Public Works and Resilient Food Systems

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Abbreviations

BMI	Body Mass Index
CFW	Cash for Work
EGS	Employment Guarantee Scheme
FFW	Food for Work
KPI	Key Performance Indicator
MEGS	Maharashtra Employment Guarantee Scheme
MGNREGS	Mahatma Gandhi Rural Employment Guarantee Scheme
PWP	Public Works Programme
PSNP	Productive Safety Nets Programme
RSR	Rapid Social Response Fund
VUP	Vision 2020 Umerenge Programme
WFP	World Food Programme
USAID	United States Aid Programme

Executive summary

Introduction
This paper outlines the evidence relating to the role of public works programmes (PWP) in contributing to resilient food systems, drawing on the analytical framework set out in the first paper in this series, and presenting the discussion in relation to the issues of food access and availability, in order to present a 'state of the evidence' analysis outlining what is known about how public works can contribute to resilient food systems.

This paper explores PWP as programmes which can reduce risk and vulnerability by both improving household level access to food directly - by cash or food wage transfers and improving domestic production - and also by promoting availability - as a result of the impact of the assets created on production and productivity gains more widely, through improved rural infrastructure and market linkages.

This evidence paper draws on existing research, policy and evaluation publications and synthesises the key findings, generating lessons for future programme selection, design and implementation.

This paper explores the impact of the both the PWP wage and the assets created on food access and availability, and highlights the key factors affecting outcomes. Next the main indirect and secondary impacts on food security are outlined. After this the key policy challenges and dilemmas underlying programme choice are highlighted, the scope of the current literature appraised and the main research gaps identified, and then conclusions and policy recommendation are presented.

The wage and the assets created
PWP can address food security through two main vectors; the wage and the assets created. The wage in a PWP may be paid in either the form of cash, food, or in kind (e.g. seeds or tools). The wage primarily affects access to food.

The assets created can be social (schools and clinics), economic (roads and markets) or productive (irrigation systems, drought mitigation). The assets tend to affect food availability.

Access
The wage can directly address the issue of access, either by the provision of food, with the food wage typically being based on household food consumption, or in the case of a cash wage by enabling food purchase, relieving liquidity constraints in recipient households. Where payment is in kind, there is often a degree of monetisation (sale of goods received) in order to enable food purchase, which addresses the question of access, but is less cost efficient.

The receipt of a PWP wage has been universally found to promote food access, with increased food purchase (quantity and quality) being the primary use of the transfer in all instances where employment is provided to the poorest.

The extent of short term improvement in food access resulting from the wage is dependent on the generosity of the wage in relation to the poverty gap in recipient households. Where the food or cash wage is set low in order to reduce demand, there is evidence that the impact on household nutrition is limited. Despite this, the wage is often set low in order to prevent labour market distortion (worker withdrawal from alternative employment), particularly in sub-Saharan Africa, but this may result in a programme not having the intended food security outcome.

In addition to the value of the transfer, the extent to which a PWP can promote direct access gains is contingent on a number of programme design factors, most importantly; the frequency and reliability of the wage payment, the duration of provision in relation to the period of food insecurity, which may be chronic, transient, if resulting from an external shock, or seasonal depending on the context, and the timeliness of employment provision when implemented in response to seasonal food insecurity and associated hunger periods. Where employment provision and/or payment does not match the duration of food insecurity, is not synchronised with seasonal hunger periods, and where payment is delayed or uncertain, the direct impact on access is compromised.

The wage can also have indirect impacts on access, potentially preventing asset depletion through the distress selling of productive resources, which is likely to safeguard domestic production and livelihoods in the medium term. If sufficiently generous, the wage can promote increased production, productivity gains and livelihood diversification through investment in a range of additional inputs, (including fertilizer, and

labour) which can promote household food access, although the research findings are mixed in terms of outcomes. However, usually the wage is set lower than the prevailing agricultural day labourer rate in order to promote 'self targeting'. This is not necessarily an effective way to reach the poor, and a low wage can compromise food security outcomes.

The adoption of a wage above that prevailing for the landless casual labourers who tend to dominate as PWP beneficiaries, has been found to have a significant effect on the market wage in cases where mass PWP employment is provided in ongoing programmes. This is considered to be an indirect programme benefit which successfully addresses labour market distortions arising from oligopolistic employment practices in Asia, but is not always considered desirable among governments and development partners in other regions who are concerned not to distort labour markets.

As well as affecting the wage rate, PWPs can also increase labour market participation, particularly among women, and hence increase overall household income and food access.

If provided in a sufficiently large scale a cash wage can promote local demand for food and hence stimulate food imports, market development and also food production. Conversely, receipt of the PWP wage can also result in inflation and hence reduced access for the poorest where markets are not able to respond to increased demand.

A limited number of recent studies indicate that the duration of programming, in terms of repeated seasonal support in response to seasonal food insecurity has a significant effect on both consumption and also productive asset accumulation.

Availability

The assets produced through PWPs have the potential to promote food access by increasing household productivity and contributing to increases in the amount of land under production. More generally PWP assets are intended to stimulate availability through increased production and increased market integration. Assets can also promote resilience, and there are some examples of sustained food availability impacts resulting from PWP-created shock mitigation assets such as flood defences to protect productive land.

However, there has been little robust or systematic evaluation of the food security impact of PWP assets over time. Assessing the food security impact of assets created through PWP remains a challenge, due to problems of attribution, the limited availability of baseline information, and the tendency to focus on short term process or output indicators, such as the number of assets constructed rather than their impact on food access and availability over time. As a result the impact of assets on access and availability is not well explored in the existing literature, and little evaluation work has been carried out to test the theory of change linking asset provision with improved food security in either the short or medium term.

Inasmuch as the question is discussed, the key determinants of PWP asset impact on food access and availability are posited as: appropriate asset selection, design, execution, and maintenance. These considerations are informed by adequate project management and oversight, integration with local development planning processes, consistency with local preferences, and clarity over ownership and maintenance responsibilities, many of which are particularly challenging where programmes are implemented outside local government structures.

Indirect effects

The wage can lead to increases in labour demand, as labour constrained households use a portion of the wage to hire in additional capacity, as can productivity increases arising from asset creation. Both these effects are likely to increase access among wage labourers.

