

# Poverty Traps and Development: The Equity-Efficiency Trade-Off Revisited

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## *Abstract*

*The paper discusses some core reasons why poverty remains widespread in many developing countries: market failures combine with asset inequalities to result in poverty persistence, and often poverty traps from which the poor may not be able to emerge, even in a context of aggregate economic growth. As examples the paper discusses some theoretical implications and empirical evidence for three core market failures: credit market failures, externalities and uninsured risk. It also critically examines the interventions commonly used to address these problems and suggests some alternatives.*

## Introduction

In this paper I want to discuss a key question in development: why do so many people around the world stay poor? I will argue that serious market failures, combined with asset inequalities are important causes for this poverty persistence. In many cases this appears to result in poverty traps, into which people may fall relatively easily but cannot as easily emerge from. Reviewing core insights in current development economics, I will discuss three examples of market failures that are likely to contribute to such poverty traps: credit market failures, geographic and other externalities, and risk-induced traps. To back this up, I will use examples from empirical microeconomic analysis on developing countries. I will conclude with the policy implications of these findings, emphasising ways of increasing the impact of aggregate growth on poverty.

Traditional textbook economics teaching emphasised that equity considerations could and had to be considered separately from efficiency considerations. The simple argument was that the economy, when left to its own devices, could achieve the most efficient outcome. The theoretical foundation for this view can be found in the ‘First Welfare Theorem’, which states that any competitive equilibrium would lead to an efficient allocation, in which no-one could be made better-off without making anyone worse-off. All resources would then also be used in the best possible way. While textbook economics is quick to acknowledge that the conditions for a competitive equilibrium are very stringent, as a benchmark for thinking about the economy it is a powerful and still widely used view.

Equity considerations have little role to play in this view – in fact, any measure favouring the poor is considered costly: redistribution reduces economic incentives and performance. Okun (1975) described redistribution famously to be like carrying

money from the rich to the poor in ‘a leaky bucket’. Voltaire’s Dr Pangloss would have been proud of this view: do not try to touch the distribution of resources, or the best possible outcome is not achieved. In short, there is a fundamental trade-off between efficiency and equity.

The second welfare theorem brings only limited solace. This theorem appears to open the road to redistribution of endowments, by showing that any efficient allocation can be achieved as a competitive equilibrium for a particular distribution of initial resources. In simple terms, this means that one can separate efficiency considerations from equity ones: first redistribute the initial resources and then let the markets do their job. Markets are then allowed to do what they are best at: the efficient allocation of resources. The social planner – the philosopher-king of economic theory – would take care of equity. The redistribution of initial endowments can then achieve an equitable or fair allocation that is also efficient. The conditions for this to be possible are in fact even more stringent than for the first welfare theorem. But the crucial issue is to find a way of redistributing wealth without affecting the process leading to a competitive market outcome. In fact, however attractive the theorem, the principle that there exist redistributions that do not affect incentives is bound to be wrong.

So where does this leave the poor? Traditional textbook economics has to place any concern for the poor resolutely into the ‘redistribution’ camp: any support we may give to the poor removes resources from the economy, and reduces its overall efficiency and growth.

Of course, many economists have for many years argued that the underlying assumptions of these welfare theorems are fundamentally flawed: market failures abound. Furthermore, with market failures, the principle of interventions that may be efficiency-enhancing is well established. During the last few decades, economists have shown that imperfections such as asymmetric information, uncertainty and externalities mean that there are, at least theoretically, always interventions that will be able to make many better-off without making anyone worse-off (Greenwald and Stiglitz (1986))<sup>1</sup>.

A subset of these interventions is of particular relevance for the poor. These are related to market failures that specifically hurt the poor, and interact with their living conditions in such a way as to exacerbate their poverty. They do this by reducing the efficiency by which the poor use their assets, while leaving the rich largely unaffected. In some cases, these market failures may even lead to poverty traps, equilibrium outcomes of poor living conditions from which the poor, using their own resources, cannot escape. Interventions focused on the poor – redistribution – would in that case lead to efficiency increases for the poor. They may in fact also increase overall efficiency. In other words, there is no efficiency-equity trade-off: rather, redistributive interventions, designed in particular ways, could increase overall

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<sup>1</sup> Joseph Stiglitz probably most clearly expressed this view in a number of publications, as well as articulating the limitations of this view for practical politics. See for example Stiglitz (1998). In applied economic thinking, the implications of this view are still not sufficiently well established, and given the complexity of considering the impact of market failures, many applied economists continue to use the competitive market as the benchmark to think through and assess the impact of any policies and interventions.

efficiency. In this paper, I will focus on examples of this principle and the empirical evidence for this view.

