

Recognising and tackling risk and vulnerability constraints to pro-poor agricultural growth.

Further revised draft of Chapter 7

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1. Executive summary

This chapter argues that, far from ‘draining’ public funds and so reducing public investment in the productive sectors, initiatives to reduce risk and vulnerability, if managed well, can enhance the engagement of the poor in markets, and so stimulate productive activity. Also, certain types of public investment (e.g. in infrastructure) as well as reducing risk, can stimulate private investment, (and so potentially employment creation) by the better off.

To economists, *risk* is the likelihood of occurrence of an adverse event, weighted by the potential severity of the event, and has both idiosyncratic and covariate dimensions. Our preference here is to take a broader perspective by examining the *shocks* and *stresses* that underpin both risk and vulnerability. These have diverse origins (in health, social, environmental, political, and economic/market-based conditions). *Vulnerability* reflects the capacity of households or individuals to prevent, mitigate or cope with shocks and stresses, and it is increasingly being recognised that this capacity relates to assets¹. Some breakdown of the “rural poor” is important to identify what individuals or households are potentially affected by what kinds of shocks and stresses, and how. Households have a wide range of traditional ways of reducing risk (e.g. by jointly managing soil, water and vegetation in watersheds to prevent flash floods and erosion, and reduce the risk of drought) and vulnerability (by choice of crop, crop combination, crop/livestock enterprises, by increasing assets that can readily be liquidated, diversifying employment etc). More modern ways include the purchase of insurance policies against crop failure, asset loss, or death and ill-health. A central question for this paper is how policies in agriculture and related sectors can mainstream risk- and vulnerability- (R & V)-reducing measures in ways compatible with the kinds of options already available to the rural poor. One thread common to all prospective policies is that affirmative action is likely to be needed to prevent disadvantage by gender, caste, class or creed.

Policy options within agriculture include support for the creation of communal and individual assets, for local value-addition, storage and marketing facilities, the operation of buffer stocks, the reduction of transaction costs, including improved (and better-enforced) regulation and legislation, and technology policy which seeks a balance between productivity-enhancement and variance-reduction. Broader measures in which agriculture departments are likely to play a role include crop and asset insurance schemes, area-based programmes, rural finance and business services, and transfers or subsidies related to food security.

¹ Some (e.g. Zimmerman and Carter, 2003) have formalised vulnerability in terms of asset portfolios and thresholds.

Although the central focus of the paper is on public policy in agriculture, the analysis is extended *vertically*, to cover R & V-reducing measures that can be taken by higher-level policy. This includes *international trade* policy, where exposure to low-cost imports and adverse foreign direct investment are major risk factors, but also *national* policy concerning e.g. fiscal measures to ensure appropriate resource generation for public investments and transfers, and Medium Term Expenditure Frameworks governing public resource allocations among sectors, and across provinces.

The analysis is also extended *horizontally*, to consider the types of R & V-reducing measure that can be taken in other sectors, which would complement agriculture-based measures. Initiatives under small enterprise and employment departments may do so by helping the rural poor to diversify their livelihoods, for instance. A major opportunity for complementarities is between policies in agriculture and domestic spheres, given the large volumes of household resources that flow from one to the other to meet shocks and stresses as and when they occur. Potential domestically-focused policies include microsavings, insurance and credit, and social pensions and allowances. These permit the rural poor to engage in the economy, if not as labourers or entrepreneurs, then as consumers. But it is worth recalling that such transfers can release existing informal transfers for productive investment, and there is some evidence that pensions are used for production-relevant investments, such as the education of grandchildren.

The analysis suggests a number of specific *knowledge gaps* in relation to R & V reduction in agriculture. For instance, we know little about:

- how the links between SP, agriculture and gender are played out in relation to women's practical and strategic interests
- how the private sector might best be stimulated to design and market appropriate new R & V-reducing products, including micro-savings, credit and insurances, and how it can link with community-based organisations.
- the nature of individuals' trajectories (if any) from being outside to being engaged within the productive economy, what the preconditions for such progression are, and whether/how they might best be put in place.

However, our general conclusion is that reducing R & V is less about filling knowledge gaps and more about improving the implementation of existing ideas and practices. In this respect, the paper offers a number of policy suggestions which governments and international agencies are well-placed to act upon:

- A major priority is to strengthen the *implementation* of existing policy measures. This implies the 'mainstreaming' of R & V-reducing measures within policies focusing on agriculture and related spheres. Experiments in reducing R & V need to be shared within and across countries, and innovative practice be promoted
- The above measures can be promoted through 'new architecture of aid' vehicles such as PRSPs, MTEFs and direct budgetary support, where there is scarcely any discussion of R & V reduction within the mandates of the productive sectors.
- National capacity needs to be strengthened to assess more rigorously the trade-offs between growth-promoting and R & V-reducing measures, and between

different instruments for achieving R & V reduction, both within and across sectoral mandates.

2. Background to the issues

The poor benefit from growth either through productive activity in which markets play a central role, or through subsidies and transfers (which are funded via the taxation of productive activity). There are longstanding debates over where the balance of public expenditure should lie - in allocating more to growth, or more to transfers or other measures targeted towards particular subcategories of the poor. Clearly, there are tradeoffs all along the spectrum from, at one extreme, policies that support growth with little risk and vulnerability (R & V) reduction built in, to, at the other, policies focusing heavily on R & V reduction, but which require levels of taxation so high as to be a disincentive to private investment and initiative. The criteria on which public investment decisions are made will vary according to locally specific characteristics of production opportunities, the numbers in poverty, the nature and location of poverty and so on. This paper aims to contribute to more refined policy decision-taking by examining how risk and vulnerability² in their broader definitions can be addressed in relation to a specific productive sector, namely agriculture, given that productive sector policies currently consider, at best, only limited aspects of risk and vulnerability.