Similarly, if implemented at scale the PWP wage may stimulate local demand, and market development, which may in turn promote secondary employment benefits. However, for this to happen on a sustained, rather than temporary basis, sustained PWP on a large scale are required.

Overview of the Literature

There is a growing literature exploring the direct short term impacts of the PWP wage on food access, which consistently indicate significant benefits during the period of programme participation, although where the issue has been explored, wage generosity has been found to have a significant impact on the nutritional outcomes of improved access, which is in some cases marginal.

With a few notable exceptions, the literature however remains largely silent on evidence relating to issues of food availability, particularly in the medium term, and the role of assets in relation to increased productivity

over time is slim. There is however a growing literature indicating that the implementation of PWP in association with other forms of complementary programming relating to livelihoods development, (agricultural extension, micro-finance etc), renders sustained food security benefits more likely.

Policy challenges
The key policy issues relating to PWP programme selection and design arising from the discussion above are identified as the work requirement, the tension between short term access and longer term availability objectives, the challenge of multiple objectives, the role of PWPs in shock response, targeting dilemmas, and the role of complementary interventions.

Conclusion
The paper concludes that the main channels through which PWPs have the potential to contribute to food security in terms of access and availability may be summarised in the following schema:

Access –

Through the PWP wage

- enables direct food purchase/supply
- prevents asset depletion and associated reduced production
- lifts liquidity constraints to increase own production

Through secondary labour market effects

- increases labour demand
- increases reservation wage for agricultural labour
- increases household participation rates

Availability –

Through asset impacts on productivity

- reduces environmental degradation
- promotes soil and water conservation/irrigation
- mitigates disaster risk

Through market functioning

- improves economic integration (roads etc)
- stimulates demand

While they may often be a second best social protection instrument, PWP are more politically acceptable than cash transfers for households with available labour in many contexts, and have the potential for also promoting sustained food security benefits, if appropriately designed and implemented, with adequate complementary interventions, and for this reason, have a key role in the current social protection and food livelihoods debate and may at times be the most appropriate policy choice.

Policy Recommendations
In order to improve future programming design and develop a more evidence based policy approach in relation to PWP programming, a number of key policy recommendations are set out below:

- Select the programme type to match the nature of the food security challenge
- Ensure that programme design is rooted in an analysis of the labour market and the main constraints to food security
- Adopt a wage commensurate with desired food security outcomes
- Develop targeting criteria in line with programme objectives
- Recognise the constraints to PWP effectiveness
- Take technical and administrative capacity into account in programme design
- Improve the knowledge base to improve evidence based policy selection and design

1 Introduction

This paper outlines the evidence relating to the role of public works programmes (PWP) in contributing to resilient food systems, drawing on the analytical framework set out in the first paper in this series, and presenting the discussion in relation to the issues of food access and availability, in order to present a 'state of the evidence' analysis outlining what is known about how public works can contribute to resilient food systems.

This paper explores PWP as programmes which can reduce risk and vulnerability by both improving household level access to food directly - by cash or food wage transfers - and also by promoting availability – as a result of the impact of the assets created on production and productivity gains more widely. The issue of utilization is discussed only in passing, as this is not an area where PWP are considered to be significant.

This evidence paper draws on existing research, policy and evaluation publications and synthesises the key findings, generating lessons for future programme selection, design and implementation.

Structure of the Paper

This paper explores the impact the PWP wage and the assets created through public works programming first on food access and then on availability, and highlights the key factors affecting outcomes. The paper then discusses the range of indirect ways in which public works have the potential to affect food security, and draws conclusions regarding the performance of PWP in relation to food security overall. Key policy issues emerging from the literature are outlined and key research gaps identified. Finally conclusions are drawn regarding the role of PWP in relation to social protection provision and food security and recommendations for policy makers and advisors set out.

2 Overview of PWPs and Food Systems

PWP have a complex and multifaceted relationship to food security both in terms of the direct and indirect impacts of the wage, and also the assets created. Where PWP wages are given in the form of food this can have significant implications for wider food systems, and where in cash this can affect local markets in terms of prices and supply, with varying outcomes, depending on the functioning of those markets. The assets created through public works activities (for example soil and water conservation initiatives, irrigation systems and improved roads) may also have direct and indirect impacts on food systems, and both may also impact on the functioning of the local economy and labour market.

In this way public works programmes have the potential to contribute to food security at various levels, with the wage contributing to improved access to food and increasing food availability by preventing asset depletion and lifting liquidity constraints to investment in production; and the assets increasing agricultural productivity by preventing environmental degradation, improving irrigation, and promoting market integration through the construction and maintenance of rural access roads. Skills training may also result in improved labour market performance, enhancing future household income flows.

2.1 Overview of Public Works Programmes

Before going further it is useful to explore the term public works, as it is used to cover a range of different programmes. The core characteristic of public works programmes is that they entail the provision of state or donor sponsored employment to compensate for labour market failure, providing employment for those unable to find productive employment for their labour. As such they are a commonly used form of social protection provision for the working age poor who are either unemployed, or more commonly underemployed, working in low productivity employment. In this way public works provide a form of labour-based social safety net and simultaneously create public goods.

Public works programmes may be grouped into four main types of interventions: those promoting temporary **consumption smoothing**, offering a single short-term episode of employment with a social protection objective, those providing a form of **income insurance**, offering seasonally repeated or ongoing employment on demand, those increasing **aggregate employment** by promoting the labour intensification of

infrastructure spending, and those aiming to promote future employability by **improving the labour quality** of participants (McCord, 2012b). The characteristics of each type of intervention are summarised in box 1 below.

