the communities and thus are demand-driven. The SIFs screen the project proposals to determine viability after making a quick cost-benefit analysis. The communities themselves implement the approved projects, albeit by hiring private contractors. Many have focused on social infrastructure such as school and hospital building and repair. Most created temporary jobs lasting five to six months. In Bolivia, under the Emergency Social Fund (ESF)—the oldest of the SIF interventions—the implementation and targeting performance have been good: 77 percent of the participants came from the poorest 40 percent of the population. After the intervention, the average worker improved his income by 67 percent (Jorgenson, Grosh, and Schachter 1992). However, regional targeting in the initial stages was not pro-poor, largely because the poorest regions lacked the capacity to demand projects. But this deficiency was corrected as the program improved its geographic targeting. The ESF won praise for speedy and efficient implementation and for significant benefits to the economy. Each ESF job created an additional 1.1 jobs in the economy, and the projected rates of return on approved projects was 22 percent. Following the successful launch of ESF in Bolivia, a number of other Latin American countries (Honduras, El Salvador, Peru, Panama, and Nicaragua) introduced SIFs. Financing infrastructure through small-scale public works has been one of the main components of SIFs in all countries. Although employment generation was not the main motivation behind SIFs, many infrastructure projects did generate temporary employment lasting five to six months in some of the poorest communities. Nonetheless, all SIFs had to confront one major implementation problem—they were not responsible for the execution of the projects. The choice and implementation were left entirely to the communities. Because very poor communities lacked the capacity to develop projects, in most SIF programs, they received fewer project benefits than the relatively better endowed communities. However, the SIFs did provide an opportunity for communities to register their demands and influence project selection. Moreover, the more recent SIFs have begun to address the issue of building capacity in poor communities.

In Africa too, quite a few public works projects have been financed and sponsored by Social Investment Funds. By 1998, there were 19 public works projects implemented through social funds in 12 African countries, including Senegal, Guinea-Bissau, Madagascar, Mauritania, and Ghana (Frigenti and Harth 1998). Over half of these projects were supported by several donors in addition to the World Bank. The principles are the same as in Latin America, with project proposals prepared by communities and submitted to the SIF for approval and financing. In Mauritania, for example, neighborhood and town meetings determine priorities and select projects. Because the programs seek to work with small-scale private construction contractors, the autonomous status of implementing agencies has proved to be important for processing bids rapidly, awarding contracts quickly and without political interference, and accelerating payments to contractors. In general, SIF-led project preparation was very transparent and free from cumbersome government procedures, although there are some cross-country differences. In Senegal, AGETIP's success in implementing public works was largely due to its insulation from clientelistic politics (Marc and others 1995). In contrast, Ghana's public works project was integrated into government ministries and consequently faced delays in implementation.

It is worth stressing that public works activities under SIFs have always been typically small-scale; hence the implementation experience of these projects is not strictly comparable to national programs in Chile, India, Korea, Indonesia, or Argentina.

Line departments of governments in some African countries have implemented public works projects on a large-scale, albeit with donor funds. The main motivation of these projects is to provide food security during periods of crop failure (in Ethiopia, for example). In implementing such projects, however, evidence suggests that the public works departments of governments typically favored equipment-based methods because they were perceived to be superior to labor-intensive methods and completed the work faster. It is quite possible that in some countries, equipment-intensive projects may offer greater opportunities for rent seeking (Stock 1996).

In some countries, such as Ghana, the task of implementing public works was entrusted to private contractors. Evidence suggests that contractors have also been reluctant to adopt labor-intensive public works, largely because of the complexities of managing large labor gangs (Stock 1996). In addition, in projects financed by the government, delays in payments often discouraged private contractors from adopting labor-intensive methods. Contractors feared workers would strike if their wages were delayed due to late arrival of government funds. Labor-intensive methods were more favored in donor-funded projects where contractors received prompt payments. This contrasts with the experience of Argentina, where no such constraints were allowed to emerge.

In Zimbabwe, two major programs operated. The Food-for-Works program replaced free distribution of food in 1989. Villagers themselves selected the projects. Local food security was the primary goal, so that other aspects of the program such as quality and maintenance suffered. A second program of public works began a few years later with the primary objective of development. Technically qualified persons have begun the program with materials and tools provided by the government. In Zimbabwe, there has been much greater community participation than is often the case, and the demand-driven nature of projects should be commended.