This analysis then helps to identify new roles for government in the context of markets which are changing rapidly but (from the perspective of the poor) continue to function imperfectly. It focuses on risks affecting the entrepreneurial³ as distinct from the domestic sphere, but recognises that some kinds of risk are common to both. It also acknowledges that money is fungible, and so, at household level, funds flow both ways between entrepreneurial and domestic spheres in response to shocks and stresses. It asks whether and how poor people can be better protected against the prevalent kinds of entrepreneurial risk. Different levels of household vulnerability also influence the degree to which given levels of risk impact on households and

² Risk is the likelihood of occurrence of shocks and stresses, which can be either internal or external to the household; risk can also be idiosyncratic or covariant (i.e. affecting many simultaneously). It can also occur on different scales, and requires scale-specific responses (Table 1 of Chapter XXX in this volume). Vulnerability is the degree of exposure of communities, households or individuals to such adverse events, and their capacity to prevent, mitigate or cope with them, which are increasingly recognised as being related to the assets they own or can access. Risks are of many kinds: health, social, environmental, political, and economic/market-based. Whilst all of these are touched upon in this paper, the focus is on economic/market-based. Although the term “risk” is used throughout this chapter, the interpretation is not limited to events which are potentially insurable, but embraces the wider shocks and stresses underpinning risk and vulnerability, which may be complex. Thus, inadequate soil and water conservation may make potential shocks such as drought and flooding more likely (and/or of more severe impact), but they also act as longer term stresses on the farm economy by reducing soil fertility.

³ For short, these are referred to throughout as “entrepreneurial risks”, though are interpreted much more widely here than the fairly narrow types of business risk usually associated with running an enterprise.

individuals, but vulnerability was considered in an earlier chapter and is not the main focus of attention here.

Further premises underpinning the paper are that:

- risk (and/or perceptions of risk) reduce engagement by the rural poor in productive activity and so reduce both efficiency and equity;
- if preventative, coping or mitigating action is not taken, risk and vulnerability can cause loss of productive assets and so send rural households on a downward spiral into poverty⁴
- households typically respond to perceived risk in two broad ways. *Risk management* strategies involve entering into low risk activities or diversifying into portfolios of activities with differing profiles, for example, growing more drought resistant crops, entering into petty trading or firewood collection, seasonal migration etc. *Risk coping* strategies involve activities to cope with the consequences of risk. Two types are commonly observed: self-insurance using savings (for example, in the form of small livestock) to be sold off when the need arises, and informal mutual support mechanisms, where members of the group or community provide transfers to each other in times of need of one of its members, typically on a reciprocal basis.
- the poor and better off face different kinds of market, so requiring different kinds of R & V reduction. In particular, perceptions of high risk among the poor may encourage them to enter interlocked market arrangements (on unfavourable terms) with a local patron who offers them some degree of social protection. Discrimination based on gender, caste, class and creed may also exacerbate risk and vulnerability.

Questions addressed by the paper are whether and how:

- R & V reduction can be ‘mainstreamed’ into policy decisions concerned with growth promotion, and into vehicles related to development assistance dialogue such as PRSPs and Medium-Term Expenditure Frameworks
- appropriate choices can be made where trade-offs occur, as e.g. between growth and risk reduction, and among different risk-reduction measures;
- new approaches to reducing risk can be devised, and traditional approaches to risk reduction built upon more fully;
- market liberalisation is likely to increase certain kinds of risk;
- risk reduction can be taken forward simultaneously in domestic and entrepreneurial spheres;
- the sequencing of risk-reducing measures is important: thus, for households having at least one member capable of engaging with the productive economy, a prerequisite may be to stabilise their domestic situation by providing appropriate risk- and vulnerability-reducing support before encouraging engagement in productive activity

⁴ Jalan and Ravallion (2003) find that households take several years to recover from a single income shock, and that recovery is slower for the poorer.

3. The current evidence – what do we know so far ?

Who faces what kinds of entrepreneurial risk?

The types of domestic and entrepreneurial shocks and stresses to which the rural poor are exposed were discussed in Chapter XXX. Our attention here is on entrepreneurial risk and vulnerability. Efforts to reduce risk affecting the rural poor have to be undertaken against a context in which, in many countries, some two thirds of the poor are found in rural areas, and two thirds of these are in remote and difficult areas which are weakly integrated into market-oriented infrastructure and institutions. Compounding this is the fact that agricultural growth in these areas has been weak, and that, increasingly, people are moving out for part or all of the year to take up work elsewhere, which may help them to diversify against certain kinds of risk but expose them to new kinds. Those selling their labour – the major productive asset over which the poor have control – face two kinds of risk: those specific to the kinds of work they do, and to the conditions under which it is undertaken (including seasonal migration, and urban worksites with poor health and safety provisions); and the wider economic/business risks that affect the prosperity of the (sub-)sectors in which they engage, and so the amount and quality of work available for them.

Segmentation of the poor is important in identifying the types of risk they face, and how they might be vulnerable to them. The poor can be microentrepreneurs (i.e., farmers in this case), and/or labourers and/or consumers⁵. In relation to agriculture, a slightly stylised but robust segmentation is given in Table 1. The ‘proportions of rural population’ are indicative, and will vary considerably from one context to another.