Box 1: **PWP Typology**

Type A: Consumption smoothing

Effective as response to temporary labour market disruption and food insecurity (natural disaster, humanitarian or short term economic crisis)

Provide once-off temporary employment (average duration in sub-Saharan Africa is 4 months)

Enable short term consumption smoothing until labour market returns to normal

Provision of employment is more important than quality of assets constructed

Often rationed access

Examples:

Implemented widely in response to natural disasters

Implemented as part of many donor funded Social Action Fund and Social Fund programmes in situations of chronic/seasonal food insecurity (eg Malawi, Tanzania and Northern Uganda Social Action Funds (MASAF, TASAF and NUSAF respectively)

Type B: Income insurance

Effective as response to chronic poverty/food insecurity - ongoing market failure and seasonal vulnerability, cyclically repeated under/unemployment/poverty/food insecurity

Provide employment on ongoing/seasonal basis

Prevent repeated distress selling of assets

Some programmes guarantee employment (Employment Guarantee Schemes (EGSs)) on demand

EGS need extensive coverage to ensure access is not rationed

Must be timely – provided at time of seasonal need

Examples:

PWP component of Productive Safety Nets Programme (PSNP) in Ethiopia

Mahatma Ghandi National Rural Employment Guarantee Scheme (MGNREGS) in India

Type C: Increase aggregate employment

Effective to promote aggregate labour demand in short term

Temporarily increases aggregate labour demand by adoption of labour-based techniques in the infrastructure sector

Provides once-off temporary employment (average duration in sub-Saharan Africa is 4 months)

Increase jobs created per unit spend on infrastructure provision

Addresses food security on temporary basis

Infrastructure creation objective is more important than secondary social protection objective

Examples:

ILO Employment Intensive Infrastructure Programme (EIIP)

Type D: Promotion of employability

Effective where main constraint to employment is lack of skills, rather than lack of demand

Promotes 'employability' after PWP employment through enhanced experience and skills

Successful if skills gained match unmet demand

Risk of worker substitution

Examples:

Rare in LIC and MIC

Often included as secondary objective eg Expanded Public Works Programme (EPWP) in South Africa

Source: Adapted from McCord, 2012b

While short term employment provision is appropriate to provide social protection in a context of temporary food insecurity, providing a wage to enable consumption smoothing and prevent sales of productive assets, to provide effective social protection in contexts of chronic food insecurity, programmes need to be predictable, regular and ongoing, and demand driven, in the case of a PWP offering seasonal or ongoing employment. However, in reality many types of PWP implemented with the intent of providing social protection to address chronic or seasonal food insecurity do not have these characteristics as illustrated above. The implications for PWP design on food security outcomes are explored below.

It has been argued that:

'it is now widely recognised that labour market interventions through rural employment guarantee programmes generate income support for the poor *and also raise agricultural productivity over the long run*....' (Basu, 2008:2)

However, it is notable that this quotation refers specifically to employment guarantee schemes (EGS), rather than employment schemes in general. While there is evidence that EGS can contribute to agricultural productivity, as discussed below, such evidence is not found in relation to the other types of PWP outlined above, highlighting the need to be sensitive to the type of PWP under discussion rather than considering their role resilient food systems as though they are a homogenous instrument. The incidence of employment schemes which guarantee income over time is low, with only one such programme fully established internationally, namely the Mahatma Gandhi Rural Employment Guarantee Scheme, (MGNREGS) in India, see box 2.

Box 2: **The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)**

The Indian MGNREGS is a domestically funded national employment programme which guarantees 100 days of employment to rural households each year, acting as an employer of last resort and offering a form of income insurance to approximately 55 million workers annually. The MGNREGS provides work on demand as an entitlement and assumes that beneficiaries will require ongoing support in a context of systemic labour market failure resulting in chronic poverty and food insecurity. The programme was initiated in 2005, building on more than 40 years of experience of employment guarantee programming at state level.

The theory of change linking PWP and increased agricultural productivity, (and hence implied improvements in both access and availability) is in most cases not explicit in programme design, and not empirically attested, but primarily based on assertions or assumptions. Little attention has been paid to the effect of PWPs on rural labour market activities of agricultural production in most PWPs, apart from the MGNREGS and its forerunner the Maharashtra Employment Guarantee Scheme (MEGS). One other programme which has explicitly attempted to address food security, and to monitor achievements and impact is the PWP component of the Productive Safety Nets Programme (hereafter referred to as the PSNP) in Ethiopia (see box 3), also an income insurance programme offering support over time, where these issues have been studied recently.

Box 3: **The Productive Safety Nets Programme (PSNP)**

The Ethiopian PSNP was developed as an alternative to the repeated, *ad hoc* emergency public works interventions which characterised the humanitarian response to cyclical food insecurity in Ethiopia over several decades. The programme aims to provide a planned multi-year response to cyclical vulnerability, providing predictable social protection for food insecure households through PWP employment, while also promoting the 'graduation' of households from poverty. It does this by providing PWP employment to create productive assets, together with a range of complementary interventions, such as micro-finance and agricultural extension, while also providing cash transfers for households that do not have available labour. The public works component employs workers from approximately 1.5 million households each year (reaching on average 7 million beneficiaries) and anticipates household graduation from the programme after five years of support. The PSNP, initiated in 2005, is funded jointly by the Ethiopian government and international donors. It has inspired the development of a number of other 'Productive Safety Net Programmes' throughout the developing world.

Source: McCord, 2012b

In part, the lack of focus on food security outcomes is linked to the short term nature of most PWPs, wherein programme design inhibits the exploration of impacts over time, and it is also linked to the fact that programme evaluation tends to take place at the point of programme completion when funding disbursement is completed, rather than in the years after project completion, preventing an assessment of sustained impacts on productivity over time. This lack of focus is also informed by dominant monitoring and evaluation conventions in PWP programming, which tend to focus on process indicators (such as numbers employed, or number of assets constructed) as key performance indicators (KPIs) rather than outcome indicators (see IEG, 2011: World Bank, forthcoming).

3 PWP and Access

3.1 The Wage

The wage is the key mechanism for promoting access in a PWP. The wage may be paid in the form of either cash, food, or in kind (e.g. seeds or tools). Most programmes use either cash or food, with only a small number of programmes offering payment in kind (seeds, tools etc.). Programmes supported by WFP and USAID (which has historically utilised domestic grain surpluses under Public Law 480 to support its PWP interventions) tend to provide food whereas programmes which are supported by other donors or domestically financed tend to provide cash. However, there is a preference for the use of food in humanitarian contexts or other situations where markets are not functioning or access is disrupted.

3.2 Direct Impacts of the Wage on Access

The role of the wage on food purchase

The PWP wage directly addresses the issue of access. Where the wage is paid in the form of food, the wage ration is typically designed to meet household calorific requirements. In the case of cash the wage is set according to a range of possible criteria, which are usually not linked to consumption needs. The wage functions to address access by enabling food purchase, and relieving liquidity constraints in recipient households. Where payment is in the form of food or in kind, there is often a degree of monetisation (sale of goods received) given the preference for cash, in order to enable the purchase of other basic goods in addition to food. Given the associated transaction costs, particularly when markets are flooded with in-kind or food commodities, using non-cash wages can represent an inefficient payment modality.