Experience gained thus far suggests that financing arrangements and the flow of funds influence critical design features, including the labor intensity of programs. The financing arrangements in African countries are different from those found in South Asia and Latin America in three key ways. First, in much of Africa, public projects are donor funded; domestic country contributions are negligible. In Tanzania, for example, the UNDP and ILO jointly supported a labor-intensive public works program (road construction and maintenance), with contributions from The Netherlands, Germany, and Denmark. The government of Tanzania contributed 11 percent of the total cost. The early programs in Kenya and Botswana were also heavily donor-funded. The second major difference is that, in Africa, the provision of capital budgets by donors was often tied to technical assistance. The third dif-

ference is that the implementation in Africa rested largely with government departments (the Ministry of Public Works in Kenya, the Ministry of Local Government and Lands in Botswana, and the Prime Minister's office in Tanzania). Because programs were implemented largely by government agencies as part of their routine work program, little attention was paid to such details as timing of the program, monitoring, quality of roads built, and so on. For example, in Tanzania, the timing of works failed to synchronize with agricultural slack seasons. In all programs, wages are set uniformly regardless of type of work, location of work site, and variations in the work force (age, sex, education, experience, and so forth) (Teklu 1994). "The restrictive structure of pan-territorial wage rates limited the flexibility of the road programs to adjust wage rates in accordance with local labor supply conditions" (Teklu 1994:22). Teklu (1994) also notes that the long-term benefits of public works projects are much diminished in Tanzania due to poor maintenance of the assets.

One question that often arises in the implementation of a workfare program is who should be considered eligible to participate in the program. Some countries have laid down specific criteria. In Korea, for example, only one member per household, the head of the household (usually male) can participate. When the household head is receiving an unemployment benefit, the spouse (female member of the household) is not allowed to participate. In other words, although the low wage rate could have promoted self-selection, the system was not allowed to operate because of additional restrictions on participation. Once the wage rate fixed is low enough to promote self-selection, the decision of whether or not to participate, and who should participate (male or female member of the household or both) should be left to the household. Often many countries do not follow this principle.

Another problem is lack of capacity in many African countries. When programs are donor-funded and short-term (typically for three or four months following a drought), domestic capacity is unlikely to be built. In this respect, the experiences of India and Bangladesh are worth contrasting with the experience of African countries. In both Bangladesh and India, most public works projects

operate throughout the year, albeit with seasonal ups and downs in coverage. As a result, much domestic capacity is created over time. When capacity is unknown, which is often the case in some countries, designers of public works programs may find it useful to initiate a pilot phase during which the implementing agency's capacity can be tested and lessons drawn. Projects that rely chiefly on government agencies and ministries for sub-project identification and implementation are most likely to suffer from delays and limited capacities (technical, administrative, financial, and participatory).

When many donors implement different public works programs in the same country, lack of coordination unduly stretches scarce administrative capacity, so that the coverage of these programs is often neither extensive nor deep. Most public works projects in Africa do not have clear criteria for initi-

ation, expansion, contraction, or dissolution. Far from being a guarantee, or being there when needed, public works have operated in much of Africa only when donor funding was available. Fragmented coverage and weak capacity to respond in times of need undermine the credibility of public works programs to perform an insurance function for the poor of Africa. In all countries, and particularly in Sub-Saharan countries, assured funding, community participation, sound technical assistance, and proper understanding of societal structures and communities where projects are located can vastly improve the effectiveness of the workfare program as a risk-mitigating intervention.

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1. The main reason is that the detailed design features and cost-effectiveness aspects of workfare programs implemented under the rubric of Social Investment Funds are not available.

# 5

## Evaluation of Public Works Programs: Impacts on Poverty and Welfare

**E**valuations of workfare programs in general, and of MEGS in particular, suggest that it is possible for governments to use workfare to bring significant transfer and stabilization benefits to poor households.

### Targeting performance

As for targeting outcomes, nearly 100 percent of participants in Chile's public works program belonged to poor households. In India (in both the nationwide program and MEGS) and in Argentina's Trabajar program, 60 to 70 percent of households participating were poor. India's National Sample Survey results for 1993-94 contain data about household participation in three key safety net programs: public works schemes the Integrated Rural Development Program (IRDP, a micro finance program), and the Public Distribution System (PDS), a food subsidy program. By collating the data on program participation with the data on total consumption expenditure per person at the household level, it is possible to determine the current distribution of benefits from public spending across income groups for the programs. Research by Lanjouw and Ravallion (1998) shows that the poorest quintile is well served by public works programs, with the credit program (IRDP) in second place, and the food subsidy program (PDS) doing least well in reaching the poor (Table 5).