Changing perspectives on risk and vulnerability

Early post-Independence support to agriculture remained partly concentrated on

Table 1: Schematic segmentation of rural populations by engagement in agriculture and types of risk typically faced

Categories of rural population ⁶	Proportions of rural population	Types of risk typically faced	Typical measures to prevent/mitigate/cope with risk
1. Commercial or semi-commercial farmers	Upper 20% - 30%	Generally <i>new</i> risks: Input/output price fluctuations, possibly associated with international market changes; stricter quality controls on products; saturation of national markets; transport/storage failures for	Improved technology (irrigation, agrochemicals, new varieties) may reduce generic risks (weather; pests and diseases). Relevant education, information and extension advice may help in diversifying and achieving higher quality; storage infrastructure may reduce price fluctuations, but these remain problematic

⁵ All entrepreneurs and labourers are also consumers, but the reverse does not apply: those unable to engage in the productive economy are consumers without being labourers or entrepreneurs. Many have diverse livelihoods, such that for part of the year they may be farmers (entrepreneurs) but, for the remainder, labourers. Studies of households that have escaped poverty find that in more than 80% of cases, the decisive factor was that the head of a household found a new job (WDR 2005).

⁶ There are potentially several further categories in the rural space – of (relatively) high income traders, and middle income artisans, for instance – but these are omitted, given the present focus on agriculture.

		perishables	
2. Those mainly active as small farmers on own land, but may also lease in or sharecrop, and migrate seasonally	Middle 30% - 40%	Generic risks (pests and diseases; weather); possibly problems (as in (1)) of new market links, but most likely to be problems of local and/or seasonal market saturation, and imbalances of market power	Sound macroeconomic and sectoral policy will reduce risks of market saturation, as will advice/education/input supply in relation to diversification. Information, institutional and infrastructure development needed to make markets function better. Farmers' strategies include diversification within and out of agriculture
3. Those having a little land, but mainly dependent on sharecropping, seasonal migration etc	Next 10% - 20%	As for (2), but also risk of landlords withdrawing land, of dearth of off-farm jobs, non-enforceable contracts, dangerous working conditions on construction sites, etc	Policy requirements as in (2), but also support to personal insurance and strengthened institutions for contract enforcement, health and safety etc. Farmers' strategies include diversification and investment in "bite-size" assets (trees; small livestock) that can be sold in crisis
4. Those with few assets, mainly dependent on casual, unskilled labour	Next 10% - 20%	As for (3), but with a particular focus on effects on the jobs market	As above, but policies to support seasonal migration, commuting and personal insurance may be especially relevant
5. Those unable to engage in regular productive activity (very elderly, sick, disabled, very young, female-headed households with many dependents...), all of whom rely on informal transfers of food, shelter, clothing	Lowest 5% - 10%	Any risks impacting negatively on the agricultural and related economies are likely to have secondary effects on this group via reduced informal transfers to them	Measures as above to strengthen and stabilise the household economy will help, but (where national budgets can afford them) measures to provide social protection (health, social pensions, child & widows' allowances) may be especially relevant

commercial export commodities, at a time when real international prices had begun to fall, but the wide short- and medium-term fluctuations characteristic of the last decade or so had not yet kicked in. Concepts of price-related risk were therefore in their infancy, and farmer behaviour in response to price-related and generic risks (see Chapter XXX) which was later demonstrated as logically risk-reducing, was widely regarded as "*backward*" and "*excessively conservative*".

Improved understanding of farmer decision-taking generated by the work of Norman (1974) on intercropping and relay cropping, and of Mellor (1966) and Collinson (1972) on *farming systems*, revealed the logic of many farmers' decisions⁷ to reject production-*maximising* approaches in favour of those giving some balance between productivity gains and risk reduction. This was subsequently taken up as a central tenet of current "niche" work on *low external input and sustainable agriculture* – "niche" because it relies on inputs of family labour at returns lower than what it could potentially earn elsewhere, and is likely to be displaced as soon as competitively paid jobs become more widely available. The "*tragedy of the commons*" arguments

⁷ Especially farmers in categories 2 and 3 of Table 1.

illustrated how risks would escalate if the institutions (private ownership, or common property management regimes) were not in place to manage the resource adequately. *Livelihoods perspectives* on agriculture and rural development allowed a more nuanced assessment of the types of “vulnerability context” facing small producers, how these helped to condition the livelihood strategies pursued, and how they could draw on (and build up) capital assets to reduce risk and vulnerability.

Policy failure to deliver growth and poverty reduction owing to inadequate incorporation of risk management principles

It is difficult to attribute observed events to specific policy action (or inaction) in relation to R & V reduction. However, there are large amounts of circumstantial evidence. For instance, agriculture development plans typically focus on the promotion of growth (of yield, of annual cropped area, of irrigated area, and so on) with rarely any reference to the need to reduce the variance (spatial or temporal) around rising trends, and variance is a strong indicator of risk. The stronger the “push for growth” the higher are risks likely to be, attributable to higher susceptibility to pests, diseases and drought. Market price fluctuations may be particularly important for products geared to specific markets. Plans and programmes generated at higher levels of government, such as PRSPs, typically provide some assessment of poverty, risk and vulnerability, and are driven by poverty reduction objectives, but rarely make essential connections between the two in the form of improved mechanisms for service delivery and public investment prioritisation that will allow risk and vulnerability which is rooted in the productive sectors to be addressed in practice.