The receipt of a PWP wage has been universally found to promote food access, with increased food purchase (quantity and quality) being the primary use of the transfer in all instances where employment is provided to the poorest. Significant benefits in terms of food consumption and also child nutrition have been identified in a number of studies (see for example Qisumbing 2003, and McCord, 2004). Increases in calorie and protein consumption, as well as overall consumption expenditure have been documented among

members of participating households (Azam, 2012), as well as significant impacts on household dietary diversity (Uraguchi, 2011).

Impacts on productivity

Impacts on productivity (both at household level production for own consumption or sale, and local production beyond the household), are contingent on the value and form of the wage, as well as local agricultural and market conditions, and notably the duration of the transfer, with PWP employment over multiple years having a markedly more significant impact in contexts of chronic and cyclical poverty than single year interventions (Berhane et al, 2011).

However, in some cases it has been found that the allocation of labour to PWP employment can also result in a reduction of the labour available for own production or alternative livelihoods activities, and hence a reduction in access to food produced or purchased on this basis. The preference for immediate PWP wage income over deferred income through own production has been identified as a concern in some literature and the risk of reallocation of labour away from investment in agricultural production highlighted. For example in relation to Tigray, Aas and Mellenstrand (2002) argue that while a programme might positively affect short term calorie consumption, the effect on marketed surplus and associated income in the medium term might not necessarily also be positive. Barrett, Holden, and Clay (2002) also offer examples of PWP participation having a negative effect on participants' labour investment in their own land, but evidence on this question is mixed, and other papers identify opposite effects, with a study in Botswana finding that programme participation did not result in any reduction in staple crop production, but rather had a positive or neutral impact (Gobotswang et al, 2002), and Devereux and Coll Black (2007) indicating that PWP participants used the programme wage to purchase additional labour for the working of land which had previously lain fallow.

Similarly a recent review by Lentz (2003) examining the literature exploring the dependency and disincentive effects of food aid over 25 years finds little empirical basis for such concerns (as articulated for example in the seminal article by Isenman and Singer, 1975). Several recent studies have found that participation in food for work (FFW) programmes reduces the sale of livestock and increases both crop and non-farm income, increasing land use, conservation activities and overall household income, rejecting the 'disincentive hypothesis' (see Abdulai et al, 2005; Barrett et al 2001; Holden, Barrett and Hagos, 2006; and Bezu and Holden, 2008). Such findings are likely to be highly context specific in terms of local markets, agronomic context and also programme design features, such as the flexibility of PWP employment terms and the duration of the daily work requirement) as well as household labour composition.

The opportunity cost of PWP participation

There is however emerging evidence of the opportunity cost of PWP participation in terms of domestic activities. Chirwa et al (2004) (cited in McCord 2012) note that there is some evidence, particularly with regard to female participants, that PWP employment leads to a reduction in the time allocated to domestic activities such as child care or food preparation and the quality of child care and nutrition, with potential adverse utilisation implications. In some instances these effects can be absorbed by the intra-household reallocation of labour, but this is dependent on household labour availability, and in labour constrained households can result in an increased domestic work burden being taken on by children (Woldehanna, 2009).

PWP and microenterprise

An area less explored is the impact of PWP on other forms of household activity, such as petty trading, an issue which is central to the assumptions underlying the role of PWP in promoting food security through livelihoods diversification, and the possibility of graduation out of poverty. Where this question has been explored (see for example Ndoto and Macun, 2005; McCord, 2012b) it has been found that impacts have been limited, with the key constraints being lack of access to credit, skills limitations, market access and demand (McCord, 2012b), factors which are not addressed by PWP participation. It is often anticipated that PWP participation will stimulate entrepreneurial activity, but again the limited evidence available indicates that inasmuch as trading occurs as a result of PWP income, the reality is more likely to be micro-survivalist and fragile in nature, and often not sustained after the period of PWP employment, being again constrained by both supply and demand factors.

The importance of the net wage gain

However, all the potential wage related effects on access discussed above are contingent on the value of the wage transfer in relation to the poverty gap, which is the key determinant of programme impacts, with a lower wage resulting in more modest access-related outcomes, primarily limited to increased consumption rather

than investment. In many programmes the cash wage is deliberately capped, being set at or below the prevailing casual labour wage in order to promote self targeting, (see Subbarao et al, 2012) in line with donor recommended practice, thereby limiting opportunities for investment in increased domestic production, and resulting in the greater part of the wage being consumed directly.

In evaluating the effect of the wage it is often assumed that the net additional income value of the wage is equal to its gross value, as is the case with cash transfers. However, as most households give up some forms of paid or unpaid productive activities to participate in the PWPs the net gain to households of PWP participation is often significantly lower than anticipated (van de Walle, 1998). Analysis of the value of income foregone as a result of the PWP work requirement, and hence the net value of the PWP wage to households is likely to give a more accurate indicator of programme impact on food access and McCord (2012b) found that among workers in two PWPs in South Africa, 70-80% of workers reported giving up either paid or unpaid work to participate in the programme. Few attempts have been made to calculate the net value of PWP wages, but Jalan and Ravallion (2003) suggest that in the Maharashtra Employment Guarantee Scheme (MEGS), the precursor to the MGNREGS, once wage labour opportunities foregone were taken into account, the net value of the wage decreased to half of the gross wage, and two further studies found that the net value of the PWP wage was between 30 and 60% of PWP income (Del Ninno, Subbarao and Milazzo, 2009; McCord, 2012b).

This is an important insight in terms of comparing the function of PWP income compared to unconditional cash transfer income, where the net and gross values are more closely equivalent, once access costs are taken into consideration. However, it is not possible to draw general conclusions from this analysis, as the data on which these estimates are based is very limited, and the net value of the wage in relation to gross income is likely to be highly context specific.

PWP and household employment patterns

The impact of PWP on household employment patterns can also potentially play a significant role in terms of access, through changes in the composition of household labour allocations and hence income over time. Two main effects are identified in the literature, the one relating to the potential casualisation of labour and withdrawal from participation in permanent but exploitative terms of employment (such as tied or bonded labour, subject to debt bondage in the absence of rural credit markets) (as discussed in Basu, 2008), and the other relating to changes in labour market participation patterns, with significant increased female labour market participation being identified in several studies (see for example McCord (2012) in relation to South Africa and Azam (2012) in relation to India). In this instance, it is the availability and accessibility of unskilled wage employment in the proximity of the household which is a key factor in changing traditional gender labour market attachment, particularly in contexts where remuneration is low for women compared to men in the open market, but not in the PWP.

