

PN-AAU-889

Best available copy -- page 4 missing

PP: 889 62
151 64 895

**JEANNE MARKUNAS
AID/FVA/FFP/POD
ROOM 441 SA-8**

FOOD AID, FOOD FOR WORK AND PUBLIC WORKS*

by

Simon Maxwell

DP 127

March 1978

There has been experience in many countries with public works programmes of various sorts, and in a high proportion of cases public works have been underwritten by aid. Some of the aid has been food aid and some of the food aid has been paid directly to workers as wages in kind. There is therefore a clear and close relationship between food aid, food for work and public works. But public works are not dependent on food aid, although at the margin food aid may help to avoid inflationary effects (Section II); and if the two are linked in practice this does not imply any necessity to adopt the food for work mode, which is probably less desirable for most types of public works than payment in cash (Section III). General support of public works may however be a good way to deploy food aid, particularly if public works can come closer to meeting their employment, investment or community development objectives (Section IV).

* This paper was originally a contribution to a study on the impact of food aid commissioned by the World Food Programme from Professor Hans Singer; the views expressed are of course those of the author alone, but thanks are due to Percy Selwyn and Chris Stevens for discussion and comment, and particularly to Hans Singer for guidance, encouragement and constructive criticism.

11

FOOD AID, FOOD FOR WORK AND PUBLIC WORKS

I

There has been experience in many countries with public works programmes of various sorts, and in a high proportion of cases public works have been underwritten by aid. Some of the aid has been food aid and some of the food aid has been paid directly to workers as wages in kind. There is therefore a clear and close relationship between food aid, food for work and public works. But public works are not dependent on food aid, although at the margin food aid may help to avoid inflationary effects (Section II); and if the two are linked in practice this does not imply any necessity to adopt the food for work mode, which is probably less desirable for most types of public works than payment in cash (Section III). General support of public works may however be a good way to deploy food aid, particularly if public works can come closer to meeting their employment, investment or community development objectives (Section IV).

The multiplicity of objectives suggests that the term "public works" may well cover a number of different phenomena and indeed activities can be found described as public works which range from construction activities at one extreme which are indistinguishable from "normal" public investment, to those at the other extreme which are essentially voluntarily supported community development undertakings. What all public works tend to have in common are two characteristics: first, they are specifically designed to reduce unemployment or to make use of a 'labour surplus', maximising employment in the short term and to a varying extent concerning themselves with the creation of permanent jobs. And secondly, public works are in practice nearly always "additive", designed as programmes which will
"not operate to the detriment of the
normal forms of investment"^{1/}
and which will not

1/ Tiano (1972) p.117

"impede the economy's longer term
rationalization"^{1/}

There is an emphasis in much of the literature on obtaining labour cheaply or even free,^{2/} but cheap labour cannot be considered a universal characteristic since many public works programmes have historically paid market rates to labour and some have even paid above-market incentive wages.^{3/} There is also emphasis on the seasonal nature of public works programmes^{4/} but again many programmes operate throughout the year and this cannot be considered an essential characteristic.^{5/}

A definition of public works in these terms, as additive programmes to reduce unemployment, raises a number of problems. It implies that there can be labour-intensive construction activities in the public sector which are not public works, either because they do not have specific employment objectives, or because they are part of a mainstream development programme; and it implies that unemployment or underemployment in the economy leads to a weight on employment in the analysis of some projects, but not in others. Thus an IBRD paper specifically excludes from its definition of public works

"public sector construction works not undertaken as part of a special employment creating programme, even though these may use labour-intensive methods"^{6/}

and later shows that three-quarters of the case studies analysed

-
- 1/ Lewis (1972) p.92. The term "additive" is taken from this paper. See also Costa (1973b).
- 2/ See eg Ardant (1963), Tiano (1972), Jackson and Turner (1973).
- 3/ WFP (1976c) p.5, UN (1975) ch.8.
- 4/ Costa (1973b), ILO (1972).
- 5/ See eg Govt of India (1973), Grissa (1973).
- 6/ IBRD (1976) p.1.

are executed in a policy environment which is generally unfavourable to employment.^{1/} If public works activities are similar to other undertakings in the economy it makes little sense to consider them separately, except to the extent that they may be separately administered: this may or may not lead to greater efficiency but in any case the value of separate administration is not the variable being studied and an analysis of the employment and income distribution effects should logically cover all labour-intensive construction activities. Similarly, the impact of public works in the long run is unlikely to be significant if there is a bias against employment elsewhere in the economy. Many studies have emphasised for example that while public works may redistribute income they rarely redistribute assets, so that their impact on self-sustaining employment is less than it might be;^{2/} and others have shown that a significant part of the increased demand which results from public works will occur in non-agricultural sectors^{3/} where labour intensity may be low. It follows that public works on their own, in the absence of a generalised policy to promote employment, suffer serious handicaps.

Nevertheless, many countries have experimented with programmes of public works. Lewis has commented that with respect to total size and impact on unemployment,

"for the most part rural public works initiatives ... have been exercises in the trivial"^{4/}

but still the IBRD paper referred to above was able to review programmes in fourteen countries^{5/} and there is material

^{1/} IBRD (1976) p.21.

^{2/} Godbole (1973); Sobhan (1966) ch.6; IBRD (1976) p.49ff; Lewis (1975) p.22ff.

^{3/} Dandekar and Rath (1971), Beringer (1964). See also Section II below.

^{4/} Lewis (1975) p.10.

^{5/} IBRD (1976) covers Afghanistan, Bangladesh, Brazil, Colombia, Ethiopia, India, Indonesia, Jamaica, Mauritius, Morocco, Pakistan, Republic of Korea, Trinidad-Tobago and Tunisia. This list claims to include "all significant programmes of the last 15 years" with the exception of those in socialist countries. A bibliography on these programmes is to be found in a manual by two of the authors, USAID, (1977).

internally funded.

But the relationship between public works and aid has received a great deal of attention both in the public works literature and the food aid literature and is therefore examined in more detail in Section II.

II

The case for linking public works to aid in general and to food aid in particular rests on the argument that a large works programme will generate additional demand and that this is likely to result in inflation or a Balance of Payments deficit unless offset by aid. Some of the extra demand will be for food, hence the acceptability of food aid; and some will be for other goods, hence the desirability of complementary aid in cash or commodities. The food aid literature deals mainly with the aid implications of this argument, concentrating on the desirable ratio of food aid to non-food aid;^{1/} but the public works literature devotes more attention to the logically prior question of just how serious the inflationary threat is likely to be.^{2/} This is important because if inflation is not a serious problem then aid may not be required and may not even be desirable: food or commodity aid given in the absence of inflationary pressure could have a deflationary and disincentive effect.

It is certainly true that the resource constraint is a concern running through the literature on public works. Lewis for example, has argued that

"food scarcities have been a major inhibitor
of major public works ventures in the past"^{3/}

and other observers have expressed concern about the budgetary

^{1/} See particularly FAO (1955), Beringer (1964), Dandekar (1965), Chakravarty and Rosenstein-Rodan (1965) and Srivastava et al (1975).

^{2/} See particularly Nurkse (1953), Dandekar and Rath (1970), Lewis (1972), UN (1975). A parallel argument could be pursued on the balance of payments question.

^{3/} Lewis (1975) p.14.

implications for government,^{1/} the dangers of diverting scarce investment resources from higher priority uses^{2/} or the importance of taking action to increase savings.^{3/} Whether the constraint is real or not, it is perceived as such and is therefore a factor in policy making.

In practice, the inflationary threat will materialise to the extent that demands are created which cannot be satisfied: if the increase in demand can be offset by additional savings or taxation or if the supply of goods is elastic in the short run then the inflationary impact will be small. It is for this reason that recommendations to undertake public works have often been linked with proposals for increased taxation, either of non-beneficiary groups through taxes on luxury goods^{4/} or of the beneficiary groups themselves if there are farmers reaping windfall profits.^{5/} There is however a danger in arguing, as do Jackson and Turner (1973) and Lewis (1972), that aggregate demand can be left unaffected if public works are financed by additional resource mobilisation. As Dandekar and Rath (1970) point out, taxation of the rich is unlikely to affect significantly their demand for the "commodities of common consumption", so that although total aggregate demand may remain unaffected, there may be a significant increase in the demand for certain products, notably food.^{6/} A further problem is that public works may cause demand to rise in particular areas even where the real resources are provided at the national level by government action. To this extent even a programme financed internally may pose an inflationary threat in certain sectors or in certain areas.

The maximum extent of this threat can be calculated by assuming that no additional resources are available and that a public works programme is financed by a budget deficit. In

^{1/} eg Ardant (1963), Arlès (1966).

^{2/} eg Tiano (1972).

^{3/} eg UN (1975).

^{4/} Dandekar and Rath (1970).