The potential contribution of agricultural (and higher level) policies as a means of insuring and protecting livelihoods

At the level of *international policy towards trade and intellectual property rights (IPR)* (and related policies on e.g. exchange rates) there is considerable potential for risk reduction. Tariff reductions in principle offer improved prospects to exporters, but expose domestic producers to the risks associated with much higher competition. Producers of silk in India have, for instance, recently suffered as a result of increased Chinese imports as tariffs are restructured, and edible oil producers have suffered similar threats. Countries facing high transport costs to international markets are to some degree protected from cheap imports, but by the same token, would-be exporters cannot easily take advantage of new markets which open up as tariffs fall. Many observers⁸ perceive several kinds of risk-related problem with current international trade, foreign direct investment (FDI) and intellectual property rights (IPR) regimes:

- i. changes in tariff regime may leave some countries (and products) excessively exposed, and more work needs to be done on “getting tariffs right”;
- ii. north-based concentrations of power at particular stages in processing/marketing of particular commodities works to the disadvantage of developing country producers. Coffee provides a striking example. There is a view that nothing short of vigorously implemented international anti-trust

⁸ These arguments are expanded in, for instance, the recent DFID Natural Resources and Agriculture Team’s electronic discussion forum: <http://dfid-agriculture-consultation.nri.org>

- policy will be adequate to make markets such as these function in a more pro-poor fashion⁹
- iii. it is inequitable for developing country producers to be required to remove tariffs and subsidies when subsidies in OECD countries are running at some US\$1bn per day.
 - iv. rapidly growing penetration of developing country markets by multinational supermarkets are imposing new product standards and buying practices on commodity chains which increase levels of risk for some producers and exclude many altogether. Whilst there can be little dispute over health and safety standards, many of the standards imposed by supermarkets are in fact cosmetic, having to do with colour, skin blemishes, size and shape, all of which make it more difficult for small producers to engage. These suggest policy responses which seek greater corporate social responsibility (CSR) on the part of supermarkets (towards producers, whereas it has traditionally been towards consumers) combined with greater regulation of supermarket practices and capacity building among farmers to meet new standards. Where appeals to CSR do not work, it may be necessary to address these issues through regulatory regimes or through conditions attached to FDI.
 - v. long-term international price decline in many agricultural commodities, together with short- and medium-term fluctuations, pose considerable risk, but views are sharply divided on appropriate responses: no matter how desirable they may be, attempts towards that buffer stock management and supply restriction by the major producing countries acting in consortium have yielded little of enduring value so far. There are also serious doubts over the feasibility of commodity hedging schemes of the kind being developed by the World Bank (Skees et al, 2005).
 - vi. the rapidly growing acquisition by multinational corporations of intellectual property rights to plant and animal genetic resources, combined with their growing share of overall expenditure on agricultural research¹⁰ poses particular problems (discussed below), one of which is the increased promotion of high-performance varieties, often requiring high levels of purchased inputs, and often having characteristics suited to particular, narrow markets, sometimes controlled by the same multinationals. Whilst an individual farmer growing several of such crops might spread his risk, the tendency overall is towards individual specialisation, which tends to be risk-increasing
 - vii. most fundamentally, there are questions over the efficacy of the “export-led growth” model being advocated by international agencies in the wake of economic reform programmes, especially when this relies heavily on agricultural commodities, given that they are subject to long term price decline as well as to oversupply-induced shorter term price fluctuations.

At the *national level*, there are clear possibilities for mainstreaming risk reduction, within the framework of PRSPs and Medium Term Expenditure Frameworks, where these exist. The possibilities may include:

⁹ see, for instance, the international trade section in <http://dfid-agriculture-consultation.nri.org>

¹⁰ Implying that the public sector share has fallen

- i. public investment allocations *across sectors*: shifts in the balance of public budgets may help to spread risk by enhancing the prospects of economic diversification generally (such as the creation of export promotion zones; the expansion of transport and communications infrastructure, and so on). This may also facilitate risk-spreading through livelihood diversification at the individual or household levels as new employment opportunities are created, though more specific policies to support seasonal migration by providing childcare and education, or facilitating remittances may also be necessary
- ii. changes in the balance of public investment allocations *across provinces* may have similar effects. These might include, for instance, investment promotion measures as well as transport and communications infrastructure.
- iii. *fiscal* policy is also likely to have important roles to play, insofar as some elements of risk and vulnerability reduction require transfer payments (such as social pensions, other allowances, and possibly subsidised personal insurance – see below), which, in turn, rely on taxation systems which are progressive, and simple and robust to administer.
- iv. policies towards *health and education* reduce the susceptibility of communities, households and individuals to risk, and enhance their capacity to prevent, mitigate and cope with risk.

At the ***agriculture and natural resources sector*** level, a wide range of options exists, including:

- i. investment in *communal assets*, including soil and water conservation structures, to reduce the risk both of catastrophic events (e.g. landslides and flooding) and of chronic processes (e.g. soil erosion, lowering of underground water tables). Other forms of communal investment, such as gravity irrigation schemes, can be powerfully risk-reducing.
- ii. promotion of investment in *individual assets*, especially those such as small livestock and trees which can be sold in small, divisible amounts to meet shocks and stresses. Such support might, for instance, take the form of provision of appropriate genetic material and technical advice.
- iii. Promotion of investment in *value-addition*. Suppliers of raw materials tend to face stronger price fluctuations than do those of finished or semi-finished products. Investment in appropriate processing, storage and marketing facilities will therefore be necessary both to retain income in or near areas of production, and to reduce fluctuations in that income.
- iv. Agriculture-related *legislation and regulation*, such as reform of land tenancy and inheritance legislation, minimum wage legislation (and its better enforcement), and efforts to make markets work better for the poor, including downward pressure on the excessively high product standards that are almost impossible for small producers to meet.
- v. Public investment in *buffer stocks* is in principle an effective way of reducing foodgrain price fluctuations at farm and consumer level, but rarely operate efficiently (Box 1)
- vi. Agriculture-related *service delivery*, including: an appropriate balance in agricultural research priorities between enhancing the productivity of e.g. crops and enhancing their capacity to resist pests and diseases or tolerate drought; the promotion of farming systems which spread risk among varying combinations of crop, livestock and tree enterprises, and pressures to ensure