Even in middle-income countries such as Argentina, workfare programs have served as

useful safety nets during a macro economic crisis. Survey-based impact evaluation methods were used to assess the gains to participating workers and their families from the Trabajar program in Argentina. Propensity-score matching methods were used to construct a comparison group to survey Trabajar participants from an identical national sample survey implemented at the same

**Table 5**  
**Marginal odds of participation for India's main antipoverty program in rural areas**

Quintile	Public works programs	Integrated Rural Development Program	Public Distribution System
1 (poorest)	1.16 (3.27)	1.11 (15.49)	1.06 (8.14)
2	0.93 (3.64)	1.28 (17.73)	0.99 (7.26)
3	0.80 (2.98)	1.21 (23.52)	0.91 (6.88)
4	0.92 (4.32)	0.96 (19.09)	0.86 (7.16)
5	0.55 (3.29)	0.39 (8.06)	0.81 (6.27)

Note: The table gives the instrumental estimates of the regression coefficients of the quintile-specific program participation rates across regions on the average rate by state for that program. The leave-out mean participation rate is the instrument for the actual mean. The numbers in parentheses are t-ratios.

Source: Lanjouw & Ravallion (1999:269). Calculations based on the 1993-94 National Sample Survey.

time. Income gains were then estimated by comparing incomes of the Trabajar participants with those of the matched comparison group. The results have indicated that Trabajar jobs were well targeted to the poor. For example, 80 percent of participating workers come from families with an income per capita that places them among the poorest 20 percent of the national population and 60 percent come from the poorest decile (Jalan and Ravallion 1999).

A good evaluation of the experience of public works in South Africa is now available (Adato and others 1999). The outcomes on targeting performance appear to be somewhat mixed. Using socio-economic data at the district level, the study found that some districts with very high levels of poverty and unemployment had no projects, while some with low levels of poverty had received several. Though women were among the main target groups, only 23 percent of employment generated went to women.

In The Philippines, largely because of a relatively high wage rate (cash plus in kind), participants in public works projects appeared to come from marginal poor and non-poor families rather than from

ultrapoor families (Subbarao, Ahmed, and Teklu 1996).

### **Social gains**

It appears that well-designed workfare programs have the potential to confer significant social gains. For example, India's Maharashtra Employment Guarantee Scheme (MEGS) was designed to encourage the participation of women. Employment was provided within five kilometers of the place of residence, creche facilities were provided, and male-female wage discrimination was eliminated. Close to half of participants were women. Datt and Ravallion (1992) have quantified the impact of the program and found that the severity of poverty has fallen from 5.0 percent to 3.2 percent, owing to participation in the MEGS. In addition to economic (transfer) gains, Dev notes social gains: "The MEGS also discourages sexual barriers and inequality.... Women now dress better and their economic power has given them a better status in their families" (Dev 1996:54).

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## How to Plan, Implement, and Evaluate Public Works Programs: A Synthesis

**F**igure 3 provides a schematic view of the considerations that should be borne in mind at different stages in the planning of public workfare programs.

First, it is important to begin with adequate sources of financing. If funding is from general tax revenues, it is useful to consider competing demands for the generation of public goods vital for the welfare of poor households. Second, technical feasibility, wage rate and mode of payment, choice of projects, and community involvement must be considered. Third, it is necessary to consider how the choice of projects and the wage rate will affect targeting effectiveness in particular and the labor market in general. Fourth, the program's potential for stabilization gains and improved risk management of poor households needs to be borne in mind. Finally, it is important to consider the distributional impacts, second round employment effects, gender impacts, and cost effectiveness. Other spin-offs such as community mobilization, women's empowerment, and other social gains need to be considered.