^{5/} Arlès (1966)

^{6/} Imports of luxury goods may fall however, permitting greater imports of food.

this case the change in aggregate demand depends on the money multiplier and the change in demand for particular products on the marginal propensities to consume of income recipients in various rounds. Dandekar calculated for India that expenditure on the wages of a public works programme would in the absence of food aid lead to final demand five times the size of the original outlay, with about a quarter of this being directed to food items of the sort normally supplied by food aid;^{1/} and with different assumptions Beringer calculated for Pakistan that the multiplier might be around 8 with perhaps 30% being directed to surplus-type foods.^{2/} Impact at the regional level would normally be less than this because of leakages to other regions of the country and in any case not all the increase in demand would occur at once because of the need for demand to work through various rounds. The potential inflationary threat depends crucially on how quickly these rounds follow each other: the original FAO study on the use of surplus commodities assumed three rounds of expenditure in a year and calculated that two-thirds of the derived demand would occur in the first year;^{3/} more recent work by Srivastava et al (1975) used alternative assumptions of 3 or 4 months for the income-expenditure lag and calculated from this that 94-97% of the derived demand would occur within the first year.^{4/} So in the absence of food aid or extra taxation, public works are likely to lead to an increase in demand of some 5-8 times the original expenditure, with about 1/4 - 1/3 of this being for food products of the surplus type and with most of the demand occurring in the first year.

Before turning to the question of how food aid can dampen this demand it is necessary to examine the other condition which determines whether or not public works are inflationary, namely the question of whether goods and services can be supplied to meet the demand. Obviously, this will depend on the state

1/ Dandekar (1965) p.48.

2/ Beringer (1964) p.25 and table II-1.

3/ See eg FAO (1955) p.10.

4/ Srivastava et al (1975) p.27.

of the economy in general, the supply elasticity of particular products and of course the size of the works programme itself: one reason why many public works programmes have not been inflationary has very little to do with the provision of aid but a great deal to do with the fact that the extra demand they have generated has been small relative to total demand! This may be true even of quite large programmes: Dandekar and Rath, for example, calculated that a programme designed to raise 30% of the Indian population up to minimum consumption standards would add only 5.6% to total expenditure and 5.4% to consumption of food-grains.^{1/} But even if the increase in demand is large, either because the programme itself is large or because there is no additional taxation, it may be that supply would adjust more quickly than is sometimes argued, thus dampening any potential inflation. This could be for one of three reasons: first, it might just be that supply is elastic at the going price for example if surplus capacity exists which can be brought into operation quickly, a remote possibility as far as food is concerned, but a real possibility in some countries for other mass consumption goods, notably textiles. Secondly, there might be large stocks of consumer goods available which can be run down to meet increased demand in the short run: this is particularly applicable to stocks of food and there are documented cases of food stocks helping to prevent inflationary effects of public works.^{2/}

Thirdly, there is the often neglected possibility that public works themselves will lead to increases in supply, as a result of investment in agricultural development or rural infrastructure. The original FAO report dealt with the potential of projects with a rapid pay-off^{3/} but the analysis of the demand implications of public works has more often been static.^{4/} An exception is provided by Srivastava et al who emphasise

"the additional shift in the supply curve directly related to the use of the labour provided for the (works) project"^{5/}

1/ Dandekar and Rath (1970) Table 8.2 p.141.

2/ See eg Reynolds and Pushpa (1977) p.1158.

3/ FAO (1955) chs IV and VIII and Appendix 3.

4/ See eg Beringer (1964) p.32;

5/ Srivastava et al (1975) p.57.

and calculate the effects of alternative compositions of investment and alternative rates of productivity. Their analysis provides for funding by food aid, but in nearly every case the increase in supply actually causes prices to fall!^{1/}

So it appears that the inflationary danger posed by public works may have been exaggerated. It depends on a government being unwilling or unable to raise domestic taxation and on the supply of consumer goods being inelastic both with respect to the existing productive capacity of the economy and to the capacity created by the public works. Without entering into a review of the world's economies it does seem plausible to suggest that the constraints on public works may not always be insurmountable with domestic resources particularly if the public works increase output. To provide aid under these circumstances might be said to raise the spectre of disincentive effects, of the price or policy variety.^{2/}

But assume, with the FAO study, that a country is doing "all that it possibly (can)"^{3/} with respect to domestic resource mobilization, and that supply of consumer goods is inelastic. Then aid in general can provide the real resources and prevent any inflation taking place. Because aid represents a leakage from the economy it acts to reduce the multiplier with a corresponding dampening of the impact on demand. Food aid, of course, only meets that part of the demand which is for food, and attention has been focused in the literature on just what part this is. For reasons which are largely administrative the amount of food aid is often presented as a proportion of project cost, but for the purposes of assessing inflationary potential the important measure is food aid as a proportion of total demand generated. Table 1 presents alternative estimates of both measures:

1/ Ibid. p.60.

2/ Isenman and Singer (1977).

3/ FAO (1955) p.4.

Table 1

Alternative estimates of demand resulting from investment in public works (with food aid)

	<u>Investment</u> (units)	<u>Total demand generated</u> (units)	<u>of which food</u> (multiplier)	<u>Food as % demand</u> (units)	<u>Food as % I</u> (4+2x100)	<u>Food as % I</u> (4+1x100)
	(1)	(2)	(3)	(4)	(5)	(6)
FAO (1955)	100	161	1.6	48	30	48
Dandekar (1965) (a)	100	232	2.3	67	29	67
(b)	100	276	2.8	56	20	56
Beringer (1964)	100	204	2.0	65	32	65
Srivastava et al (1975) (a)	100	128	1.3	58	45	58
(b)	100	168	1.7	44	26	44
(c)	100	195	1.9	36	18	36

Sources and notes FAO (1955) p.57. Uses Indian data.

Dandekar (1965) pp.48-52. Variant (b) differs from (a) in that recipients of derived demand have a lower MPC. Uses Indian data. Investment in wages only.

Beringer (1964) Table II-1 p.27 and II-2 p.26. Uses Pakistani data, includes some non-food commodities in aid package.

Srivastava et al (1975) pp.22-36. Variants are for low (a), medium (b) and high (c) income countries.

Although the estimates of the role that food aid can play in damping demand vary substantially, as can be seen from columns 5 and 6 of Table 1 this is largely because slightly different assumptions are used in each case and not because the basic methodology is different. Thus Dandekar's estimates are concerned only with wage payments and not with the non-wage costs which he estimates (p.44) might account for 50% of total cost. If these were domestically purchased there would be a further multiplier effect, but if they were imported they would count as a leakage and would have no second-round effect. In this case food demand as a percentage of investment would fall to 33% and 28% in cases

(a) and (b) respectively but food demand as a percentage of total demand would remain the same. Beringer's estimate is based on Pakistani data and computes the effect of a bundle of PL480 commodities which includes some non-food goods; he also differs from other studies in assuming that the marginal propensity to consume food of second-round recipients is the same as that of first-round recipients^{1/} - all the others assume it is lower and therefore derive a smaller role for food aid.

Srivastava et al introduce two new ideas: first they calculate different figures for countries with different levels of per capita income - \$75, \$250 and \$450 in variants (a), (b) and (c) respectively; and secondly, they estimate the effects of re-investing savings generated by the public works. The second measure has the effect of increasing food demand, but as can be seen from Table 1, total food demand declines rapidly as per capita income rises.

Whatever the exact figures for any particular country, two conclusions are self-evident. The first is that the multiplier is heavily damped by the use of food aid to meet food demand generated by public works - allowing for the non-wage component of investment in Dandekar's figure, it can be seen from column (that the maximum multiplier is reduced to 1.9, with a more typical figure for low income countries of 1.2 - 1.6. The second conclusion is that whatever the multiplied demand, food aid is only able to meet a part of it, somewhere between 18% and 45% depending on the propensity to consume of recipients in various rounds - though the proportion of total investment that can be financed is higher, between 1/3 and 2/3.

finally however
Before these conclusions can be/accepted,/two counter-arguments must be dealt with. The first concerns the relative benefits derived by different sections of the community. Dandekar has argued that

"food surpluses, when used for financing works projects, in effect turn out to be an instrument for taxing the domestic producers of similar commodities and ... it is the sacrifices of these producers that in fact finance a large part of the real cost of such projects"^{1/}

Dandekar goes on to suggest that for this reason food aid should not be used to finance public works but his argument depends principally on the fact that while the money incomes of food producers remain unchanged

"the prices of other consumer goods which these people must buy rise, and the real incomes are reduced".^{2/}

It could be argued that it is not a bad thing to tax surplus farmers in this way, but in any case it is not clear that a rise in prices necessarily accompanies public works: it has been argued above that supply may well be more elastic than sometimes thought and if it is not, then aid in the form of cash or other commodities could reduce the inflationary risk.

A more serious problem is raised by Srivastava et al (1975) who explore the impact of increased supply produced by public works on producer incomes. They assume that food aid increases domestic supply by 5% and calculate the effect of devoting 50% or 100% of projects to agriculture with increases in agricultural productivity of 2%, 5% and 10%. Their findings are reproduced in Table 2 and the conclusion drawn is that

^{1/} Dandekar (1965) p.54.

^{2/} Ibid.