- that private providers of e.g. agrochemicals adhere to standards, provide adequate information to buyers, and, ultimately, set up self-regulating bodies. In other agriculture-related services such as credit, insurance and processing/marketing, there is scope e.g. for crop insurance schemes engaging the private sector to address longstanding problems of covariate risk, moral hazard and high administrative costs.
- vii. Pursuit of crop and livestock policies which seek a balance between *growth and risk reduction*. The highest-yielding technologies are often also the highest-risk, requiring heavy farm investment in equipment and operating materials such as agrochemicals. Unexpected shortfalls in yield or reductions in price pose particular threats where expenditures have been high. To obtain an appropriate balance between growth and risk-reduction, it is essential to understand how and why farmers themselves traditionally seek to reduce crop production risk (Box 2).
 - viii. *Efforts to reduce transaction costs*. These are normally associated with public investments in transport, storage and communications, made with the intention of reducing the costs and risks in searching for market information, establishing contact with potential buyers/sellers, guaranteeing the rule of contract law, and conducting transactions¹¹, but Box 3 illustrates how the private sector can be involved.

Practically all of the above measures can be targeted to particular categories of the poor, or areas in which they are predominantly found, though some (such as strengthening the legislative and regulatory framework for trade) are likely to generate more benefit to the better-off. In addition, there are *specific agriculture-linked targeted measures* that may involve an element of transfer or of subsidy – either temporarily, to stimulate eventual private sector engagement, or on a more enduring basis – that have important risk-reducing implications. For instance:

- i. *Area-based* agricultural and NR policies offer particular risk-reducing opportunities, for many of the same reasons as wider public investment policies discussed above. Area-based policies became unpopular at the same time as many donors pulled out of Integrated Rural Development Programmes¹², but, as Box 4 argues, there is merit in considering how they might reduce risk.
- ii. *Efforts to promote appropriate insurances*. Crop insurance schemes potentially mitigate risk but have been largely abandoned owing to the high administration costs of collecting premia and verifying claims. Also, the covariant nature of the major risks (attributable to adverse weather) mean that only the largest insurers can withstand the large number of simultaneous claims likely to be made. New approaches (Hess, 2003) rely on weather reports for a particular area as a “trigger” for payments to affected farmers and so stand to reduce administration costs. However, much work remains to be done to pilot different modes of implementing these. Insurances of many other

¹¹ Some (e.g. Dorward et al, 2004) postulate the reduction of transaction costs as a justification for “smart subsidies” in several areas, including service provision.

¹² The pendulum swing out of IRDP was prompted by views that many were overambitious in seeking to advance on many fronts simultaneously, that they set up parallel investment prioritisation and service delivery mechanisms, and they offered emoluments that drew the better staff out of the public sector.

kinds would also assist in mitigating or coping with risk. These include insurances for assets such as livestock, equipment or structures. They also include (farm-) occupational schemes for injury and sickness. However, markets for insurances of these kinds remain underdeveloped. Suggestions on how they might be strengthened are made below.

- iii. *Efforts to strengthen rural finance and business services.* Services of these kinds are typically weak in rural areas – especially the more remote areas. Insofar as they facilitate diversification, support for these services is potentially risk-reducing and merits attention. NAADS in Uganda provides an illustration of efforts to place agricultural advice in the broader context of business development and rural finance.
- iv. More enduring forms of subsidy provide one of the few examples within agriculture of *transfer* payments, though they may not have been conceived in this way. In fact, the objectives of some initiatives have evolved over time (Box 5).

The interface between domestic and agricultural spheres, requiring the involvement of departments other than agriculture

Agriculture in relation to other sources of risk

In such a brief overview as this, it is impossible to examine entrepreneurial risks as they apply to other production sectors or sub-sectors, or to assess in any depth the range of health, social, environmental or political risks facing the rural poor. However, one category of risks – broadly those occurring in the domestic sphere – is considered, largely because of its size may imply substantive resource flows out of agriculture if left unattended. Box 6 provides an example from India.

These data suggest that such high expenditures on marriage, health and funerals will inevitably draw funds away from entrepreneurial activity. This may happen directly, or indirectly – most of the social expenditure funds were borrowed from friends, relatives or moneylenders, and this inevitably causes diversion of revenues from productive activity to repay loans, and/or reduced ability to obtain further credit whilst the loan remains outstanding.

The policy imperative is therefore to design and implement measures to reduce risk and vulnerability *in a coherent fashion* as between entrepreneurial and domestic requirements.

As Chapter XXX suggests, there can be several ways of supporting R & V reduction for the domestic sphere. In relation to a framework developed by DFID for promoting pro-poor growth and risk-reduction, Johnstone (2004) groups these into three categories:

- Insurance-based policies (for example, social insurance, crop insurance and health insurance)
- Social ‘assistance’, i.e. non-contributory, tax-financed benefits, in cash or kind, provided to certain categories considered vulnerable (for example, the provision of free school meals etc)

- Other (for example, microfinance services, employment support such as public works programmes)

These may include support for micro-savings and credit schemes (possibly on the Grameen Bank model), the provision of micro-insurance against sickness, injury and death, and regular payments such as social pensions to the elderly and widows, allowances to orphans or the disabled, school fee allowances, school feeding schemes etc. To transfer funds to those unable to engage in the productive economy is regarded by some as little more than a 'handout'. However, transfers need not be 'a pure consumption cost'. They can be made to support production in at least two broad ways: one is to transfer resources towards targeted groups on the basis of need and deliver them only when recipients have taken a set of actions, which usually consist of investments in their own human capital. Examples include food (or cash) for work, and food for education. The other is to use them as an investment for maintaining human productivity in the longer run, among those who would otherwise suffer irreparable damage, physically or economically. Obvious examples include the long term damage done by severe malnutrition in early childhood, the failure of orphans or street children to attend school, or the sale of household assets such as land or livestock in times of crises, all of which safety nets can be used to protect against.