I am aware of the potentially dangerous implications of an excessive emphasis on redistribution for the conduct of economic policy. The fact that there may be virtuous cycles of pro-poor interventions and growth does not mean that just any policy of redistribution is going to stimulate income growth. The naïve emphasis on redistributive policies would be misplaced not least in the poorest economies, where overall incomes per capita are too low to give a decent living to the majority of people. The challenge for the economist and the policy maker is to identify those policies that maximally benefit the poor.

Some have argued in recent years that the best possible policy for the poor is simply to stimulate growth. “Growth is good for the poor” became more than a title of an often quoted paper (Dollar and Kraay, 2001); for some it is a Credo. The essential point of this research, based on econometric cross-country research, was that on average across the sample of the world, a one percent increase in mean income in a country also resulted in a one percent increase in the mean income of the 20 percent poorest in society. Even if one may question elements of the method used, this fact is hard to dispute. The main qualification is related to the interpretation of this result. By virtue of its method, it picks up the average effect, meaning that in many countries the impact on the poor is even more positive, but in others the impact on the poor is much smaller. Ravallion (2001) correctly pointed out that ‘looking beyond the averages’ is important in this respect. The main lesson is that in some countries growth is achieved that is largely in favour of the poor; in others growth is much less so in their favour<sup>2</sup>. The challenge is therefore to identify growth policies that benefit the poor most. Clearly, the most pro-poor of growth policies would be those growth policies that do not involve a trade-off with redistribution – as will be discussed further in this paper.

The next few sections will introduce some important cases where policies focused on the poor have clear efficiency gains, starting in the next section with poverty persistence and traps related to capital market imperfections. In section 3, I discuss geographic and other externalities, and in section 4 risk. Section 5 concludes with a further discussion on the implications for development policy.

## 2. Credit market failure and the poor

The most obviously observable market failure is the failure of credit markets to conform to the assumptions of perfectly competitive markets. Under perfect and complete markets, anyone with a profitable project should be able to get a loan at the current interest rate. If markets were perfect and efficient, no bank would ask for collateral to secure the loan. In practice, without collateral, one typically would not get the loan. Collateral requirements can be understood as an important means by which credit markets handle the central problems that bedevil these markets: asymmetric information, such as moral hazard and adverse selection, and enforcement

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<sup>2</sup> For those countries for which we have quantitative evidence on incomes across the distribution, there are hardly any countries where mean incomes grew substantially but incomes of the poorest quintile decreased. The statement ‘growth is not bad for the poor’ is therefore quite correct. Using non-monetary indicators, such as health or education, this is not necessarily the case.

problems. Since imperfect information means that borrowers may not be able to know which projects are more risky among many risky projects, or whether lenders will implement other actions than initially committed to after the loans have been granted, collateral may be asked for to secure the loans. Collateral may also help to enforce the repayment of loans.

Starting from initial asset inequality, it is obvious that this may be a market failure that is particularly hurtful for the poor. But it is more than an equity issue: it may mean that the poor may not be able to use their other assets as efficiently as the rich. In a classic paper, Eswaran and Kotwal (1986) develop a simple model to illustrate its implications. A further simplified version goes as follows: consider a village with farm households, each with differing amounts of land and labour. The efficient technology to produce involves using land, labour and fertiliser as essential inputs. Labour, land rental and fertiliser markets are assumed to work efficiently – at the governing price, they can all be obtained without restriction. However, the credit market is not perfect. The result is that credit can only be obtained using land as collateral, while all inputs have to be paid for in cash. The nature of agricultural production implies that output is only obtained at the end of the season while inputs need to be applied early in the season. In short, there is a need for working capital to acquire inputs if needed. The land-rich farmer can easily acquire fertiliser and, if necessary, extra land and labour to make sure inputs are used as efficiently as possible<sup>3</sup>. However, the land-poor farm household must find other ways of raising the cash to farm. It would need to raise cash by working on other farmers' land or even rent out its land. Under general conditions, it can be shown that the poor farmer will be using its assets – land and labour – less efficiently than the rich farmer. The poor farmer will be using less fertiliser than optimal, and farm too intensively in terms of labour, with more labour per unit of land than efficiency would require. His poverty in terms of assets leads to inefficiency. In this example, asset inequality combined with market failure results in differential efficiency between the poor and the rich. The rich do not just earn more income because they have more assets, but also they can use them more efficiently. Market failures exacerbate the initial inequality. Better working credit markets and/or more equal asset distribution would be efficiency and equity-enhancing.