Finally, PWP employment can potentially enhance household income, and hence access to food in the medium term, after PWP participation, through improvements in the 'employability' of beneficiaries after they have completed programme participation. Some programmes attempt to promote skills development and workplace experience, as well as providing livelihoods training relating to job search as integral programme components, as in the case of the South African EPWP (see McCord, 2007). However, there is little literature evaluating the performance of such programmes, which are dependent on the existence of significant structural or frictional unemployment, and on the relevance of the training provided. In many of the low and middle income contexts where PWP are implemented, there is not significant unmet demand for workers with the limited skills which can be transferred during an episode of PWP employment.

3.3 Determinants of Wage Impacts on Access

As discussed above, the extent of immediate improvements in food access resulting from the wage is dependent on the generosity of the wage in relation to the poverty gap in recipient households, although some positive benefits relating to increased investment in productive activity have been identified even where the transfers have been of low value (Devereux and Coll Black, op cit). Where the food or cash wage is set low in order to reduce demand, there is evidence that the impact on household nutrition is limited, with several studies identifying losses in Body Mass Index (BMI) and/or health deterioration among workers in beneficiary households working for a restricted PWP wage (see for example Qisumbing, 2003; McCaston, 1999 and Barrett et al, 2002). The wage is often set low in order to prevent labour market distortion (worker withdrawal from alternative employment), particularly in sub-Saharan Africa, but this may result in a programme not having the intended food security outcome (Devereux and Solomon, 2006).

In addition to the value of the transfer, the extent to which a PWP can promote direct access gains is contingent on a number of programme design factors, most importantly: i) the frequency and reliability of the wage payment, ii) the duration of provision in relation to the period of food insecurity, which may be either chronic, transient (if resulting from an external shock), or seasonal depending on the context, and iii) the timeliness of employment provision when implemented with the objective of responding to seasonal food insecurity. Where employment provision and/or payment does not match the duration of food insecurity, is not synchronised with seasonal hunger periods, and where payment is delayed or uncertain, the direct impact on access is compromised. It is particularly important that the PWP employment response is timely if adverse coping strategies are to be avoided. This can be a challenge given the significant administrative and logistical requirements of PWP implementation (Barrett et al, 2002).

While there is not much literature on this question of the implications of programme duration on access, the limited studies which have recently been carried out indicate that the duration of programming, in terms of repeated seasonal support in response to seasonal food insecurity has been found to have a significant effect on both consumption and also productive asset accumulation. For example Berhane et al (2011) found some consumption gains after one year, in terms of the frequency of children's meal consumption during the lean period, but there was a significant increase in the duration of household food security after five, rather than one year of programme participation in Ethiopia, indicated by the food security gain rising from 1.05 to 1.64 months after five months of participation. Similarly, significant asset ownership gains were found only after multiple years of participation. The study concluded that while there were immediate food security gains from short term programme participation, livelihoods gains were only significant over a five year period. The study concluded in addition that receipt of the wage did not crowd out private transfers or reduce their frequency.

3.4 Indirect Impacts of the Wage on Access

Medium term benefits through reduction of negative coping strategies

The PWP wage can also have indirect impacts on access. It can prevent asset depletion through the distress selling of productive resources, and reduce the adoption of negative coping strategies which tend to have adverse environmental and productivity implications over time, and in this way also contribute to improved conservation outcomes (Bezu and Holden, 2008). Hence the transfer has the potential to safeguard domestic livelihoods in the medium term, even if the relief of seasonal liquidity constraints in some cases serves only to limit disinvestment, rather than increase investment (Barrett, 1999).

If sufficiently generous, the wage has been found to enable increased production, and promote productivity gains and livelihood diversification through investment in a range of additional inputs, (including fertilizer, and labour) which can promote household food production and hence access (Devereux and Coll Black, 2007). This kind of investment is more likely where PWP employment is cyclical or demand driven, and functioning as a form of income insurance, rather than as a one off income shock (Barrett et al, 2002).

Employment multipliers

PWP implementation can lead to secondary market related effects which themselves can extend access benefits. Wage receipt in beneficiary households can lead to employment multipliers, as it can result in increases in local labour demand, as labour constrained households use a portion of the wage to hire additional labour, and in this way can spread access benefits, beyond the initial beneficiary group, to a wider group of casual wage labourers. This can also promote land productivity by bringing underutilised land into production. Asset creation can have similar indirect effects, resulting in increased demand for labour in cases where areas under production are increased, or other productivity gains have the potential to be realised. Similarly, if implemented at scale the PWP wage may stimulate local demand and market development, which may in turn promote secondary employment benefits, as well as increase food availability, although there is little robust evidence into the extent of either of these effects.

Wage effects

A PWP wage *above* that prevailing for the landless casual labourers who tend to dominate as PWP beneficiaries, has been adopted in some programmes, notably the MEGS and MGNREGS in India, and a small number of other south Asian programmes (which are not generally donor funded). The adoption of such a wage has been found to have a significant effect on the market wage in that sector in cases where mass PWP employment is provided in ongoing EGS programmes, in effect creating a wage floor and hence promoting access (see Osmani and Chowdhury, 1983 and Basu 1982 in relation to Bangladesh and India respectively, cited in Basu, 2011). There is some disagreement in the literature as to whether these effects are generalised across the labour market or focused on women workers only, resulting from the adoption of

a common wage for men and women under the PWP, in a labour market context with highly gender differentiated wage norms, with Azam, (2012) arguing that the increase for daily unskilled labour is in the order of 1% for men compared to 8% for women, while Berg et al, (2012) suggest that the impact is gender neutral at 5% across genders.

An increased market wage as a result of increased labour demand and the elevated PWP wage may be considered to be an indirect programme benefit which successfully addresses labour market distortions arising from oligopolistic employment practices in Asia, (see for example Basu, 2008; Gaiha, 1997), and ultimately result in efficiency gains in the agricultural labour market (Barrientos and Wheeler, 2006). Significant wage effects are only likely to pertain in contexts where the scale of operation is such that collective bargaining is possible (Gaiha, 1997), and the magnitude of a programme's wage effects are likely to be influenced by a number of factors, including the timing of PWP employment relative to periods of high agricultural demand and whether the PWP takes in primarily employed or unemployed workers, as well as the prevailing terms of employment (debt-bonded labour etc).