In all events, whilst such transfers may be too small to allow a build-up of assets, they do at least allow the recipients to engage in the economy as consumers, and may allow existing informal intra-household resource transfers to be switched into productive activities such as agriculture. Further, in some settings (e.g. S Africa – Devereux (2003)) there is evidence that part of social pensions paid to the elderly are invested in productive activity.

One of the benefits of a closer coherence between interventions in domestic and productive spheres is the prospect of avoiding negative interactions, such as are caused, for instance, when poorly-timed food aid disrupts local agricultural markets.

In *summary*, the central argument in this section is that there is a major task facing governments and donors in mainstreaming the consideration of risk and vulnerability into policy decisions at several levels, progressing from the international, through national, to sector-specific. Conventionally, interventions to support growth (even pro-poor growth) have neglected the scope for risk reduction, and for building on traditional risk-preventing, avoiding, mitigating or coping mechanisms. Such considerations should play a much stronger role in PRSPs, the design of Direct Budgetary Support, and the construction of Medium-Term Expenditure Frameworks than they have done hitherto. In addition, there is an interesting discussion to be had on how far the conventional role of departments of agriculture can be extended into more mainstream social protection practices by embracing e.g. subsidy intended to stimulate the uptake of new practices, or even certain types of transfer.

However, what is clear is that the bulk of mandate for specific socially protecting measures will lie with other departments, but should be undertaken in coherence with more agriculture-specific measures. These include social insurance, social assistance (i.e. non-contributory, tax-financed benefits, in cash or kind, provided to certain categories considered vulnerable – for example, the provision of free school meals

etc), and assorted other measures, such as microfinance services, or employment support such as public works programmes.

4. Areas of remaining debate and disagreement

Are there trajectories from destitution to engagement with the productive sectors?

The World Bank's presents its SRM framework (World Bank, 2001) largely as a "win-win" scenario, in which SP protects people against sliding into poverty, and at the same time allows increased entrepreneurial risk-taking by providing social protection. In principle this can generate synergies in the narrowly defined sense of making the whole greater than the sum of its parts. Chapter XXX provided examples such as migration, holding multiple jobs, and insurances, where this can occur.

But many of these interventions – even if they do work in the ways anticipated – are conceived as a "trampoline" to allow those producers who face temporary setbacks to "bounce back" into the productive economy. There are very few efforts to bring those largely outside the productive economy into it – along something of a trajectory from situations in which they mainly rely on social protection, to one in which they benefit more from livelihood promotion. This kind of trajectory represents synergy of a different kind. One such effort is the work done by the Bangladesh Rural Advancement Committee (BRAC) in its Income Generation for Vulnerable Group Development (IGVGD) programme (Matin and Hulme, 2003).

BRAC has faced a number of field-level implementation constraints in its IGVGD programme. To keep costs down, it is obviously desirable for community development workers (who would normally handle social protection) to cover interaction with the poor over both livelihood protecting and promoting issues. However, they may lack the skills or inclination to become advisers in micro-enterprise or agriculture. The same applies to agriculture advisers – they may be a poor second-best when it comes to providing assessments and advice in relation to SP. If this applies to the well-motivated staff of a dynamic NGO, it is likely to apply even more to public sector staff in social welfare or agriculture departments.

There are also more fundamental issues of social exclusion: certain types of productive activity are denied to women and to members of specific castes, clans, classes and creeds, or made available on adverse terms. This kind of rigidity cannot be overcome by the conventional 'facilitation and regulation' types of effort to make markets work for the poor, but require specific and long-term targeted measures.

Do trade-offs exist and how can they be addressed?

Not all possibilities will be "win-win". In a productive sector such as agriculture, policy decisions supporting high levels of growth may generate high levels of risk, and some growth may have to be sacrificed in order to reduce R & V. This applies, for instance, to the choice of priorities for agricultural technology: a policy which "goes for growth" may generate high-yielding, but also high-risk crop varieties. One

which is more concerned with risk management may trade off some growth and so generate varieties which are resistant to pests and diseases, drought avoiding etc.

Johnstone (2004) has argued that: "...the cost-benefit analysis ...clearly depends on:

- a) the level of taxation and the extent to which this undermines private sector investment
- b) the weight given to the welfare of the poor – lower overall growth may be a price worth paying for higher pro-poor growth if there is a trade-off
- c) how tax receipts are spent, for example, if on policies that sustainably increase the productive capacity of the economy/reduce risk and vulnerability, overall growth as well as pro-poor growth may be promoted".

Similarly, there are choices over the types of R & V-reducing measures to achieve similar goals within agriculture. For instance, where both are technically feasible, gravity irrigation may be a more equitable protection against drought than individually pumped irrigation, but may require more public investment. In the same way, R & V-reducing measures initiated outside the agriculture sector can have very different effects on agriculture. Thus, food transfers tend to be politically popular, and can provide particular nutrients to e.g. HIV/AIDS sufferers, or school meal schemes may encourage attendance, but they are costly to administer, and may suppress demand in local food markets. By contrast, cash transfers or vouchers allow even the near-destitute to engage in the economy as *consumers*, and may boost demand for agricultural products in local markets. But they require robust transfer mechanisms if they are not to be diverted, something in which computerization may help by facilitating automated payments.