There is much suggestive evidence that similar processes are common in agricultural settings, often linked to credit market failures. A key prediction of this model is that the marginal return to bringing more land into production by the poor outweighs that of the rich, and that average output per hectare is larger for the poor than for the rich. This negative correlation between cultivated land area and output per hectare is commonly observed in developing countries. Binswanger et al. (1995) provide a comprehensive overview of the evidence and look into different explanations. Land quality heterogeneity is certainly part of the story, but factor market failures, including related to credit, are likely to be relevant as well. The model also predicts less intensive use of purchased inputs by the poor. Although many other reasons for limited innovations and modern input use by the poor have been proposed, credit market imperfections are typically part of the explanation as well – (Feder et al.,

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<sup>3</sup> Eswaran and Kotwal assume constant returns to scale but also monitoring costs related to hired labour – limiting the overall farm size at which the rich farmers will operate.

1985). In any case, it provides suggestive evidence for the scope for equity-efficiency enhancing interventions.

The relevance of this stylised model is not restricted to agricultural activities. In general, if access to profitable activities requires some initial cash outlay or start-up costs, then those with limited access to credit markets may well be excluded. Much suggestive evidence for this exists from Africa. While off-farm activities are generally hailed as an important route for enrichment, access to some of the simplest activities, such as livestock rearing for milk products, trading, small shops or some handicrafts, require relatively important investments. Empirical research in both Tanzania and Ethiopia, where off-farm income is essential in many marginal areas, found that those with least assets restricted their off-farm activities to gathering activities (selling dungcakes or firewood) or handicrafts without substantial start-up costs such as weaving, while others managed to enter into much higher return off-farm activities (Dercon and Krishnan, 1996). In Western Tanzania, where cattle provide an important high-return activity, one mature cow cost about 50 percent of median crop income. In Ethiopia, the median investment needed to enter into charcoal making, dungcake collection, weaving, or food processing—activities with relatively low returns—was 0–20 birr (up to €3). More lucrative activities, such as starting a shop, trading livestock, or providing transport services, required 300–550 birr (€45–€80). A mature cow costs about 400 birr (€60). These are large sums in an economy in which mean per adult income is less than €200 a year (Dercon, 2002a).

The model described is effectively a static model – but its potential dynamic implications are intuitively appealing. Starting from some inequality in assets, those with more wealth earn higher returns and plausibly can accumulate at a high rate while the poor enter into technology or activity portfolios with lower returns, and may not be able to start accumulating any wealth. This intuition is at the basis of a number of growth models leading to poverty traps for some and accumulation for others. Banerjee and Newman (1993) show the adverse impact of asset inequality on growth, linked to credit market failures. Entry into profitable activities is closed off for those with limited assets, and they are trapped in poverty, while others can climb the occupational ladder. A poverty trap is an equilibrium outcome and a situation from which one cannot emerge without outside help, for example, via a positive windfall to this group, such as by redistribution or aid, or via a fundamental change in the functioning of markets. Much other work suggests poverty traps and overall efficiency and growth losses due to poverty and inequality combined with credit market failure, where some people are unable to exploit growth-promoting opportunities for investment, not just in physical capital or profitable activities, but also in human capital<sup>4</sup> (e.g. Galor and Zeira, 1993; Aghion and Bolton, 1997; Benabou, 1996).

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<sup>4</sup> There is much suggestive and some quantitative evidence that credit constraints result in sub-optimal educational investment. Despite the fact that the returns to education are (still) relatively high on average in most developing countries, time and money spent on education by the poor is still relatively limited. Cash constraints mean that the high costs of schooling both directly and in terms of opportunity costs of time may well outweigh its return, not least during difficult times (Jacoby and Skoufias, 1997). Furthermore, current poverty results often in limited nutrition during childhood, reducing the return to time spent at school (e.g. Bhargava (1999) for Kenya; Glewwe et al. (2001) for the Philippines). A detailed discussion of the market failures relevant for underinvestment in schooling and other human capital investments is beyond the scope of this article.