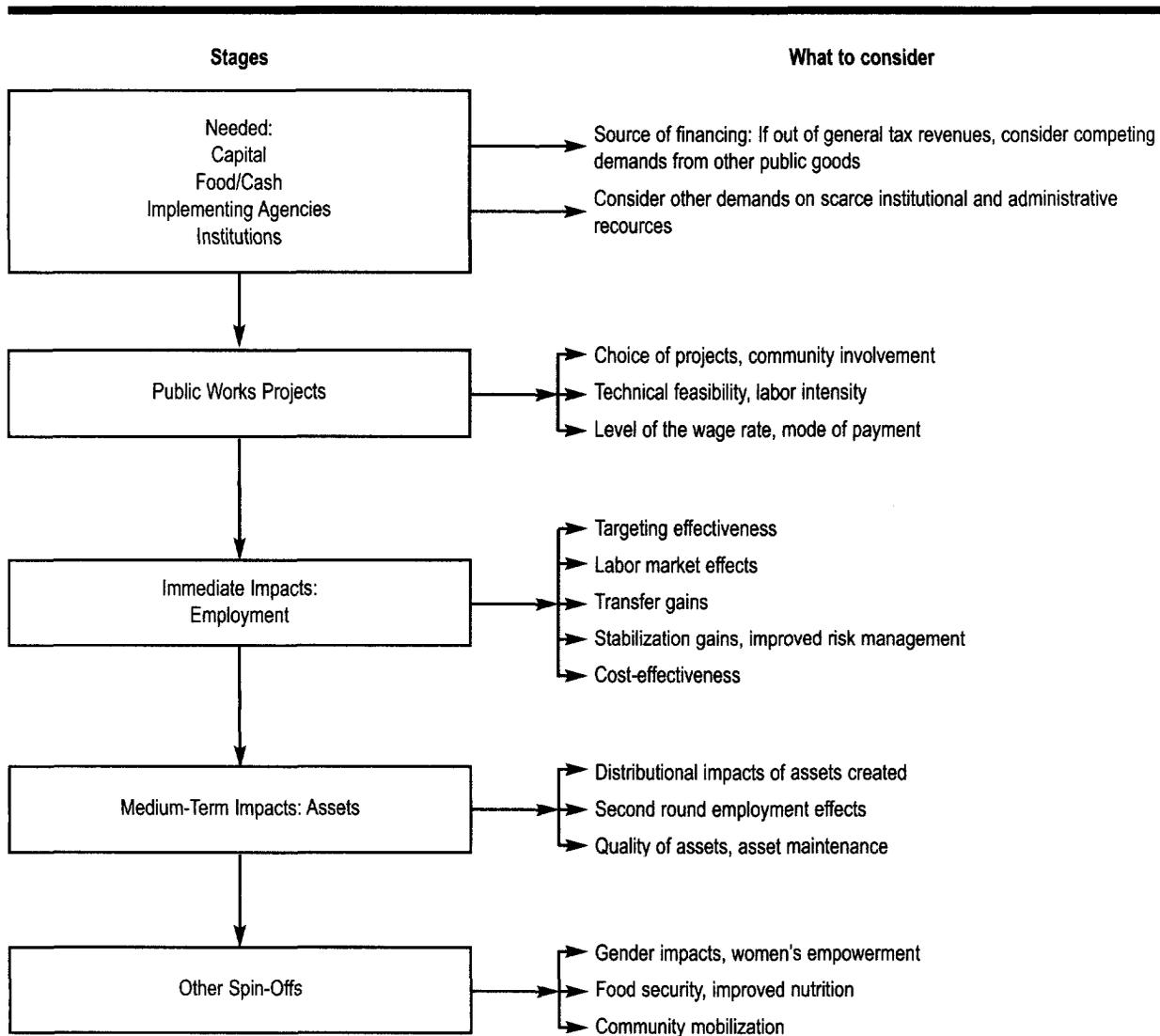
In designing and implementing the program, four general conclusions from the reviewed experiences need to be borne in mind:

- (a) The level of the wage rate is critical for determining both the distribution of bene-

fits from the program and its targeting effectiveness.

- (b) The timing and duration of employment often determine the stabilization gains from the program. It is important to remember that even if transfer benefits are small, the program's stabilization (risk) benefits could be large, especially in economies subject to periodic natural disasters.
- (c) The program can be designed to attract more women participants, achieve a greater degree of involvement by the private sector or non-governmental agencies, and lower the transaction costs of participation by the poor.
- (d) In order to achieve an acceptable level of cost-effectiveness, it is very important to pay attention not only to the level of the wage rate but also to the degree of labor intensity, the quality of the assets created and extent to which the poor actually benefit from the created assets, and the second-round employment benefits arising out of the assets created.

**Figure 3**  
**Designing and implementing public works**



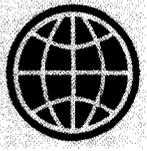
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In much of Sub-Saharan Africa, poor households are exposed to risks ranging from natural disasters to sudden changes in economic policies. One immediate result of such shocks is the loss of employment and livelihood. In this context, public workfare programs, which typically provide short-term, unskilled manual labor employment on projects such as road construction and maintenance, have been important counter-cyclical interventions in many regions, including Sub-Saharan Africa for several decades. In the developing world in general, and in Africa and Asia in particular, public works programs have been significant policy instruments to mitigate the impacts of climatic and systemic risks on poor farmers and unskilled and semi-skilled workers.

*Systemic Shocks and Social Protection: Role and Effectiveness of Public Works Programs* discusses the rationale of workfare programs in the context of social risk management, outlines the design features of a “good practice” workfare program, and provides an overview of African and Asian experiences with respect to a number of design features, including the wage rate, labor intensity and project selection and implementation. The paper also reviews estimates of cost-effectiveness and available evaluations of effectiveness, and finally draws some lessons from experience. It is hoped that the study will be of use not only to Bank staff but also to governments interested in reforming their existing programs or embarking on new workfare programs.