There is substantial unexploited scope for introducing the perspectives of the one into the design and implementation of the other, i.e. for giving aspects of SP more of a growth-promoting dimension, and for designing agriculture initiatives in ways aiming to reduce risk and vulnerability.

Addressing location-specific conditions

Risk and vulnerability factors in both productive and domestic spheres will clearly vary according to a wide range of conditions. It is not possible to consider the full range of these here, but a number of illustrations can be given:

Agro-ecological conditions will influence the "riskiness" of production, as will the extent to which infrastructure (such as irrigation) has been constructed to counteract these. Market-related risks will impact differentially according to the types of crop typically grown in different areas, the extent and quality of links with international markets, the international market conditions for such commodities and the extent to which these penetrate major consumer markets in a given country. Labour markets may be characterized by different levels of casualisation, different types and levels of migration, different pressures on wages coming from rural non-farm or urban labour markets, and different types and degrees of segmentation. Factors of this kind will determine the types of R & V-reducing measures needed (such as employment creation schemes) and by whom. Location will also determine the likelihood of events

such as flooding, which will impact on both production and domestic spheres. Differences in social network will determine the extent to which informal protection mechanisms can be called upon during crisis.

5. Conclusions

This paper argues that initiatives to reduce risk and vulnerability, if managed well, can enhance the engagement of the poor in markets, and so stimulate productive activity. Also, certain types of public investment (e.g. in infrastructure) as well as reducing risk, can stimulate private investment. A central question is how policies in agriculture and related sectors can mainstream risk- and vulnerability- (R & V)-reducing measures in ways compatible with the kinds of options already available to the rural poor. One finding common to all is that affirmative action is likely to be needed to prevent disadvantage by gender, caste, class or creed.

Although the central focus of the paper is on public policy in agriculture, the analysis is extended *vertically*, to cover R & V-reducing measures that can be taken by higher-level policy. The analysis is also extended *horizontally*, to consider the types of R & V-reducing measure that can be taken in other sectors, which would complement agriculture-based measures.

The analysis suggests a number of specific *knowledge gaps* in relation to R & V reduction in agriculture. For instance, we know little about:

- how the links between SP, agriculture and gender are played out in relation to women's practical and strategic interests
- how the private sector might best be supported in designing and marketing appropriate new R & V-reducing products, including micro-savings, credit and insurances.
- the nature of individuals' trajectories (if any) from being outside to being within the productive economy, what the preconditions for such progression are, and whether/how they might best be put in place

However, our general conclusion is that reducing R & V is less about filling knowledge gaps and more about improving the implementation of existing ideas and practices.

6. Recommendations

The paper offers a number of policy suggestions potentially relevant to governments, international agencies and NGOs:

- i. The priority is to 'mainstream' measures to reduce shocks and stresses within policies focusing on agriculture and related spheres, and to share lessons within and across countries. Both of the above measures can be promoted through 'new architecture of aid' vehicles such as PRSPs, MTEFs and direct budgetary support, where there is scarcely any discussion of R & V reduction within the mandates of productive sectors.

ii. National capacity needs to be strengthened to assess more rigorously the trade-offs between growth-promoting and R & V-reducing measures, and between different instruments for achieving R & V reduction, both within and across sectoral mandates.

iii. A broader view of R & V is more relevant to poverty reduction than a narrower view. Thus, donors, governments and NGOs should go beyond narrowly economic definitions of risk, and instead focus on the wider shocks and stresses that underpin risk, uncertainty and vulnerability.

iv. Consistent with this broader view is the assessment of what measures can potentially reduce shocks and stresses at four levels: international; national; (agriculture) sectoral and (non-agriculture) sectoral.

v. At the *international* level, governments and donors need to consider, in relation to specific contexts, how agriculture-related shocks and stresses might be reduced by international conventions (such as membership of the WTO), exchange rate policy and policies towards Foreign Direct Investment (which partly govern e.g. the growth of supermarkets and of the conditions and uncertainties they impose) and intellectual property rights (which partly govern e.g. private engagement in the introduction of new technology, and the imposition of private “high growth but high risk” criteria on technology choice).

vi. The same applies to *national* level: how, in specific contexts, can actions in relation to infrastructure, fiscal policy and regional investment policy reduce shocks and stresses?

vii. At *agriculture sector* level itself, new forms of crop insurance and price hedging should be considered where circumstances are appropriate, but a range of additional measures should be considered for the reduction of wider shocks and stresses, including carefully managed buffer stocks, the reduction of transaction costs, improved service provision (including regulatory services and technology promotion which strikes a balance between growth promotion and risk reduction), and, to reduce vulnerability, enhanced communal and individual assets (to which e.g. enhanced local value-addition may contribute).

viii. Given the fungibility of money, one important focus in *non-agriculture sectors* is to reduce domestic shocks and stresses. A variety of tools should be considered for this purpose, including personal (sickness, injury, life) insurance, cash transfers to those (e.g. the elderly, widows, orphans, those with many dependents) unable to engage fully in the productive economy, savings and investment schemes to pay for known events such as daughters’ weddings, and the promotion of non-farm employment opportunities to enhance the prospects of diversification.