These poverty perpetuating mechanisms have not gone unnoticed to the development policy community. Interventions in credit markets have been widespread for a number of decades, aiming to provide credit towards poorer groups at subsidised rates. The principle of intervening in favour of the poor is well founded, and in principle, it is a type of intervention that would both be equity as efficiency enhancing. In practice, these interventions are typically bedevilled by problems. Large scale credit programmes meant for the poor were often characterised by huge inefficiencies and appropriation by less poor groups, indeed undermining the entire credit system – an example is the classic Integrated Rural Development Programme in India and similar programmes in Africa. It should not have come as a surprise: credit market failures exist for well-known and well-founded reasons – not just due to some obscure conspiracy by private banks. It is highly unlikely that government, parastatal or even NGO schemes could succeed in overcoming the serious informational and enforcement problems that undermine the emergence of private credit market transactions in many contexts (Besley, 1994). Monitoring and enforcement is bound to be costly, inviting large administrative and bureaucratic costs. In short, most evidence suggests that any efficiency gains from relieving credit constraints by some may well have been wiped out by the inefficiencies of administering the programmes. With less poor groups often taking large chunks of the earmarked credit, the equity gains may well have been limited and unlikely to have been achieved in the most cost-effective way.

Of course, in last decade or so, a number of success stories related to microcredit have emerged, such as the Grameen Bank in Bangladesh or Bancosul and other initiatives in Central America. This has led to many major donors and NGOs developing similar schemes everywhere in the world. The principles of some of the successful microfinance schemes are well-known, with clever mechanisms overcoming information and enforcement problems using group-based lending, joint liability and further incentives to repay by offering larger loans once repayment of current loans has occurred.

Still, it should be recognised that their ability to reach the poorest groups is not well established, while most of these microcredit institutions incur considerable administrative costs so that without subsidies they could not be sustained. The review by Morduch (1999) has shown that despite their relative success, microfinance operations are rather costly operations, reaching needy groups but typically not reaching the poorest. Also a strong positive impact on incomes is not easily established either.

The picture becomes more problematic when put in the context of what apparently has been happening in a number of developing countries: a rapid scaling up of the size of the microfinance schemes, often involving government and parastatal agencies. It is hard to see that there are substantial increasing returns to microfinance activities. More critically, this has been at the cost of careful attention to the design of products, adjusted to contexts. What has worked for Bangladeshi women interested in small-scale production activities may not easily work for rural women involved in agricultural processing activities in, say, Tanzania. In the contexts of Bangladesh's Grameen Bank, the activities these groups were involved in were sufficiently dissimilar to be of limited covariance (so that if one group could not repay due to bad luck in business, this did not mean that all had bad luck), while the eviction of non-

repayers was socially acceptable and strongly enforced. However, this is not easily implemented elsewhere.

Credit market activities will always be fraught with problems; reaching the poorest via microcredit products will continue to be difficult and costly. However, the fact that these programmes may need to be subsidised is not in itself a problem: if anything, by the very nature of the consequences of credit market failure and the disproportionate impact on the poor, challenging resources to overcome this market failure to the poorest serves both efficiency and equity purposes. The key issue, however, is whether they are the most cost-effective means of serving the poor. There is very relevant theoretical work by Hoff and Lyon (1995) that suggests that direct transfers to the poor may be superior to credit in terms of efficiency gains in a world with credit market failure due to asymmetric information<sup>5</sup>.

The underlying market failure in credit markets may also not necessarily be best resolved by encouraging other institutions to enter into credit operations for the poor. The poor may well have capital goods that could be used for collateral provided there would be legal mechanisms to transfer the goods. For example, property rights and titles may not be officially established, so that the enforcement problems cause exclusion of the poor from credit markets. Offering formal property rights, for example to the occupiers of slum dwellings, may be sufficiently to open credit market transactions (Bourguignon, 2000)<sup>6</sup>.

An alternative policy could be to acknowledge that credit markets are not easily improved and to attack the other main reason why the poor may remain excluded: asset inequality. Indeed, all the models discussed would suggest that redistribution of assets would benefit the poor more than it hurts the rich, when viewed in terms of total output. Over time, it may even benefit all. Much excellent work exists on the issues related to land reform (e.g. De Janvry et al, 2001; Bardhan, 1996; Binswanger et al., 1995). Political economy problems, other remaining market failures and general equilibrium effects on agricultural labour markets are just examples of the issues raised. In any case, it should be acknowledged that in densely populated areas, such as in Ethiopia or Bangladesh, redistribution or related policies such as tenure security is unlikely to achieve much more than a small dent in the poverty levels. Still, land redistribution, not least in contexts such as Latin America, should not be dismissed out of hand, at least not for economic reasons.

### 3. Externalities

Another common cause for market failure is the presence of externalities. Externalities are said to be present if economic or other interactions create social

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<sup>5</sup> The argument is that the poor family, when receiving the gift, fully considers this gift part of its wealth, so the gift is internalised in its actions, including those actions not observable by the outside world. If it received subsidised credit, the household does not internalise the consequences of its actions fully, for example the consequences of its default on others that would like to participate in the credit market. The market may consequently shut out low-wealth individuals in the case of subsidised credit, and the overall efficiency loss may be higher than if the poor family were to be reached by transfers.