"the use of PL480 commodities to finance work projects is estimated to have a negative impact on income to agricultural producers ranging from 2.4% to 9.9%, depending on the location and productivity of projects."^{1/}

This would seem to provide an argument against financing public works by food aid: the implication is that in the absence of food aid agricultural supply and incomes would both rise. However, some doubt can be cast on the assumptions underlying the partial equilibrium model on which this analysis is based. First, the analysis seems to be based on the questionable assumptions that

Table 2

Impact of work projects on agricultural prices, supply, and income

Income level of labor force	Impact variable	Expected supply increase					
		50% of projects in ag.			100% of projects in ag.		
		2(1)%	5(2½)%	10(5)%	2%	5%	10%
\$75	Price	-2.4	-3.4	-5.1	-3.1	-5.1	-8.3
	Supply	0.0	1.0	2.7	0.7	2.7	6.1
	Income	-2.4	-2.4	-2.5	-2.4	-2.5	-2.7
\$250	Price	-3.7	-4.9	-6.9	-4.5	-6.9	-10.6
	Supply	-0.2	0.4	1.9	0.0	1.9	5.0
	Income	-3.9	-4.5	-5.1	-4.5	-5.1	-6.1
\$450	Price	-4.9	-6.4	-8.7	-5.9	-8.7	-13.1
	Supply	-1.1	-0.3	1.0	-0.6	1.0	3.7
	Income	-6.0	-6.7	-7.8	-6.5	-7.8	-9.9

Source: Srivastava et al (1975) p.60.

Note: Food aid increases domestic supply by 5%.

the only cost of the programme is food and that this is distributed in a food for work mode which reduces consumption of domestic agricultural commodities; and secondly, partly following from the first assumptions, no allowance is apparently made for multiplier effects on food consumption. Thirdly, there is no possibility in the model either for export or for reallocation of production to other, non-food or non-competing crops, both of which would act

^{1/} Srivastava et al (1975) p.60.

to maintain incomes and prices. Too much weight need not therefore be given to the specific figures in Table 2.

But the caveats raised by Dandekar and by Srivastava et al are important in a general way: if domestic producers are insulated from the effect of a works programme by virtue of the fact that all extra food demand is met from aid and if incomes rise elsewhere in the economy as a result of public works, then their relative position may deteriorate; if supply increases as a result of public works and if there is no extra demand because this is met from aid and there are no exports, then prices are likely to fall. It follows that food aid in these circumstances is having a deflationary impact and that if this is to be avoided food aid should be reduced to the extent that supply increases.

This is a modification to the general conclusion drawn earlier, but it does not invalidate the basic proposition that food aid can play a significant role at the margin in preventing inflation. Before turning to the way in which food aid might be deployed in this role, it remains to examine briefly the impact that public works have in practice had on prices. Briefly, because this is not a topic discussed in great detail in the literature, indicating perhaps that it is not perceived as a problem, or is difficult to ^{test empirically.} The IBRD Review discusses the issue in a general way and concludes that

"given the size of most income augmenting programmes, there should be no important wage goods constraints or strong inflationary pressure on food prices"^{1/}

But this conclusion is based principally on the fact that public works programmes have been small and the study suggests that in the case of larger programmes, such as the Tunisian programme in the early 1960s which accounted for 5% of GDP (1962), there

"might well have (been) strong inflationary effects in the absence of food aid or foreign food purchases"^{2/}

Here, however, the study assumes that the programme was financed externally, with no cut-back in domestic urban consumption and

^{1/} IBRD (1976) p.26.

^{2/} Ibid.

no increase in taxes: as argued earlier, the inflation inherent even in a programme of the size of Tunisia can be offset in part by additional taxation or savings.

At regional or local level the inflationary danger may be greater if local supply is inelastic and transport is a bottleneck. There is some evidence from North East Brazil that the payment of labour on public works may have driven prices up and Costa reports that

"speculation developed around the (works) and the prices of several basic commodities, particularly beans, were higher than in towns"^{1/}

On the other hand, the Brazilian scheme was essentially drought relief and there are reports from Maharashtra, India, that the longer-term Employment Guarantee Scheme did not put pressure on prices because of adequate food stocks and underutilized capacity in consumer good industries. It should also be noted that this scheme is not backed by aid but is financed from within the state, half by extra taxation and half by diverting funds from other sources.^{2/}

In general, one would not expect to find public works leading to rapid inflation, because they have usually been small, because there are internal offsetting mechanisms, notably savings and taxation, because supply is often elastic and because in many cases aid has been available to meet any excess demand. Though the role of food aid is smaller than sometimes argued, it can be useful at the margin if domestic resources have been fully mobilised, if supply is inelastic and if it can be given without unwanted adverse effects on domestic producers. To avoid dependence preference should be given to projects which increase agricultural output or earn foreign exchange. If these conditions do not hold then food aid should be withheld and public works should proceed independently. If they do hold then the question is how to disburse food aid - directly on food for work projects or indirectly on the market. This is taken up in Section III.

^{1/} Costa (1974) p.17.

^{2/} Reynolds and Pushpa (1977). See also Guha (1975).

III

There is a considerable literature on food for work, much of it generated by the World Food Programme.^{1/} The general thrust of this literature is that food for work is useful, that it reaches the poor and that it counters the capital-intensive bias of many development programmes. Thus one report concludes that

"WFP has made, and is making, a valuable contribution to the utilization of food aid to generate additional income and employment, particularly for the poor who are more likely than others to find the terms on which WFP-supported projects offer employment acceptable; most of these projects therefore tend to make for greater equality of income distribution. The programme tends to counteract widespread biases in favour of capital-intensive technology, and to promote a labour-intensive development pattern, though this is not to say that fuller employment, and fairer income distribution, are its only objectives. It has directly provided employment for something of the order of six million people. Analysis shows that there must also be quite considerable indirect income and employment effects ...^{2/}

Whatever the general validity of these conclusions, a topic to be considered in the next section, they contain one crucial flaw: they treat food for work in a vacuum and as the only way to deploy food aid, instead of comparing alternative methods of distribution and assessing the relative place of food for work in a public works strategy. Effectively they treat of the merits of public works as an anti poverty strategy and not of food for work as one tactic to implement that strategy.

This is important because where food for work has been compared to other types of public works the comparison has often been unfavourable to food for work. In the first place, it has been

1/ See particularly Costa (1973a), WFP (1973b), WFP (1976c).

2/ WFP (1976c) p.43.

argued that using the food for work mode leads to greater costs and imposes greater administrative burdens on government than does paying workers in cash and relying on the market to supply the foodstuffs supported if necessary by food aid. The IBRD Review, based on experience of six food for work programmes, concludes that

"the problems of importing, transporting, storing and eventually distributing commodities to labourers can increase the administrative costs of public works programs by between 25 and 50 per cent"^{1/}

It is not clear whether this figure includes the cost of shipping, in which case it would apply to any food-aid assisted programme, or whether it applies specifically to food for work. But other authors have made the same general point: Thomas, for example, reports that in the case of the E.Pakistan rural public works programme in 1962/63

"the idea of paying wages in wheat was rejected"^{2/}
because of transport, storage and distribution problems; and Lewis, reviewing experience in six countries argued that

"a requirement, however well intentioned, that aid commodities be physically distributed to public works employees as wages in kind can be a considerable nuisance to recipient governments, complicating the administration of public works programmes and cluttering up the efforts of the countries to monetize and rationalize their markets"^{3/}

A second argument against food for work has been that the commodities distributed as payment in kind are often unpopular. Grissa reported from Tunisia that the food portion of wages was often sold at a discount or even thrown away, although it represented up to 30% of the value of the wage, and suggested that this was because

"From the workers' point of view ... the subjective value of their wages is less than that given by

^{1/} IBRD (1976) p.48.

^{2/} Thomas (1971) p.204.

^{3/} Lewis (1972) p.105.

market estimates. This is so ... not only because of the loss of choice involved in payment in kind and the inconvenience of some of the products included in the ration, but also because many of these products are inferior to those sold commercially"^{1/}

The IBRD study confirms the inconvenience involved in payment in kind with reference to Morocco where

"a worker would be faced with the difficulty of transporting 200 to 300 kilos of food from a central warehouse to his home"^{2/}

A third argument has been that working for food is regarded as degrading by labourers. Grissa reported that

"it is only when driven by extreme hardships and lack of hope of finding work elsewhere that men resort to working in the food for work projects"^{3/}

Similarly, Stevens has reported an FAO survey in Botswana which showed that food for work was not highly regarded^{4/} and the IBRD paper reports that in three cases "the food offered did not attract an adequate number of workers, so cash payments had to be added"^{5/}

And finally, a fourth argument, related to most of those above, has been that payment of wages in kind leads to discontent and therefore to lower productivity than on other public works schemes. Discontent is reported from a WFP project in Bangladesh where a fall in food prices led to a decline in the real value of the WFP ration^{6/} and IBRD (1976) also note the discontent attendant on food for work. With respect to productivity, many

1/ Grissa (1973) p.164.

2/ IBRD (1976) p.48.

3/ Grissa (1973) p.165.

4/ Stevens (1976) pp.29-30.

5/ IBRD (1976) p.48.