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Box 1 Buffer stocks management

The principle underpinning buffer stocks is that purchases of grain at guaranteed prices maintain foodgrain prices when they are under downward pressure (i.e. immediately after harvest). This reduces short-term price risk to farmers, but also reduces the risk of high prices to consumers (including rural people who do not produce enough of their own grain) during times of scarcity. However, practical experience has been mixed. In India for instance, powerful farmer lobbies have kept floor prices excessively high, grain 'mountains' in excess of 60 million tonnes resulted, much of it in poor condition, and with chronic problems of pilferage and ineffective distribution to consumers (Deshingkar et al, forthcoming). One estimate suggests that the cost of building up and operating buffer stocks, and then selling as subsidised prices to consumers is approximately Rs2 per Re1 worth of food distributed (World Bank, 2001b).

Box 2: Understanding farmers' risk reduction strategies

Traditionally, farmers' choice of crop, crop mix and sequence, and crop/livestock mix was designed to provide moderate productivity with high protection against generic risks (such as pests, diseases and weather). National agriculture plans generally paid little attention to these strategies, preferring instead to allocate resources to a "go for growth" strategy. Some national research services spontaneously studied and built upon these strategies (rice research in Sri Lanka for instance had a long tradition of breeding to suit local soil and water conditions, and incorporated new internationally available genetic material only on a very selective basis). In other cases, donor-supported agricultural research during the farming systems movement of 10 - 25 years ago exerted pressure on national researchers to understand and build on local systems. However, much of this impetus now appears to have been lost, as a consequence of reduced farming systems impetus on the international stage, reduced funding by

donors for agriculture in general and for public agricultural research in particular, and a higher proportion of agricultural research funded by the private sector, with consequent focus on high productivity commercial varieties of crops and livestock. For all of these reasons, there is a need to redress current imbalances between growth and risk reduction by sacrificing a little growth in certain fields in order to enhance risk-reduction.

Sources: various, including Collinson (ed) (2000)

Box 3: Engagement by the private sector in reducing transaction costs

Reduced transaction costs are potentially important risk-reducing measure insofar as they reduce the hazards of e.g. finding a market for agricultural produce, and so permit more rapid and more accurate decision-making. They may also facilitate diversification. To reduce transaction costs through investment in infrastructure and improved regulatory functions is generally seen as a public sector function. However, important initiatives are being taken by some larger *private sector* trading companies in some contexts. Thus, in India, the India Tobacco Corporation's e-choupal places a computer in the hands of a (usually medium/large-scale) farmer in a village, who commits to sharing information with a peer group. Internet connections are also provided, and then farmers are able to obtain daily updates of information on what price will be guaranteed by the ITC for delivery of a given quality of a crop to a specific depot (ITC, 2003)

Box 4: Area-based programmes reconsidered

Many OECD countries, and blocs such as the EU, have vigorous policies to redistribute resources from central and/or wealthier zones to more impoverished. The provision of basic infrastructure and capacity building for new industry, low-interest credits, and tax-breaks are among the many instruments used. Developing countries might usefully emulate such regional policies, and some donors (e.g. Sida and GTZ) have made long term commitments to invest in these. For agricultural development and risk-reduction purposes, it is convenient to distinguish between areas well-integrated into market-oriented infrastructure and institutions, and those weakly-integrated. The latter face a very limited range of growth prospects, and generally a high incidence of generic-type risks. There may be considerable merit in seeking out investment opportunities that generate improved combinations of productivity and risk-reduction, and in defending such spheres of comparative advantage as are already enjoyed by weakly-integrated areas. These might include forest, fish and open-range livestock production. There is no suggestion that such patterns should be maintained for all time – rather that policymakers should be sure that market-driven alternatives such as peri-urban livestock production fully reflect the social and environmental costs that they incur. They might also consider the welfare economics question of whether a dollar gained by relatively wealthy consumers of livestock products through their relocation to peri-urban areas is of the same, or lower, social value as a

dollar lost by poorer, more remote producers as their markets are captured in these ways. If it is of lower value, then this opens the way for an element of protection to producers in the more remote areas – not necessarily on a permanent basis, but at least to cushion transitional shocks.

Adapted from Farrington and Gill, 2002

Box 5: Growth and social protection in agriculture, and evolving objectives

The Malawi Starter Pack scheme (later renamed Targeted Inputs Programme) was introduced in 1999 as a means of permitting continued access by low income farmers to improved seed and fertiliser after prices (especially of fertiliser) had risen rapidly following economic reforms, and so stimulating supplies of basic grains to meet national food security requirements. This is now seen as an unrealistic prospect: livelihood futures are seen to lie much more in agricultural diversification or off-farm employment than in maize farming, and starter packs are unlikely to help towards such diversification. However, this is likely to be a long-term transition, and starter packs can remain a cost-effective subsidy to maintain rural livelihoods above destitution level in the meantime, in the context of a rapidly diminishing size of farm holding and declining soil fertility.

(Source: Levy et al, 2004).

Box 6: The importance of domestic shocks and stresses

Field survey evidence from 12 villages in two States of India in 2001/02 indicated that, for Madhya Pradesh, expenditures on marriages, health and funerals averaged some 24% of annual net income over the sample as a whole (20% in Andhra Pradesh), the largest of these being marriage costs, which were especially high for daughters, followed by health and funeral-related expenditures. Approximately half this amount on average was spent on agriculture-related investments in each of the states. These “social” costs were disproportionately high – approximately 30% – for the lower caste (i.e. poorer) households. In many ways more important than average figures is the size of shock or stress for those households experiencing it. Thus, households marrying a daughter spent over three times the average annual household income on the event and related expenses, so that the risk of being plunged into a downward spiral of borrowing and asset loss from which they cannot recover is high.

Source: Farrington et al, forthcoming.