It is interesting to note that while the raising of the agricultural reservation wage is generally perceived as a positive outcome in India, it is not considered to be a desirable outcome among most governments and development partners engaging in PWP provision, who are concerned not to distort labour market wage setting, particularly in sub-Saharan Africa (McCord, 2012b). Indeed, the provision of EGS employment and the associated elevation of the reservation wage can have adverse effects, in terms of the displacement of labour from agricultural employment, potentially drawing labour from low paid permanent employment into casual PWP based employment (Ravallion (1990) and Ahmad and Hossain (1985), cited in Basu (op cit)), with adverse consequences for long term employment relationships. The literature exploring this question is limited however, and is restricted to the South Asian context.

4 PWP and Availability

Both the wage and the assets created can affect availability, and each is now examined in turn.

4.1 Impact of the Wage on Availability

If provided on a sufficiently large scale a cash wage can promote local demand for food and hence stimulate food imports, market development and also food production. Conversely, receipt of the PWP wage can also result in inflation and hence reduced access for the poorest where markets are not able to respond to increased demand. Similarly the provision of food wages using imported food can distort local markets and provide a disincentive to local production and market functioning. In such cases, where cash is not an option local purchase is a possible alternative (see for example the WFP's P4P initiative, discussed in detail in Coles, 2013).

4.2 Impact of Assets

The assets produced through PWPs can have a range of social, economic, and productive impacts depending on the assets selected. For example, the construction of schools and health clinics can have social impacts, roads and markets which promote market access, economic impacts, and irrigation, soil and water conservation schemes or flood defences productive impacts. While social impacts can promote utilisation outcomes, it is the economic and productive impacts which are likely to have the greatest food security impact, through increased availability.

PWP assets are typically, although not exclusively, public rather than private goods, so tend not to be intended to benefit individual households. The benefits are typically diffused over the wider community, and may be geographically as well as temporally distant from those engaging in PWP employment, with soil conservation effects for example taking several years to yield results, and the benefits in terms of productivity accruing to communities other than those engaging in PWP construction. However, whether the impacts are experienced locally or in neighbouring communities, it is generally agreed that such programmes have the potential to promote food availability by increasing household productivity and contributing to the expansion of the amount of land under production, although there is little empirical evidence, outside Ethiopia and India to attest to such effects.

Recent grey literature (programme evaluations and reviews) however suggests that this potential is not realised in many programmes. This literature suggests that causal linkages between constraints to food security and the assets selected are often weak, and that the quality of asset selection, design and construction may in many cases be compromised by district level capacity and resource constraints.

4.3 Local Economic Benefits

Positive effects resulting from the creation of economic assets such as roads created through PWP have been documented (see for example von Braun, 1999 in relation to FFW programming in lowland Ethiopia), and it is recognised that where adequate materials are provided and labour inputs are appropriately managed there is the potential for public investment to be crowded in (Barrett et al, 2002) resulting in increased availability and associated food security benefits. However, assessing the food security impact of economic assets created through PWP remains a challenge, partly as the problem of attribution is problematic, and partly due to the fact that even in regard to productive infrastructure, little evaluation has been carried out to test the theory of change linking asset provision with improved food security in either the short or medium term, and little panel or longitudinal data is available to support such analysis. The key determinants of asset impacts on productivity and food security are related to issues of appropriateness, quality, sustainability and accessibility (McCord, 2012a).

4.4 Resilience and Disaster Mitigation

PWP assets can also play a role in the promotion of food availability and resilience by mitigating the impact of local risks. Examples of such interventions include WFP supported riverine management and dam construction to provide flood defences to protect productive land vulnerable to inundation. While there is positive anecdotal evidence of the desirability of such interventions, there is little systematic or robust research into the impact or sustainability of such assets in terms of food security.

4.5 Natural Resource Management

PWP assets can have a role in natural resource management, promoting irrigation and land reclamation to increase both the area of land under production and also productivity, and thereby promoting availability. PWPs have also been used to support the creation of assets which contribute to soil and water conservation, an approach which has been adopted in areas where land degradation is a major problem, for example in Ethiopia through the PSNP, and also in Rwanda under the Vision 2020 Umerenge Programme (VUP) (Siegel et al, 2011).

There is however little robust technical evaluation of the impact of such interventions on food security, to support the underlying theory of change linking each chain in the series of events required for PWP asset creation to result in food security improvements, which requires asset creation to result in geo-physical changes, for these changes to result in soil and water improvements, for these to feed through into increased land productivity, which results in improved availability and hence food security. This is a critical gap in the literature, and there are major unanswered questions regarding the geophysical, spatial, and temporal distribution of outcomes from such interventions, which are only likely to become apparent in the medium term (5-7 years) and which may not necessarily, in the case of interventions relating to watershed management, lead to results in the vicinity of the initial intervention. Due to donor and government evaluation conventions, evaluations frequently take place at the point of project completion, after the last payment has been made, and final asset completed, rather than some years after the assets have been constructed to assess their impact on food availability in the medium term. The PWP sector is characterised by an absence of baseline data, and given the limited technical baseline geo-physical data held by many low income country governments, research into impacts is severely constrained. As a consequence many programmes are largely assumption rather than evidence based.

5 Policy issues

The foregoing discussion raises a number of policy issues relating to PWP programme selection and design relating to the work requirement, the tension between short term access and longer term availability objectives, the challenge of multiple objectives, the role of PWPs in shock response, targeting dilemmas, and the role of complementary interventions. These issues are briefly discussed below.

5.1 The Work Requirement

The work requirement aspect of PWPs renders them politically popular among many governments and donors, particularly those who do not consider cash transfers for the working age poor to be acceptable (for reasons of ideology or due to fears of labour market distortion), as they do not represent unconditional hand outs, but do enable increased access to food (Barrett et al, 2002). However, this approach may be problematic where the adoption of the work requirement results in suboptimal food security outcomes for participants (due to either the low remuneration provided, the diversion of household labour away from productive activities, or the adverse reallocation of household labour, including children).