<sup>6</sup> Arguably, this could already be seen as a form of redistribution, from common or even private land towards some of the poor, sufficient to unlock their exclusion from credit markets.

gains or costs beyond those taken into account by those involved in the interaction. The standard example is environmental damage from production involving pollution not accounted for by the buyers and sellers of the commodity produced. My focus here is on externalities that interact with initial inequalities to perpetuate and exacerbate poverty. Tackling such externalities would again not just enhance efficiency but also reduce poverty.

A classic example is crime caused by rampant poverty and inequality. Bourguignon (2001) discusses the theory and evidence suggesting that higher poverty and inequality may promote crime, affecting aggregate efficiency. There is evidence from survey data from South Africa that consumption inequality within and between neighbourhoods leads to higher crime rates (Demombynes and Ozler, 2002). Crime and lawlessness may well affect the poor disproportionately. One of the most striking findings of the participatory processes of 'Consultations with the poor', part of the work for the World Bank's 2000/01 World Development Report, was the emphasis in most country studies on the way crime and lack of rule of law strongly negatively affected their ability to better themselves (World Bank, 2000).

A more general phenomenon in developing countries, that can be best understood in terms of externalities, involves geographically defined areas that appear to stay behind – poor neighbourhoods, or even poor regions or countries. If one looks at the performance of the developing world, it has been striking over recent decades that some developing countries – largely in Africa – appear to have become increasingly marginalised, with low economic growth, persistent population growth and generally, persistent poverty, while other developing countries including large parts of Asia, including China and more recently parts of India, manage to achieve considerable growth and poverty reduction. Less studied but at least as important is that even in countries where growth is high, there appear to be areas that systematically stay behind and do not benefit from the overall economic growth in terms of income growth and poverty reduction. Certain regions in China and India may well fit this bill. Much less documented but no less true, the geographical disparity in growth and poverty reduction performance within African countries is similarly present<sup>7</sup>.

Such disparity may well be explained in the context of strands of modern growth theory emphasising agglomeration or location effects, predicting that firms will exploit increasing returns resulting from the presence of externalities to locating in the same geographical areas, implying that firms would locate in clusters. The corollary is that some otherwise similar or less attractive locations may have missed the boat: not only would they not get the required investment, any capital present may well move out to capture the higher returns elsewhere. For those areas that missed the boat, there is a negative externality from the success of other areas. This argument may help to explain the marginalisation of many parts of Africa (Collier, Hoeffler and Pattillo, 2001), but also within countries. Clearly, this is a form of a poverty trap: although initially these areas may not have been very different, once they missed the boat, they can only escape by a serious exogenous shock or massive effort. They face a substantial threshold that they need to overcome to attract or retain capital for accumulation.

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<sup>7</sup> For example, the diversity of experience in terms of growth and poverty reduction across communities during the recovery of the 1990s in Ethiopia is documented in Dercon (2002a, 2003).

Other explanations similarly emphasise externalities related to the specific local context, for example low local endowments in terms of public goods, common property resources and private asset holdings. If growth processes require a certain threshold of local endowments to take off, then poorly endowed areas may well find it hard to escape poverty. There is evidence from a number of countries that this may indeed be the case. Jalan and Ravallion (2002) identify geographic poverty traps in rural China during the 1980s, finding that community characteristics affect the income growth performance of otherwise identical individuals, controlling for latent heterogeneity. Their results showed that in some areas living standards were falling while elsewhere *otherwise identical households* were enjoying rising living standards, an effect entirely due to externalities from the initial community characteristics. De Vreyer et al. (2002) find similar effects using a panel data set for Peru. Borjas (1995) finds evidence that neighbourhood characteristics in the US influence a child's schooling performance and adult wages.

Recall that these are again market failures that specifically affect those at the lower end of the asset distribution – this time with assets broadly defined to include public and environmental goods – so that interventions to rectify their predicament may well be both efficiency and equity enhancing. Given that poverty traps are identified, this empirical evidence would justify 'poor areas' programmes – massive investment programmes in particular deprived areas to build up locational and community capital. However, these empirical studies lack sufficient detail and a clear narrative about how these externalities come about. More evidence would be needed to guide and prioritise the type of interventions that would be most beneficial.