6/ WFP (1976b).

studies have confirmed that productivity on food for work projects is very low,^{1/} though it is not clear whether it is necessarily lower than on other public works schemes: low productivity, work norms and incentive schemes are a major preoccupation of all the public works literature.^{2/}

Indeed, this is a general point: it can plausibly be suggested that much of what is wrong with food for work is wrong with all public works. As regards delay in payment, for example, Apte has reported that on the Crash Scheme for Rural Employment in Maharashtra, cash wages were often paid two weeks late and that this was a source of irritation to workers (Apte 1973). Similarly, the unpopularity of public works extends beyond food for work: Rodgers concluded from his study of public works in Bihar that it was not a preferred option despite relatively high cash wages:

"it is clear that there are groups of labourers who are unlikely to supply labour to earthwork under any conditions ... a variable but significant proportion regard earthwork as a last resort"^{3/}

And it has been argued that the extra transport costs attributed to food for work might have to be incurred anyway in areas where there is a food deficit^{4/}: this would apply, for example, to projects like the building of a canal through arid areas of Rajasthan in India.^{5/}

But, on the other hand, it is not clear that all these arguments apply as strongly to public works in general as they do to food for work in particular and there are obviously some arguments against food for work which do not apply when wages are paid in cash: the inconvenience for workers, for example, and the unacceptability of certain food commodities. It is instructive that where workers have been offered surplus type commodities for sale, even at subsidized prices, offtake of certain items has been low.^{6/} It is also instructive that one country, with

1/ See eg Grissa (1973), Stevens (1977b), WFP (1976c).

2/ See eg Ardant (1963), Tiano (1972), Arlès (1966).

3/ Rodgers (1973) p.263.

4/ WFP (1973b) p.11.

5/ WFP (1973a).

6/ WFP (1973a).

at least ten years' experience of food for work, plans that

"In future, the bulk of labour intensive activities ...
will be wage-earning"^{1/}

It seems that food for work has a case to answer: it is necessary to ask what special advantages food for work possesses and whether in practice these advantages outweigh any extra costs.

Four advantages can be imagined which might justify the use of the food for work mode, at greater cost and with perhaps lower productivity than payment of wages in cash: first, it might be argued that there is a general macro-economic advantage in using food for work, in the sense that payment in food eliminates or at least reduces the demand for other commodities and by virtue of insulating the project economically from the rest of the economy, also prevents any disincentive effect on local agriculture. Secondly, it might be argued that payment in food acts as an incentive to local participation on projects which then become quasi-voluntary. Thirdly, payment in food might have a favourable nutritional impact by increasing the proportion of income devoted to nutritious food. And finally, payment in food might be the only way to dispose of esoteric surplus commodities which would find no market if sold in the normal way.

Take first the macro-economic argument. For payment in kind to be preferable to payment in cash it has to be shown that the general inflationary effect is less and that there is a smaller disincentive effect. As far as the first is concerned, it is certainly true that food for work has been cited as a defence against inflation^{2/}: the argument would be that workers paid in kind are insulated from the market and that therefore they make no demands on consumer goods. This is only true if workers do not switch expenditure by reducing any food purchases they might have been making previously and if they refrain from bartering or selling the commodities they receive as payment in kind. In fact there are good grounds for expecting either or both of the problems to arise: food for work rations are usually based on

^{1/} Lesotho Second Five Year Devel. Plan quoted in Stevens (1977b) p.19.

^{2/} Costa (1973b).

family nutritional requirements^{1/} so that if families were eating at all before they began to participate in food for work, even if it was barely enough to sustain life, they are likely either to cut down home production or to reduce purchases. To the extent that they do the latter they will be left with cash to purchase other goods; even if they cut neither production nor purchases they may try to sell or barter part of the payment in kind. As noted above there is evidence that this happens.^{2/}

But this does not necessarily entail inflation: the dominant fact about participants in all food for work and public works schemes is that they are poor^{3/} - if not among the very poorest then at least among those with low purchasing power.^{4/} This means that even if there is "leakage" to the market it is unlikely to add very greatly to total demand for food products. Even if it did, it was suggested in Section II that supply might be more elastic than often thought or that commodity aid might offset increased demand. So it follows that although payment of wages in kind may not prevent an increase in demand for consumer goods the inflationary risk may not be very great.

The debate on disincentives is concerned not with an increase in demand but with a decrease, this time not for consumer goods but specifically for food. The disincentive thesis takes a number of forms but the one relevant here is that the availability of employment on public works encourages small or marginal farmers to abandon their holdings or cultivate them less intensively, thus contributing to a decline in production and perhaps to dependency on foreign food. What has to be shown is that payment of wages in kind avoids this problem to a greater extent than payment in cash. The evidence on whether food for work leads to a disincentive effect is mixed. It has been cited in Lesotho^{5/} and there is corroborating evidence from Nepal^{6/}, Mauritius^(Rodgers)^{7/}

1/ WFP (1976c)

2/ See particularly IBRD (1976) pp.48-9 and Grissa (1973) pp. 164 and 208-9.

3/ See eg Andriamananjara (1971), Donovan (1973).

4/ Rodgers (1972) (1973).

5/ WFP (1976a).

6/ WFP (1976c)

7/ Percy Selwyn, personal discussion Sept.1977.

and Tunisia^{1/}. On the other hand, in a review of experience in Botswana, Lesotho and Upper Volta, Stevens concluded that

"the evidence ... does not lend much support to the proposition that food aid is a substitute for food production"^{2/}

But does the evidence suggest that payment in cash causes a disincentive effect? In many cases the workers stand to benefit from public works so that they would actually be likely to work harder. Thus Andriamananjara reported from Morocco that

"At least in the Goulmima region, people work on Promotion Nationale because they or their relatives benefit from the Promotion Nationale projects"^{3/}

Similar findings come from other public works programmes which involve small farmers and Edel, for example, found that in Colombia

"communities of small farms are more active in community action than are groups of rural wage workers or areas of large farms"^{4/}

On the other hand, Rodgers found in Bihar that on one scheme many earthworkers had alternative employment elsewhere and that the proportion of employment that was additional to the economy was only about half that created on the public works site,^{5/} which suggests some indirect disincentive effect. In sum, there is conflicting evidence; but on balance it appears that neither food for work nor payment in cash are more likely than the other to cause a disincentive effect with respect to the labour input into agriculture. The argument that food for work is particularly effective in preventing the negative macro-economic effects of public works is therefore seen to be weak.

The second argument in favour of food for work might be that

-
- ^{1/} Costa (1966).
 - ^{2/} Stevens (1977a).
 - ^{3/} Andriamananjara (1971) p.65.
 - ^{4/} Edel (1968) p.120.
 - ^{5/} Rodgers (1973) p.257.

payment in food could act as an incentive to local participation on projects which then become quasi-voluntary. If voluntary labour, which is desirable on both economic^{1/} and "psycho-political"^{2/} grounds, is not forthcoming, then a small incentive paid in food might be sufficient to raise participation. There are really two issues here: first of all it has to be established that the payment of a small incentive does encourage community participation; and secondly, it has to be shown that payment of such an incentive in food is preferable to payment in cash. With regard to the first point, it is certainly true that many public works schemes have paid less than market rates, although usually so as to avoid disrupting the agricultural labour market^{3/} rather than more simply to provide an incentive to community action. This policy has been criticized on the grounds that it is associated with very low productivity^{4/} or that it impedes longer-term rationalization of the labour market.^{5/} There is a controversy over whether public works have affected the self-help spirit: Stevens (1976) found that in Botswana there was evidence for a general decline in self help although it was hard to link this specifically to the activities of food for work projects; and a WFP report (1976c) has cited evidence to the effect that food for work disrupted the "shramdana" system of voluntary labour in Sri Lanka. On the other hand, the shramdan system has been criticized as inequitable in India and Gupta concluded that

"There should be no insistence on shramdan as that means further exploitation of the weaker sections. A programme avowedly for the weaker sections should be based on the criterion that it should add to their income not compel them to part with their labour gratis"^{6/}

Though many public works have been associated with "mobilisation" in one form or another, and have claimed to increase participa-

1/ Ardant (1963), Tiano (1972).

2/ Arlès (1974).

3/ Costa (1973b) p.377.

4/ IBRD (1976) p.47.

5/ Dandekar and Rath (1970) pp.131-2.

6/ Gupta (1971) p.1003.

tion,^{1/} it does seem to be true that many schemes are paternalistic^{2/} or politically biased^{3/} so that what appears as voluntary labour may sometimes be quite the opposite.^{4/} But still some community development programmes are successful in mobilizing voluntary labour for public works and on some schemes labourers work satisfactorily for less than market wages.^{5/} To this extent the incentive argument may have some validity, although the very low productivity often recorded on such schemes may undermine their economic value.

But this does not yet establish that the incentive should be paid in food rather than in cash. The only arguments for doing this might be to safeguard the self-respect of the workers or to preserve the non-pecuniary character of community development. There is no evidence to suggest that people's altruism or self-respect is corrupted by money but not by food hand-outs - indeed intuition would suggest the opposite. The alternatives should be tested in the field: until they have been it cannot be argued conclusively that the benefits to be derived from food distribution outweigh the extra costs.