5.2 The Tension Between Differing PWP Objectives

The assumption underlying the popularity of PWPs in relation to food security and social protection is that PWP can deliver public goods, while simultaneously enabling consumption smoothing. In this way they are perceived as having the potential to respond to income shocks (thereby obviating the need for liquidating productive assets) while also contributing to an accelerated recovery by contributing to income growth and productivity increases through the assets created (Barrett et al, 2006). Where PWP are ongoing programme they can offer both short term insurance and also long term rehabilitation and development (ibid). Examples of such programmes are the PSNP in Ethiopia (see Berhane et al, 2011), and programming in Nepal which aims to promote immediate food security and also, through the assets constructed, improvements in irrigation and market integration resulting in both access and availability (Davies, 2009).

However, there can be a tension between addressing immediate food security and longer term productivity objectives in terms of different priorities in programme design, implementation and targeting. The attempt to address both within one programme can be problematic, since the two outcomes do not necessarily have the same programming requirements. For example where household productivity gains are the primary objective there may be a rationale for including those with access to potentially productive land and adequate labour, rather than those with greatest immediate access needs (Standing, 2011).

Similarly, while the construction of a particular road may enhance regional productivity through improved market integration it may not have significant positive impacts in terms of local economic development or household food security. Also, the location of assets required for strategic regional or national productivity gains may differ from the location of those in need of food security interventions, who might benefit from PWP implementation. Each of these challenges creates a dilemma in terms of whether to prioritise immediate access or longer term availability goals. From a policy perspective there may however be incentives not to make such tensions explicit, and PWP are often presented instead as instruments able to meet multiple development, and food security objectives simultaneously, irrespectively of the adverse implications for programme design.

5.3 The Challenge of Multiple Objectives

The tensions are not limited to the question of immediate access or longer term availability, and there are often wider challenges implicit within PWPs, in terms of attempting to meet multiple policy objectives simultaneously. The tensions inherent in programmes aiming to address social protection, employment, infrastructure creation and productivity enhancement objectives has been widely noted in the literature (Basu, 2008; McCord,2012; Curtain, 1999; Standing, 2002). Food security is often only one among many objectives, and attempting to satisfy many policy objectives is likely to result in sub-optimal performance in all sectors. The attempt to reconcile many policy objectives in one programme is attractive to policy makers, but not necessarily effective in terms of the outcomes achieved.

5.4 Role of PWPs in Response to Shocks

Above it is the role of PWPs in promoting food security primarily in terms of contexts of chronic or cyclical poverty which has been discussed, however, it is also relevant to consider PWP as responses to shock based food insecurity. Within this, is it important to differentiate between responses to covariate shocks, such as a drought, conflict, economic crisis or other sudden onset emergency, and idiosyncratic shocks, such as household level inability to find adequate employment resulting from changes in the composition, health or employment status within a household.

In the latter category, a PWP needs to be able to fulfil an insurance function, providing work on demand, to be effective in replacing income and thereby protecting food access, and this is contingent on large scale demand driven provision. Such programmes are currently only found in a limited number of countries in South Asia, and require significant fiscal and administrative resources for effective implementation.

In the former category, covariate shocks require a rapid response if food access is to be ensured. Here the major challenge is rapid implementation as typically programmes take time to design and implement to scale, unless they are predesigned with a shelf of assets ready for execution at the time of need. Few programmes have this facility, the case of PWPs financed under the World Bank's Rapid Social Response (RSR) fund to provide support to those adversely affected by the 2008/9 financial, food and fuel crisis, provide a good example of this challenge, with some programmes only completing the provision of temporary employment for those affected several years after the crisis had struck (World Bank. 20), significantly compromising the potential consumption smoothing value of the interventions.

Where PWP systems are already in place the potential to expand rapidly is greater, although, here the challenge is the 'tendency to geographically specific institutional inertia' which may result in programming locations and target populations not being consistent with the main locus of need in a crisis context (Barrett et al, 2002).

5.5 Targeting and Distributional Issues

Targeting is a key issue in PWP. In EGS access is (at least in theory) demand driven, so targeting is not required , but in most types of PWP the supply of jobs is far exceeded by demand, and the intervention offers social protection and food access benefits to only a small proportion of the food insecure population.

Conventionally the work requirement and low wage are used to promote 'self targeting' by the poor. However, recent research has indicated that a low wage can exclude the poor who are labour constrained with high labour dependency ratios, given the high marginal value of their labour within the household and the multiple domestic and reproductive tasks they need to accomplish for household survival (such as collection of water and firewood). Hence, targeting the poor with a low wage may not necessarily result in the intended outcome and direct targeting approaches based on geographical, demographic or poverty criteria may be required to ensure targeting and rationing are more effectively carried out(Barrett and Clay, 2003; McCord, 2012b).

5.6 Complementary Programming

The literature suggests that the provision of complementary interventions such as agricultural extension, social development services and micro-finance alongside PWPs can play a role in promoting their impact on food security. Much evidence comes from the PSNP in Ethiopia, which includes significant complementary programming in these areas alongside the PWP component, with the explicit objective of promoting the likelihood of sustained food security gains (see for example Berhane et al, 2011). The PSNP aims to 'graduate' employees into food security over a five year period by means of this combination of interventions, however, the significant technical and logistical requirements for successfully implementing PWP programming and support interventions on the scale required to stimulate such development represents a significant fiscal and administrative burden, and whether such programming will result in the anticipated benefits in such a short period remains open to question, with graduation to date being limited.

Many PWPs in Africa are adopting similar objectives to the PSNP in terms of increased food security through productivity gains and ultimately graduation out of food insecurity, although the extent to which they are able to mobilise the requisite complementary extension support, and provide employment over a multiple year period, such as to render these outputs likely, is limited (McCord, 2012b).

In contrast some large scale programmes, such as the MGNREGS in India, and many smaller ones, focus exclusively on achieving the single objective of PWP employment and wage delivery, in order to promote access, rather than integrating development objectives relating to increased productivity and graduation into food security into their public works programming, in recognition of the delivery challenges represented by a more complex approach.

PWP as a Second Best Option

The literature suggests that PWP may not be a first best transfer option in terms of promoting food security. However, in instances where for political reasons, cash transfers are not a feasible alternative, PWPs can

promote access to food and potentially also contribute to improvements in food availability, if correctly designed and executed (Barrett et al, 2002).