For example, most rural 'poor areas' typically are characterised by remoteness – often linked to the lack of roads and communications infrastructure. One of the most common donor policy responses is to build roads into poor areas. While undoubtedly bringing some benefits to remote communities, it is not necessarily the case that this is what is needed to unlock the growth potential of an area. In some countries, there is evidence that this may well be an appropriate response<sup>8</sup>. Still, historically much road building in developing countries has been *in response* to local economic growth or at least in recognition of some growth potential (such as cash crops or mining), and it was not the main cause of growth. Alternatives, such as irrigation, health or educational schemes may be more important to unlock their potential. Encouraging migration may even be a superior policy<sup>9</sup>.

A number of alternative narratives are presented in Dasgupta (2003), emphasising the local interaction of environmental and reproductive externalities. Locally, communities or regions may be stuck in poverty traps linked to overexploitation of natural and other resources, and/or high population growth that harm each person individually in the short or long run, but that are based on behaviour that is rational from the singular point of view of each individual. An example is a community living in a marginal area in terms of agricultural and natural resources, but with each

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<sup>8</sup> Ravallion and Jalan (2002) present evidence for China that roads are relevant for growth; microdata from Ethiopia using a much smaller sample suggest similar effects (Dercon, 2003).

<sup>9</sup> Some governments take this idea even a step further. Despite plenty of disastrous examples of resettlement schemes from across the world, including from its own history, the Ethiopian government is embarking on the voluntary resettlement of 2.4 million people marginal areas in the next three years.

individual lacking the skills or opportunities to leave. Common property resources are used to obtain firewood, and households have incentives to have more hands to gather the increasingly scarce firewood. The result is both overexploitation of the common resources as well as excessive population growth, contributing to ever higher impoverishment. An alternative narrative is related to the externalities from norm based behaviour that may induce an equilibrium poverty trap within a region or area with high fertility and low incomes. Individual households have no incentives to change their behaviour due to coordination failures, despite the resulting persistent poverty. There is evidence for both narratives in Dasgupta (2003), mainly from India.

#### 4. Risk and poverty traps

Another serious market failure impacting disproportionately on the poor is the lack of insurance and protection of the poor in the face of risk. Complete insurance markets (or, to be technically more accurate, complete state-contingent markets) is another assumption for perfect markets that tends to be violated in practice. Problems with asymmetric information and enforcement issues, not dissimilar to those causing credit market failures, are again typically responsible for the limited spread of insurance mechanisms in developing countries. Even if they wanted to, the poor could not get any insurance for most of the risks they face.

Uninsured risk causes considerable hardship to the poor. Developing countries are still characterised by a high incidence of natural disasters, drought, conflict and insecurity, as well as economic shocks, such as commodity price shocks and currency shocks. Health problems are widespread, as are pests in agriculture. It is commonplace to view these problems as 'transitory' problems, requiring temporary solution, such as some form of safety net, after which one should get back to the bigger issues of development. For the policy maker it also often means that it is just a social issue that should not distract the key (macroeconomic) policy makers from the bigger issue of how to stimulate growth in the economy. However, this is misleading. There is increasing evidence that risk and shocks are a main cause of lower growth, as well as resulting in lower growth of incomes of the poor and possibly poverty traps. Focusing attention on the poor could then again be contributing to both growth and equity.

Households in developing countries have developed sophisticated mechanisms to cope with risk. Typically, one could consider two types of responses: risk-management strategies and risk-coping strategies. Risk management strategies involve trying to shape the risks they face by entering into activity portfolios that are more favourable in terms of risks. For example, entering into low risk activities or diversifying into portfolios of activities with differing risk profiles – growing more drought resistant crops, entering in petty trading or firewood collection, seasonal migration, etc. Risk coping strategies involve activities to cope with consequences of risk in income. Two types are commonly observed: self-insurance using savings, often in the form of cattle or small ruminants, to be sold off when the need arises, and informal mutual support mechanisms, where members of group or community provide transfers to each other in times of need of one of its members, typically on a reciprocal basis.

These strategies are not without cost: income risk management strategies result in a reduction in mean income to have face risk and variability in income, while adjusting asset portfolios to cope with risk typically involves investing in liquid assets with lower returns rather than in productive illiquid investment. This affects their long-term income and their ability to move out of poverty. Indeed, there is growing evidence that these strategies imply substantial efficiency loss for the poor, which the rich – typically better protected via insurance, asset and credit – do not have to endure (a review is in Dercon (2002)). Morduch (1995) documents how more profitable technologies are not adopted because they are too risky in a particular setting in India. The same farmers have been found to hold livestock as a precaution against risk even when more productive investment opportunities exist (Rosenzweig and Wolpin, 1993). Rosenzweig and Binswanger (1993) found that the loss in efficiency between the richest and poorest quintiles in their sample from India was more than 25 percent, attributable to portfolio adjustments in assets and activities due to risk exposure. Over time, these are very substantial efficiency losses, affecting the poor disproportionately.