The third argument on the use of food concerns the nutritional impact that can be achieved. Naturally, giving people employment and income enables them to buy more food: the argument in favour of food for work has to be that payment in food leads either to a greater marginal propensity to consume food than would otherwise be the case or to better 'value for money' in the sense of nutritional benefit derived from each unit of expenditure on food. Although many WFP project reports are concerned with nutrition, they do not deal with either of these possibilities and are concerned more generally with the nutritional impact of higher incomes.^{6/} In theory the conditions can be specified under which payment in food will lead to income elasticity of consumption greater than the income elasticity of expenditure would have been from cash wages: if wages are paid entirely in kind and consumption

^{1/} eg Costa (1966) p.16, Thomas (1971)

^{2/} eg ILO (1970).

^{3/} eg Sobhan (1968), Oualalou (1969).

^{4/} IBRD (1976) p.44.

^{5/} See eg Edel (1968), Kikuchi et al (1978).

^{6/} eg WFP (1973), Arlès (1966).

increases by the same amount, then the nutritional "benefit" is the difference between the MPC for food and unity. If wages are paid partly in food and partly in cash then the nutritional "benefit" will depend on the ratio between the two and on whether part of the cash wage is spent on food; in order to be certain that food consumption increased by more than it otherwise would, the share of food in the total value of the wage would have to be greater than MPC from that value.

Apart from the ethical problems involved in trying to distort family expenditure patterns in this way, there are severe practical problems since there is always the possibility of switching cash expenditure previously spent on food to other goods, of bartering the payment in kind or of selling it. The fact, reported above, that workers are often prepared to sell their payment in kind at a discount, is a reflection of how great a value they place on non-food consumption. And this should not necessarily be thought perverse: people need food but they also need other things, notably fuel to cook it on. Expenditure surveys show that marginal propensities to consume are high for fuel, light and clothing as well as food.^{1/} It is not therefore surprising that on one WFP project, notwithstanding the nutritional adequacy of the rations distributed, selling and bartering took place so that

"frequently no more than 50-60% of the families' calorie requirements are met"^{2/}

One case where the nutritional impact was significant, and greater than might have occurred if wages were paid in cash, is reported from a land army project in Mysore, India. Here workers were living in a camp where meals were provided and

"it is maintained that many bhu-sainiks (workers) have gained 8-15 kg in weight, even while doing hard manual work"^{3/}

Since earthworking has been shown to require at least 1000 extra calories per day in Indian conditions,^{4/} this is a substantial

1/ See eg Govt. of India (1976)

2/ WFP (1976b) p.25.

3/ Donovan (1973) p.12.

4/ Rodgers (1973).

improvement which may reflect the value of payment in kind.^{1/} However, it should be noted that in the Mysore case only about one-third of wages is deducted to pay for meals,^{2/} so that although the worker's family has to be fed from this, non-food consumption may not be too badly squeezed. Overall, there is no evidence to indicate that payment of wages in food leads to better nutrition than payment of equivalent values in cash, and even if there was there might still be a case for arguing that utility was not maximized in this way. This argument, too, is unconvincing.

The final argument for food for work is perhaps the most plausible: it is simply that giving food away in kind may be the only way to dispose of exotic commodities or those which might not otherwise find a ready market. Some very exotic commodities have been shipped under food aid programmes, which would certainly not find a place in the diet of the average participant in public works schemes: Israel, for example, received 320 tons of prunes and nearly 5000 tons of cheese between 1955 and 1950.^{3/} More often, food aid programmes have had to dispose of milk products, vegetable oils or grains which are unfamiliar or unpopular. Products which do not fit easily into the normal diet are second-best food aid, but to the extent that they represent surplus disposal and additional aid they may still be acceptable if something useful can be done with them. Sometimes unfamiliar foods can be sold and Thomas reports, for example, that wheat was cleared in Bangladesh by reducing the price sufficiently to "modify a habitual food preference"^{4/}

But this entails a substantial loss of revenue and using the food for payment in kind may stretch it further. The problem is that disposing of foods in this way may cause dissatisfaction; it also makes valuation very difficult since, as Stevens has emphasised, it is important to untie food aid both by source and by commodity and food paid in wages should really be valued at the local cost of an equivalent diet.^{5/} There may also be higher

^{1/} Though on data on the nutritional status of other family members would be desirable.

^{2/} Donovan (1973) p.12.

^{3/} Ginor (1963) p.12.

^{4/} Thomas (1971) p.204.

^{5/} Stevens (1976, 1977b, 1977c).

cost and there is the danger of lower productivity associated with food for work. The possible trade-offs have not been calculated in the literature: it might be found that distribution in kind was an expensive way of disposing of dried egg and fruit.

On balance, then, it does not seem that payment in kind offers benefits sufficient to account for the various costs outlined at the beginning of this section.^{1/} In most cases payment in kind should not be a preferred option. This is not to say that food will not always be ^{un}acceptable: Andriamananjara reported from the Goulmima area of Morocco that workers welcomed payment in kind because

"given the market conditions in (the area, at times Promotion Nationale may represent a cheaper way of acquiring wheat than the market".^{2/}

and on many WFP projects food acceptability has been reported as good.^{3/} But in many cases this is not true and in any case there are transport, storage, distribution and administrative costs which accrue to government. As a general conclusion it is suggested that on an objective assessment cash will usually be preferred to food.

IV

The conclusion in Section III, that labourers on public works should normally be paid in cash, not food, does not of course deny a role for food aid, since donated food can always be sold to provide some of the real resources for public works. This will be a good way to deploy food aid if public works can be shown to offer a higher return than alternative uses of food aid, and to answer this question it is necessary to assess the extent to which public works have met their employment, investment or community development objectives.

Public works differ greatly with respect to the type of unemployment they are intended to tackle, the types of objectives they are set and the sort of works they undertake. Thus IBRD

^{1/} Two other possible benefits, not discussed in the literature, are worth noting: payment in kind may prevent money-lenders from claiming a large share of additional income; and may protect workers from high food prices caused by local market imperfections.

^{2/} Andriamananjara (1971) p.49.

^{3/} WFP (1973b)p.44.

distinguish between "relief programmes" which respond to emergency situations; "long-term employment programmes" which are designed to absorb structural unemployment; "income-augmenting programmes" which cater to seasonal unemployment; and "low-cost infrastructure programmes" which often pay low wages and concentrate on asset creation.^{1/} Of the 24 programmes analysed by IBRD 10 qualified as income augmentation and 7 as long-term employment programmes,^{2/} reflecting the fact that community development infrastructure programmes were excluded from the study and that coverage in Africa, where there have been many drought relief programmes, was thin: in practice, the number of programmes of each type may be about the same.

A more important typology is concerned with the type of work undertaken on individual projects and it is usual to distinguish between "directly productive" projects, such as irrigation or land clearing; "economic infrastructure" projects, such as roads; and "social infrastructure" projects such as schools or clinics.^{3/} In the programmes studied by IBRD 58% of expenditure on average went on economic infrastructure, 26% on directly productive projects and 16% on social infrastructure.^{4/} If more community development projects had been excluded the share of social infrastructure might have been higher, but the share of roads and other economic infrastructure would have remained dominant.

Important changes in the nature of programmes tend to occur over time. In particular there tends to be a transition from temporary programmes to permanent ones and within programmes from projects which concentrate on constructing directly productive assets to those which are mainly concerned with building roads. Tunisia, for example, which began with a temporary relief programme in 1954, found itself with a permanent works programme, La Lutte contre le Sous-Développement (LCSD), by 1958;^{5/} and in the Crash Scheme for Rural Employment in Kerala, three-quarters of expenditure turned out to be on road building against a planned

1/ IBRD (1976) p.14.

2/ Ibid. table II.6 p.15.

3/ IBRD (1976) p.29, WFP (1973) (1976c).

4/ IBRD (1976) table III.5 p.30.

5/ Costa (1966), Grissa (1973) ch.5.

one-third.^{1/} These two tendencies, which apply to most programmes, say a great deal about the ineffectiveness of public works in creating self-sustaining employment and about the pressures which act to modify programmes as they are implemented. Clearly short, sharp programmes have not usually succeeded in creating the asset structure necessary to employ all available labour on a long-term basis, and clearly, too, since directly productive projects create more permanent jobs than infrastructure projects, there are usually forces acting to reduce the flow of benefits to the unemployed. The reasons for these tendencies will become clear as first the short-term (construction phase) benefits are explored, then the long-term (operating phase) benefits.

The most important short-term benefit derived during the construction period is the income generated for participants on the schemes. Normally at least 50% of the total cost is paid out in wages, sometimes less, because labour is contributed voluntarily and sometimes more, because all non-wage expenditure is cut to a minimum: it is reported that wage payments reached 90% of total costs on certain land improvement schemes in Bangladesh.^{3/} Costa has reported that even where wage payments are initially below market levels, they tend towards parity with the agricultural wage^{4/} and in many cases they actually exceed it.^{5/} The best indicator of the immediate benefit from public works is therefore the number of man-days of employment created, with reference particularly to the number of man-days available. The IBRD study shows that although the expenditure on public works has usually been relatively small, exceeding 1% of GDP only in Tunisia, Mauritius and Jamaica,^{6/} the impact on unemployment has often been much greater, with public ^{works} absorbing 21% of unemployment in Tunisia 38% in Mauritius and between 3% and 7% in Morocco, Korea and East Pakistan.^{7/} The more recent Employment Guarantee Scheme in Maharashtra may have done better than any of these absorbing an

1/ UN (1975) p.106.