6 Conclusion

6.1 Summary of the Literature

The literature into both access and availability is dominated by research exploring programming in Ethiopia and South Asia where there has been a long and vibrant history of both programming and associated research initiatives, over many decades. This literature has grown considerably over the last ten years, since the initiation of the PSNP and MGNREGS in 2005.

The broader international literature is generally limited to studies examining the role of the PWP wage on food access in the short term. This literature consistently indicates significant benefits during the period of programme participation. Consumption benefits have been identified in terms of improved dietary diversity, calorie consumption and expenditure on food purchase, which is the primary use of PWP income, with effects being stronger where poorer segments of the population are targeted.

With notable exceptions relating primarily to India and Ethiopia, the literature is limited on evidence relating to the impact of PWPs on food availability, particularly in the medium term, although there is evidence of reduced depletion of productive assets and adoption of adverse coping strategies upon receipt of PWP income. Evidence from the PSNP suggests that impacts on household productivity and investment are more significant among those employed in the programme on a multiple year basis, and where complementary interventions promoting agricultural development and asset development are implemented.

The literature is weak on medium to long term performance of PWP on food security, recognised as a significant gap in current research into the role of PWP programming, which remains heavily reliant on assumptions, which may be driven by ideological preferences, rather than effective programming experience. Evidence on the impact of infrastructural assets created through the programme on food security at both household (micro) and local (meso) level are notably absent from the literature, and there has been little robust or systematic evaluation of the anticipated productivity impacts of PWP assets over time. The literature tends to focus on short term process indicators such as the number of assets constructed rather than their impact on food access and availability over time.

In particular the effects of interventions aiming to address the impact of environmental interventions (such as soil and water conservation) on productivity are only discernible over time, and evaluating impacts requires data on geophysical, productivity and food security outcomes, which are not readily available in many low income contexts. Hence the literature assessing the impacts of such programmes is particularly lacking.

Where large scale programmes have been implemented on a sustained basis, significant wage effects have been found which extend beyond direct participants, but such programmes are extremely limited in number.

There is however a growing literature indicating that the implementation of PWP in association with other forms of complementary programming relating to livelihoods development, (agricultural extension, micro-finance etc), renders sustained food security benefits more likely.

The major gaps in the literature relate to the impact of programming on food availability in the medium term with particular reference to the impact of the assets created.

6.2 How PWP Function

The main channels through which PWPs have the potential to contribute to food security in terms of access and availability may be summarised in the following schema;

Access –

Through the PWP wage

- enables direct food purchase/supply
- prevents asset depletion and associated reduced production

- lifts liquidity constraints to increase own production

Through secondary labour market effects

- increases labour demand
- increases reservation wage for agricultural labour
- increases household participation rates

Availability –

Through asset impacts on productivity

- reduces environmental degradation
- promotes soil and water conservation
- mitigates disaster risk

Through market functioning

- improves economic integration (roads etc)
- stimulates demand

While they may often be a second best social protection instrument, PWP are more politically acceptable than cash transfers for households with available labour in many contexts, and have the potential for also promoting sustained food security benefits, if appropriately designed and implemented, with adequate complementary interventions, and for this reason, have a key role in the current social protection and food livelihoods debate and may at times be the most appropriate policy choice.

7 Key Messages for Policymakers and Programmers

PWPs can potentially have a variety of beneficial impacts on food security at household and community level by addressing key constraints to access and availability. However, programmes are not always designed in such a way as to realise these benefits in terms of the type of programme selected, and specific design issues relating to wage, nature of assets created etc. Also, existing processes for monitoring performance and gathering information on food security impacts are limited, with high quality analysis concentrated on a limited number of programmes in South Asia and Ethiopia where there has been a long history of PWP implementation. There is a need to improve norms in this area with a greater focus on impact rather than process monitoring. In order to improve the relevance of future programming design and develop a more evidence based policy approach in relation to PWP programming, a number of key policy recommendations are set out below.

Select the programme type to match the nature of the food security challenge

The literature indicates that short term programmes implemented timeously in response to acute market disruptions are likely to protect food access, and prevent reductions in production in the medium term. However, if short term interventions are implemented in contexts of chronic or cyclical food insecurity they are unlikely to have a significant impact. Ongoing programmes are more likely to have a significant impact on food security in contexts of chronic or seasonal poverty.

Ensure that programme design is rooted in an analysis of the labour market and the main constraints to food security

Given the various forms of imperfection prevailing in rural labour markets, the variety of existing employment scenarios, and the varying constraints to food security, programme design (asset selection, identification of requisite complementary services etc) needs to be informed by a contextual analysis to ensure the main constraints to food security are addressed.

Adopt a wage commensurate with desired food security outcomes

A restricted wage may undermine the anticipated food security objectives of an intervention. Wages should be determined taking into consideration both market effects and also consumption needs.

Develop targeting criteria in line with programme objectives

There may be a tension between targeting the most food insecure, and those with potential to participate in a PWP. It is necessary to identify the priority beneficiaries, and target accordingly, rather than relying on 'self-targeting' through the work requirement and low wage to restrict demand. Evidence on the efficacy of self targeting through a low wage is limited, but highlights conceptual and practical weaknesses in the approach (Barrett and Clay, 2003) and the grey literature suggests that the work requirement may be a barrier to the participation of labour constrained poor households.

Recognise the constraints to PWP effectiveness

It is necessary to determine whether a PWP is the appropriate instrument for providing social protection and promoting food security for particular groups of the vulnerable, and recognise the limits to the efficacy of PWPs in supporting the labour constrained working age poor. To address this challenge the adoption of alternative, complementary interventions for this group need to be explored.

Take technical and administrative capacity into account in programme design

If appropriately designed and implemented PWPs can play a role in promoting food security, but this is contingent on the availability of adequate technical and administrative capacity at local level. Programme design needs to take capacity into account.

Improve the knowledge base to improve evidence based policy selection and design

There are significant gaps in the knowledge base around PWP performance in relation to food security outcomes, particularly in relation to asset impacts in the medium term, and an absence of baseline and monitoring data to ascertain impacts. Conventional performance monitoring in this sector tends to focus on process rather than impact indicators, and on immediate effects rather than the sustainability of impacts over time (IEG, 2011). In order to build an evidence base assessing the effectiveness of PWP interventions, there is a need to put in place robust monitoring systems and shift existing evaluation norms.

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