These strategies may trap the poor in poverty: to avoid further destitution, they are forced to forgo profitable but risky opportunities, and with it the opportunity to move out of poverty<sup>10</sup>. Even so, they cannot fully protect themselves: there is much evidence that although the strategies contribute to less variability in consumption and nutritional levels, they are still not able to cope with some serious, repeated shocks, not least those affecting whole communities, regions or countries (Morduch, 1999; Dercon, 2002). These uninsured shocks typically wipe out assets, pushing the households affect down the asset distribution. They could be pushed below some critical threshold, trapping them into poverty from then on, for example due to the risk strategies they then need to follow to avoid further destitution, or due to other processes<sup>11</sup>.

There is growing evidence that these processes are an important cause of poverty persistence and possibly permanent traps in developing countries. Jalan and Ravallion (2003) investigated the presence of poverty traps using data from China, and although they did not find a pure poverty trap, they found that households took several years to recover from a single income shocks, and that the recovery was much slower for the poor. Dercon (2003), using panel data from rural Ethiopia, found signs of poverty persistence linked to uninsured shocks, with the impact of rainfall up to 4 years ago affecting current *growth* rates, and the extent to which households had suffered in the famine of 1984-85 still contributing to explain growth rates in the 1990s. Furthermore, it took on average ten years for livestock holdings, a key form of savings in rural Ethiopia, to recover to the levels seen before the 1984-85 famine. In a careful study, Elbers et al. (2003), use simulation based econometric methods to calibrate a growth model that explicitly accounts for risk and risk responses, applied to panel data from rural Zimbabwe. They found that risk substantially reduces growth,

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<sup>10</sup> See Banerjee (2003) for a formal poverty trap model building on this idea.

<sup>11</sup> One mechanism could be the classic nutrition-productivity poverty trap (Dasgupta and Ray, 1986). It is well established that below some critical level nutritional level, no productive activity of any sort is possible. So if during a crisis, all assets are wiped out except for a person's labour, then if the crisis also pushes the person's nutritional status below this threshold, there is no hope of ever recovering using own productive means. Only a serious windfall, such as in the form of aid, could induce the person to climb out of poverty, provided it is sufficient to pass the threshold value of nutritional status.

reducing the capital stock (in the steady state) by more than 40 percent. Two-thirds of this loss is due to ex-ante strategies by which households try to minimize the impact of risk. Barrett (2003) has suggestive evidence on poverty traps by looking at livestock holdings of pastoralists in Kenya.

There is also increasing evidence on the long-term implications of uninsured shocks, focusing on health and education. For example, the permanent impact of drought on children is well documented – lower adult height, poor education outcomes and therefore lower lifetime earnings. For example, the impact of the drought in Zimbabwe in the early 1990s on a particularly vulnerable cohort of children was estimated at about 7 percent of lifetime earnings (on this and other evidence, see Dercon and Hoddinott, 2003).

All this evidence points to the important consequences of lack of insurance and protection in developing countries, particularly affecting the poor. Given that the root cause is again a market failure, exacerbated by inequality and poverty, there is a clear case for interventions that are potentially both equity enhancing as stimulating efficiency and growth. In developed countries, not least in Europe, the failings of the insurance markets are largely resolved via some form of universal social insurance and substantial direct means-tested transfers. For developing countries, this is not likely to be cost-effective, involving high administrative costs and high informational requirements. To put it simply, the means for such systems are unlikely to be available.

The most commonly advocated response is to develop a safety net, based on targeted transfers to the poor. The evidence presented thus far on the impact of risk (and in the previous sections) would suggest that the case for such targeted transfers goes beyond pure equity considerations: they could have important efficiency and even growth benefits. Recently, much attention has been paid to evaluate different possible designs of such schemes in order to maximally reach the poor and vulnerable (for a review see Ravallion, 2002). Some programs use ‘contingent transfers’, where transfers are specifically linked to some attempt to stimulate human or physical capital accumulation. Best known are programmes linking transfers to school attendance, such as the Food-for-Education Programme in Bangladesh, or Mexico’s Progresá. Similar in nature are some Food-for-Work programmes in Ethiopia, where transfers are provided to finance labour provided by communities willing to create certain public goods.