2/ IBRD (1976) ch.VI.

3/ Costa (1973b).

4/ Ibid.

5/ GOI (1973), Rodgers (1973).

6/ IBRD (1976), table III.3 p.25.

7/ IBRD (1976) pp.22-24. These statistics must be read as orders of magnitude only.

estimated 75% of available man-days available in the rural areas.^{1/} Though all public works leave much unemployment untouched, notably that in urban areas, it is clear from these figures that they can contribute significantly to reducing unemployment.

The important question that follows is what contribution public works are able to make to increasing the income and well-being of the poor. Public works have important limitations in this respect since, as IBRD point out

"while poverty and unemployment overlap they are not synonymous."^{2/}

Rodgers has shown that poverty is often associated with a high dependency ratio, so that income per capita remains low even if employment is high, or with poor health, which precludes participation in public works;^{3/} and Dandekar and Rath (1971) report that the Indian Planning Commission exclude the bottom 10% of the population from the category of those to whom public works might apply because their poverty requires "social" remedies.

On the other hand the old, the destitute and the sick are often found among the labour force on public works, especially when wages are below market levels^{4/} and for those who do participate in public work, the extra employment generated can contribute significantly to income. Andriamananjara found that Promotion Nationale in Morocco was biased to the poorer regions and within regions to poorer workers: 82% even of unskilled workers owned some land but their average holding was less than one-fifth of the regional average. Public works contributed on average two-thirds of total income.^{5/} Donovan reported that workers on a land army project in Mysore were more likely than non-workers to be from landless families, from scheduled castes and to have low incomes, and that for workers on the project 39% of their total employment came from public works.^{6/} Rodgers found lower figures - public works contributed only 4-15% of income - but he

1/ Calculated from Reynolds and Pushpa (1977).

2/ IBRD (1976) p.6.

3/ Rodgers (1973).

4/ Stevens (1976), Apte (1973).

5/ Andriamananjara (1971 ch.4.

6/ Donovan (1973).

emphasised that the extra income came at a crucial time of the year, during the agricultural slack season. Some of the benefits may be creamed off by labour contractors^{1/} or others, but in general the evidence suggests that

"in all cases where redistribution of consumption was an objective, it was at least partly successful"^{2/}

Apart from an increase in consumption by the poor, public works are said to offer other advantages during their construction phase: Arles (1966) has cited the training of workers, a subject to which other sources attach great importance,^{3/} and also the habituation of workers to regular and sustained work. Rodgers and Pushpa (1977) are inclined to see this second benefit as paternalistic, but add two other possible advantages: they suggest, as does Lewis,^{4/} that the existence of public works may push agricultural wages closer to the legal minimum, and report an argument that public works may enable farm workers to escape from traditional agriculture and its

"irksome and degrading relations with farmer employers"^{5/}

This is something to which Dandekar and Rath (1971) attach great importance, arguing that public works can be used to rationalize the rural labour market, provided that a works programme is used to create a certain amount of regular, dependable employment. If not, if public works are simply

"another source of not very secure or dependable employment ... (then) everyone would still want a bit of land; everyone would still compete for the meagre wage employment in agriculture; and everyone would want to work on additional works when he was doing nothing else."^{6/}

Most observers argue that public works should be designed so as not to upset the rural labour market, nor modify agricultural

1/ See especially GOI (1973) p.67.

2/ Rodgers (1972) p.155.

3/ Costa (1974), WFP (1976).

4/ Lewis (1972) and (1975).

5/ Reynolds and Pushpa (1977) p.1155.

6/ Dandekar and Rath (1971) p.131.

wages,^{1/} but the suggestion that they might be used as a positive instrument of government policy to improve the situation of agricultural labour is both stimulating and persuasive. Provided that they are designed in the right way, public works could have great structural value even if they produced no durable assets and created no permanent employment.

In fact, of course, they are usually intended to do both these things, and often the "operating phase" benefits are seen as more important than those of the "construction phase". Nearly all observers agree that there has been too great an emphasis in most public works programmes on "social" projects such as clinics or village halls, which do not yield a stream of physical or financial benefits,^{2/} possibly reflecting the community development orientation of many programmes;^{3/} and even where the projects have had obvious economic value, many argue that there has been too great an emphasis on road-building, to the exclusion of agricultural development projects. Sobhan goes as far as to argue that in East Pakistan, the emphasis on road-building

"put back any really effective programme of rural reconstruction by several years"^{4/}

And a report prepared for the UN argues that in the case of India at least,

"The general tendency for roads to absorb the bulk of the funds made available for public works, when there are potentially much more productive uses available in agriculture, is in many cases explained not only by the ease with which road construction can be undertaken at short notice, but also by the fact that such investment does not generally bring into sharp focus some of the difficult issues which the selection and implementation of schemes affecting agricultural land directly would almost inevitably raise."^{5/}

1/ Ardant (1963), Tiano (1972).

2/ Ardant (1963), Arles (1966).

3/ Costa (1973b).

4/ Sobhan (1968) p.159.

5/ UN (1975) p.106.

But even roads are of some economic use, lowering transport costs,^{1/} making villages more accessible to government officials, and to that extent they are comparable to "directly productive" projects, creating assets which yield income and employment over time. That public works do succeed in creating assets, albeit more slowly and less efficiently than often planned, is not in dispute: the kilometres of roads built, the hectares of land cleared or drained, the numbers of villages supplied with clear water, are nearly always impressive. What is in dispute is the extent to which these assets benefit the poor and the unemployed whom public works are nominally designed to assist; the extent, to be more precise, to which the poor have access directly to the assets created, and to which they benefit indirectly by increased opportunities for wage employment.

As regards the impact of public works on asset distribution there are broadly two views: the first is that the assets are distributed in accordance with the existing pattern of ownership;^{2/} the second, the majority view, is that public works actually tend to worsen the distribution of asset ownership.^{3/} No study suggests that public works redistribute assets to the poor and this may be an important limitation of the approach, particularly since it is so often emphasised that workers must derive immediate benefit for public works to succeed.^{4/} The UN study concludes that

"the pattern of distribution of land holdings, and the extent to which it is favourable or unfavourable to cooperative effort on the part of the holders, is a major factor determining the scope for productive public works programmes in the rural sector"^{5/}

And in practice it seems that many public works schemes have reflected inequitable land ownership in their selection of works. For example, Godbole found that only two percolation tanks of twenty-five planned on one scheme in Maharashtra would benefit poor farmers and concluded that

^{1/} Thomas (1971) analyses data on East Pakistan.

^{2/} See IBRD (1976) p.49, Rodgers (1972) p.154.

^{3/} See Godbole (1973), Arlès (1974), Grissa (1972), Reynolds and Pushpa (1977), Sobhan (1968).

^{4/} Ardant (1963), Tiano (1972), Grissa (1973) pp.169ff.

^{5/} UN (1975) p.151.

"Funds meant for drought relief thus go to subsidise the building of capital assets for the already rich ..."^{1/}

Arlès has suggested that public works in North Africa and elsewhere

"serve to consolidate the existing order"^{2/} and in a general review of food for work, a paper prepared for the WFP found that

"the ultimate benefits may go disproportionately to those with the most land or the easiest access to new roads or canals"^{3/}

There are cases where small farmers and landless labourers do benefit from the asset creation of public works, but the weight of evidence seems to suggest that more often they do not benefit in proportion to their numbers.

It follows then, that the main long-term benefit to the poor may be through employment on newly created assets owned by others. There has been surprisingly little work on the long-term employment implications of public works, particularly with respect to roads. However Tiano (1972) contains some estimates derived from experience in North Africa, and IBRD (1976) draws together summary data from irrigation and drainage projects in India, Bangladesh, Korea and Indonesia.^{4/} Experience shows quite clearly that there is a trade-off between construction phase employment and operating phase employment, with those activities using more labour in the construction phase (eg roads) using less in the operating phase and vice versa. For irrigation and drainage projects IBRD calculate a ratio of construction worker-days to long-term worker-days and this varies for the examples studied from as high as 1:2.1 (Bangladesh, Indonesia) to as low as 5.2:1 (bench terraces in Korea). The unweighted average can be calculated as about 2.5:1, showing that even on projects which are relatively favourable to long-term employment, it takes on average 2.5 days of labour input in the construction phase to create one day's labour in the operating phase. Tiano's

^{1/} Godbole (1973) p.773.

^{2/} Arlès (1974) p.84.

^{3/} WFP (1976c) p.20.

^{4/} IBRD (1976) pp.29-32.

figures show that for other types of projects, the ratio may be much lower, 6:1 for soil conservation, 27:1 for reafforestation and perhaps as much as 840:1 for track-laying!^{1/} One important problem not discussed in the literature is that employment may be created at peak periods when unemployment is already low: this would be the case, for example, with drainage or minor irrigation projects which led to an intensification of agriculture. It is not clear what would then happen to employment; it could be argued that landowners might be encouraged to mechanize, thus reducing total employment, rather than increasing it!

Whatever happens on the land, other employment may be created indirectly through public works, and emphasis has been laid in the literature on the linkage effect, by which public works might stimulate output and employment elsewhere in the economy.^{2/} This is an argument which is hard to pin down in quantitative terms, although there are some isolated examples reported in the literature: a study of drainage projects in Egypt, for example, suggests that

"the increased volume of work undertaken ... has led to the setting up of a number of plants for the manufacture of machinery to produce drainage pipes"^{3/}

In principle, the employment created indirectly by public works is a function of the employment multiplier and its potential can be estimated by looking at inter-industry linkages in an input-output framework. This sort of analysis has been undertaken for the Turkish economy by Diamond (1975) using a methodology which excludes direct employment but ranks industries according to the indirect employment created by forward and backward linkage in other sectors and the feedback effects to the originating sector. While it is not possible to separate out the effects of labour-intensive public works, it is possible to say that agriculture in general and animal husbandry in particular rank high, but that building construction ranks low particularly with respect to

1/ Tiano (1972) table VIII.

2/ Costa (1973a), WFP (1976c).

3/ WFP (1976c) Add 1 p.9.

forward linkages.^{1/} The linkages may or may not materialise in practice, but in any case this ranking would supply a further argument against an excess of road building.

Given the dominant role of road building and the maldistribution of assets in rural areas, it is not surprising that public works have failed to eliminate unemployment and that, in the words of Lewis

"For permanently improving the political condition of the poor ... there is no denying that the public works approach is something of a long shot."^{2/}

Nor is it surprising that they have often failed to meet their community development objectives. Though community development is often recommended as an objective of public works,^{3/} there are very few documented cases of it doing this successfully, and many cases where community spirit fails to develop. Thomas argues that in the early days of the East Pakistan works programme people did become involved and that

"the Thana level organization which has evolved through the works programme has provided the East Pakistan government with a means of influencing and involving its rural inhabitants in the process of development"^{4/}

Similarly, Edel (1968) reports from Colombia that voluntary local projects led to much greater utilization of community managerial talent. But on the other hand, studies from India,^{5/} North Africa^{6/} and even East Pakistan^{7/} conclude that there was little community development impact. Oualalou went so far as to argue

1/ Diamond (1975) Fig.2.

2/ Lewis (1975) p.64.

3/ See eg ILO (1972) ch.19, (1974) p.35.

4/ Thomas (1971) p.202.

5/ Gupta (1971)

6/ Andriamananjara (1971), Oualalou (1969).

7/ Sobhan (1960).

that the programme in Morocco was

"the prime example of an undertaking which stifles the spirit of democracy in rational planning"^{1/}

But although the impact of public works on long-term employment and community development may be less than sometimes hoped, this does not mean that public works are not worth doing. There may be few alternative ways of providing incomes quickly, and even with a large welfare component, there may still be a net benefit.

B:C estimates in fact exist for several countries:

IBRD (1976) contains a table which summarises available analyses and this has been added to produce Table 3 which contains results from seven countries. The methodologies vary, with only 4 of the 10 studies using shadow prices and with only one, that by Rodgers (1972) explicitly incorporating consumption by the poor as a benefit. Nevertheless, the general thrust of the results is encouraging in that

"the economic returns to public works can be quite respectable"^{2/}

with directly productive projects such as irrigation and flood control generally showing a better return than infrastructure of the economic or social variety.

^{1/} Oualalou (1969) p.76.

^{2/} IBRD (1976) p.39.

TABLE 3: BENEFIT-COST ANALYSES OF PUBLIC WORKS PROGRAMMES

Country	Type of Projects	Internal Rate of Return	Benefit-Cost Ratio	Is Labor Shadow Priced?	Comments	Source
Bangladesh	Roads, drainage, flood control		3.4	No	B-c ratio for total programme. 12% discount rate	Thomas
Colombia	Roads Schools Water Overall		2.03 8.6 6.3 2.8	No	12% discount rate	Edel (1968)
Ethiopia	Terracing and reforestation	18.4%		Yes		Bruce
	Irrigation		2.0	No	12% discount rate	Kowalczyk
India	Irrigation	7-22%		Yes	Shadow wage weighted for poverty	Rodgers (1972)
Indonesia	Roads		3.6	No	Discounted, but rate not known	Government of Indonesia
Mauritius	Land improvement & irrigation Roads, schools agriculture	13.8% 14.3%	1.1	No Yes Yes		Allison and Thomas Thuy (1975)
Morocco	Irrigation Conservation	18.2% 6.0%		No	Also contains comparisons to non-public works projects	Andriamananjara
Philippines	Irrigation	122	6.9	Yes	12% discount rate	Kikuchi et al (1978)

Note Unless source indicated by date in brackets, taken from IBRD (1976) Table IV:I page 35

These figures do, however, need to be approached cautiously. Some of them, for example those for Morocco from Andriamananjara (1971), are based not on representative projects but on "show-cas. displays". Andriamananjara emphasises that

"what the results show is not that Promotion Nationale is or has been a success but that it can be or can become a worthwhile undertaking"^{1/}

Others, for example those of Rodgers for India, are based on ex-ante analysis, with optimistic assumptions about gestation periods.^{2/} Where programmes have been evaluated as a whole using ex-post data, the evaluation has often been less favourable. Thus Grissa concluded his qualitative review of the Tunisia programme with the observation that

"the expected long run rate of return has been either reduced to zero or is highly doubtful";^{3/}

Oualalou suggested that the programme in Morocco was

"more of a charity undertaking than an economic enterprise";^{4/}

and Stevens found that on a food for work programme in Botswana

"the non food costs of producing the public works exceeded their value. In other words it would have been cheaper for government to hand out food by free distribution than it was to make people work for it"^{5/}

These findings may not be typical and with the exception of Stevens they ^{do not} reflect the consumption benefit of public works; yet it is clear that the overall impact of public works does vary considerably from case to case and that it is not always as great as it could be or ought to be. To quote Lewis

"the conceptual case (for public works) is impressive. the experiential case ... is much less (so)"^{6/}

Before drawing any general conclusions about public works it is worth asking why this should be so.

1/ Andriamananjara (1971) p.43.

2/ Rodgers (1972) ch.5.

5/ Stevens (1976) p.25.

3/ Grissa (1973) p.192.

6/ Lewis (1972) p.95.

4/ Oualalou (1969) p.76

Thirdly, it is argued that administration and supervision are poor on public works schemes, leading to inefficient use of resources and insufficient incentive to workers.^{1/} Tiano suggest that good supervision is needed particularly

"to give (workers) the necessary encouragement when their enthusiasm flags"^{2/}

but emphasises also the importance of good project planning and a good technical input during construction.

Perhaps the most persuasive of the reasons for low productivity is the fourth, namely that workers are poorly equipped with tools and that they therefore work very inefficiently. There is a considerable literature to establish that labour-intensive techniques can be optimal under the right circumstances,^{3/} but the evidence from some public works schemes is that so much effort has been devoted to saving non-labour costs that workers do not have the basic minimum tools. On some public works schemes workers have to supply their own tools and obviously cut down to a minimum;^{4/} on others they are poorly provided for by the authorities. Costa reports on a study to the effect that the provision of spades and wheelbarrows on public works in India increased output by between 30% and 100%^{5/} and it is clear that great improvements are possible.

These four causes of low productivity suggest an agenda for action: some tend to put their faith in work norms;^{6/} others look, perhaps more realistically, to underlying causes. The IBRD study, for example, recommends paying market wages and the use of piece rates to provide workers with an incentive;^{7/} Grissa emphasises tighter organization and better project planning;^{8/} Tiano emphasises technical supervision and the incentive of agricultural reform.^{9/} There is no doubt that productivity could be increased

-
- 1/ Arles (1966), Costa (1973a), Grissa (1973), Guha (1971), Lewis (1972).
2/ Tiano (1972) p.125.
3/ ILO (1972) (1974), Jackson and Turner (1973), Costa (1973b).
4/ WFP (1976b). 5/ Costa (1973b) 6/ WFP (1976c).
7/ IBRD (1976) pp. 33 and 40.
8/ Grissa (1973).
9/ Tiano (1972). * Allal and Edmonds (1977).

by the provision of proper tools and by various incentives to workers and that the costs of public works could be brought down significantly.

On the other side of the coin, benefits could be increased if maintenance were to improve. Poor maintenance is frequently identified as a problem, particularly with respect to water-related schemes such as irrigation and drainage.^{1/} As a WFP report pointed out

"additional production is not guaranteed by the earthworks themselves"^{2/}

and it is necessary to provide complementary inputs as well as to arrange for maintenance. IBRD found that only one of the programmes studied made specific provision for maintenance of assets, usually because maintenance was seen as a local responsibility, and recommended that it should be included systematically in project design^{3/} to ensure that benefits were fully won. Gupta, in a study of Indian public works, reached the same conclusion, arguing that

"Most people ... expect the state to finance maintenance of such assets howsoever beneficial they may be for their own social or economic living. To expect the villagers alone to behave differently is neither logical nor rational"^{4/}

This point of view should not be accepted uncritically, and there are alternative approaches which rely more on extension or persuasion: it would always be worth asking why villagers are unwilling to maintain assets, and it might be found that there are underlying social or political problems. Nevertheless maintenance remains important and should be planned for, regardless of who is to carry it out. If maintenance were better then there is no doubt that the ex-post B:C ratio of public works programmes would improve substantially.

1/ Gupta (1971).

2/ WFP (1976b) p.26.

3/ IBRD (1976) p.42.

4/ Gupta (1971) p.1003.

\$64,000 JS.?

So where does this leave public works and where does it leave the role of food aid? It has been argued that public works can offer significant short-term financial benefits to those employed, the size of the benefit depending on the wage paid and the labour intensity of the work. Economic infrastructure projects tend to employ more labour than other types, and relief or income-oriented programmes tend to pay higher wages than community development programmes. It has also been suggested that there are other short-term benefits, notably training, upward pressure on agricultural wages and possible structural changes in the rural labour market. In the longer term, the evidence suggests that the impact has often been less than expected, because low productivity reduces asset creation, because assets are not controlled by the poor and/or because maintenance is poor. Nevertheless, assets are created, employment is generated and although the benefits may be less than expected, public works can be shown to have B:C ratios which are respectable, particularly when consumption by the poor is weighted as a benefit and when the assets created are directly productive. Less emphasis on road building, greater productivity and better maintenance would substantially improve the economic attractiveness of public works.

Part of food aid

The question, then, is whether these changes can be brought about. Some observers are pessimistic, arguing that

"It is impossible to escape the conclusion ... (that) defects cannot be remedied without very close re-examination of the basic premises and without taking the necessary remedial steps which, in respect of some of the problems (such as the tendency to select relative unproductive works in preference to the obviously more productive ones in agriculture), may not be easy without fairly basic institutional and organizational changes."^{1/}

Others are more optimistic, recognizing the problems but concluding that

"labour-intensive public works deserve to be rehabilitated as a major instrument of development policy"^{2/}

^{1/} UN (1975) pp.108-9.

^{2/} Lewis (1972) p.113.

A third group opt for a middle course, suggesting that public works may have a special role to play, buying time until slower acting but potentially stronger forces generate increased employment, initiating rural organization and accompanying structural reform.^{1/}

Clearly the potential role of public works will vary from country to country, as will the particular manifestation of public works which is most appropriate. But it does seem that a public works strategy may be appropriate for many countries, particularly those with significant rural unemployment and those where the problems of access to assets, low productivity and poor maintenance can be tackled. A public works strategy may or may not run into a food constraint; to the extent that it does, food aid is well used support, not necessarily on food for work projects but rather for sale on the open market to generate some of the necessary real resources. Not all the real resources, otherwise there will be a disincentive effect, but in most countries somewhere between one-third and two-thirds of the cost of a public works programme could be met by food aid in this way.

If food aid is needed at all, there is probably no better way to deploy it.

^{1/} IBRD (1976) p.74.

- GINOR, F. (1963): Uses of agricultural surpluses: analysis and assessment of the economic effect of the PL480 title I program in Israel Bank of Israel, Jerusalem 1963. 469 pp
- GODBOLE, A. (1973): "Productive relief works for the rich" in EPW VIII:17, Bombay 28 April 1973
- GOVT. OF INDIA (1973): An appraisal of schemes of rural employment Report prepared for the Committee on unemployment, Department of labour and employment by the Administrative Staff College, Hyderabad. New Delhi 1973
- (1976): Tables with notes on consumer expenditure National Sample Survey Report No 216. New Delhi 1976
- GRISSA, A. (1973): Agricultural Policies and Employment: case study of Tunisia OECD Development Centre Studies Employment Series No 9, OECD Paris 1973
- GUHA, S. (1975): Planning, Organization and Administration of the "rural employment guarantee scheme" in Maharashtra state of India ILO World Employment Programme, Emergency employment schemes programme, Working Paper No 2, Geneva 1975
- GUPTA, R. (1971): "Rural Works Programme: Where it has gone astray" in EPW VI:20 15 May 1971
- IBRD (1976): Public works programmes in developing countries: a comparative analysis World Bank Staff Working Paper No 224, IBRD Washington 1976. 78 pp
- ILO (1970): Towards Full Employment: a programme for Colombia ILO Geneva 1970
- (1971): Matching Employment opportunities and expectations: a programme of action for Ceylon ILO Geneva 1971
- (1972): Employment, Incomes and Equality: a strategy for increasing productive employment in Kenya ILO Geneva 1972
- (1974): Sharing in Development: a programme of employment, equity and growth for the Philippines ILO Geneva 1974
- ISENMAN, P.J. and SINGER, H. (1977): "Food Aid: disincentive effects and their policy implications" in EDCC 25:2 Jan 1977
- JACKSON, D. and TURNER, H.A. (1973): "How to provide more employment in a labour-surplus economy" in ILR 107:4 April 1973
- KIKUCHI, M., DOZIMA, G. and HAYAMIY, "Economics of community work programs: a communal irrigation project in the Philippines" in EDCC 26:2, Jan. 1978.
- LEWIS, John P. (1972): "The public works to low-end poverty problems: the new potentialities of an old answer" in Journal of Development Planning No 5 1972
- (1975): Designing the public works made of anti-poverty policy Princeton University - Brookings Instit project on Income Distribution in Less Developed Countries, 1975. 64 pp. mimeo.
- LORENZO, A. (1969): "Employment effects of rural and community development in the Philippines" (25 pp) in ILR 100:5 Nov 1969
- NURKSE, R. (1953): Problems of capital formation in underdeveloped countries Oxford 1953
- OECD (1976): Development Cooperation 1976 OECD Paris 1976
- OUALALOU, Fathallah (1969): L'assistance étrangère face au développement économique du Maroc éditions maghrébines Casablanca 1969

- REYNOLDS, N. and PUSHPA, S. (1977): "Maharashtra's Employment Guarant. Scheme: a programme to emulate?" in EPW XII:29 16 July 1977
- RICHARDS, P. (1976): "Basic Needs and National Strategies: Developing Countries" in ILO Tripartite World Conference on employment, Distribution and Social progress and the international division of Labour: Background Papers Geneva 1976
- RODGERS, G.B. (1972): Poverty and Policy: the impact of rural public works in the Kosi area of Bihar, India, unpublished DPhil thesis University of Sussex 1972
- (1973): "Effects of Public Works on Rural Poverty" in EPW Annual Number Vol VIII Nos 4-6, Bombay Feb 1973
- SOBHAN, R. (1968): Basic Democracies, works programs and rural development in E Pakistan OUP Dacca 1969- 328 pp
- SRIVASTAVA, U.K. et al (1975): Food Aid and International Economic Growth Iowa State University Press 1975
- STEVENS, C. (1976): The uses of food aid in Botswana ODI Working Paper No 3, mimeo, London 1976
- (1977a): "Food aid: more sinned against than sinning?" in ODI Review No 2 1977
- (1977b): The uses of food aid in Lesotho ODI Working Paper No4, mimeo, London 1977
- (1977c): The uses of food aid in Upper Volta ODI Working Paper No5, mimeo, London 1977
- TERHAL, P. (1975), Some aspects of rural public works in under-developed countries, Discussion Paper No. 26, Centre for Development Planning, Erasmus University, Rotterdam, 1975.
- THOMAS, J.W. (1971): "The rural public works program in E Pakistan" in Falcon, W.P. and Papanek, G.F. (eds) Development Policy II: the Pakistan Experience Harvard 1971
- THUY, N. (1975): Cost benefit analysis of labour-intensive public work programmes: a case study of the Travail pour Tous programme in Mauritius. Emergency employment schemes programme, World Employment Programme research, working paper, ILO Geneva 1975
- TIANO, A. (1972): "Human resources / and / ^{Investment} ^{Employment} policy in the Maghreb" (26 pp) in ILR 105:2 Feb 1972
- UNITED NATIONS (1975): Poverty, unemployment and Development Policy UN/ST/ESA/29, United Nations New York 1975
- USAID (1977), Creating rural employment: a manual for organizing rural works programmes, J.W. Thomas and R.M. Hook, Washington, 19
- US CONGRESS (1976): Food for Peace Program 1974 Annual Report US Congress: House Document No 94-352 Washington 1976
- WFP (1973a): Interim Evaluation Report. India 259. Food assistance to labour working on Rajasthan Canal Project. WFP/IGC 23/11 Add 9, WFP Rome 1973
- (1973b): Ten Years of WFP development aid 1963-73 WFP Rome 1973
- (1976a): Impact of food aid on domestic production and trade in Lesotho. WFP/CFA : 1/10 Add 1 Annex II, WFP Rome April 1976
- (1976b): Interim Evaluation Report Bangladesh 2197 Q. Relief work: Programme for land and water development. WFP/CFA 2/12-A Add C23, WFP Rome 1976
- (1976c): The World Food Programme and Employment Report by the Executive Director. WFP/CFA: 1/15-A. WFP Rome 1976