Alternative programmes involve transfers with targeting decided using community based rules or ‘self-targeted programmes’. The latter are typically workfare programmes where anyone willing to work can get a job; to ensure that the poor and only the poor are reached, wages are set at low levels. The most successful and famous example was the Employment Guarantee Scheme in Maharashtra, India – see Dreze and Sen (1989), averting famine by large scale employment generation in 1973-4. More recently, schemes in Argentina and Indonesia appear to have had some success after serious macroeconomic shocks. Much more needs to be learned about the actual cost-effectiveness of different schemes in providing ex-post protection. However, targeted transfers, at a much larger scale than currently available, could be an important tool to provide protection and insurance to poor households, to avoid poverty traps and allow them to partake in growth.

However, targeted transfer schemes and other safety nets are not the only instrument available to the policy maker. They are *ex-post* mechanisms, but much could also be done *ex-ante*. Since the underlying market failure is the lack of insurance possibilities, more attention should be paid to measures providing incentives and means to the poor to protect themselves better against hardship. This includes the development of insurance products tailored to the poor, strengthening the existing risk coping mechanisms, such as supporting community based systems or self-insurance via savings, and assisting risk management by providing access to credit.

On some of these issues, there have been significant initiatives in recent years. The microfinance industry appears to have discovered the benefits of insurance products, although still often in the contexts of protecting their loan portfolios. Still, very little research on micro-insurance seems to have taken place. An active micro-insurance movement appears to have established itself (Brown and Churchill, 2000), but by no means comparable in size and influence in development policy as the microfinance industry. Also, in terms of the design of appropriate products, much work needs to be done<sup>12</sup>.

Even more surprising is the lack of attention to strengthening savings possibilities for the poor. The benefits of savings as a buffer against shocks are substantial (Deaton, 1992; Dercon, 2003), but the poor need to have access to reliable and liquid savings instruments, with limited transactions costs and a safe return. With few exceptions, such as SafeSave in Bangladesh, initiatives remain relatively thin on the ground. If micro-credit institutions offer savings instruments then it is largely as instruments for accessing credit – for example as a means to develop reputation and commitment. Flexible savings instruments for risk-coping motives are usually not encouraged.

A key issue for any policy aimed at reducing risk faced by the poor is credibility. It needs to be recalled that an important reason why the poor may not take up profitable but risky activities is that despite their poverty, they cannot expose themselves to further destitution. A policy package of *ex-ante* and *ex-post* mechanisms – providing *ex-ante* insurance and *ex-post* protection against further destitution – may well be able to unlock the potential of many of the poor people and provide them with the necessary opportunities to take up more risky and higher return activities and investments. In short, it may be the stimulus to allow them to grow out of poverty. However, they will only respond to the policy package offered if it is credible: that all commitments will be honoured. This means that if there is a crisis, they will pay out the insurance policy, or provide the promised targeted transfers.

## 5. Conclusions

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<sup>12</sup> For example, in the design of microcredit products much was learned from traditional credit associations such as ROSCAs and the way they functioned. In terms of insurance products, very little research has been conducted on the type of products offered by indigenous insurance associations, such as funeral associations. Many of these groups have far more formalised ways of operating than the literature, emphasising self-enforcing reciprocal informal arrangements, would suggest. Details on one such local institution, funeral societies across Ethiopia, and lessons for insurance and other product design are in Bold and Dercon (2003).

This paper has highlighted a number of important market failures that disproportionately affect the poor and limit their ability to partake in growth, so that they may remain stuck in poverty. I have focused on three core market failures: credit market failures, locational externalities and lack of insurance. Each of these market failures largely affect the poor, and interact with poverty and inequality to contribute to poverty persistence and even poverty traps. Since it is poverty persistence linked to market failures, the usual trade-off between equity and efficiency does not apply: addressing these types of poverty also has substantial efficiency and potential growth gains. A key problem with poverty traps is that without large exogenous positive shocks or windfalls, standard mechanisms of aggregate growth may not have much impact on these groups. Simply letting 'just any growth' solve this poverty is not an option. There is an efficiency and an equity case for channelling resources to the alleviation of these traps. There is clear case for development aid to support specifically these types of activities.

The core market failures identified and the impact on the poor have often been recognised in development policy. The paper briefly discussed the experience with standard programmes to deal with these issues. A key conclusion is that while we may have an increasingly better idea of the extent of the problems faced by the poor, and its efficiency implications for the wider economy, it still largely remains an issue how to most effectively deal with these problems. For example, microcredit schemes are now one of the key instruments to deal with persistent poverty, but their success is more mixed than policy makers like to present it. Similarly, development action has long focused on attempting to address 'poor areas' with integrated schemes, involving different angles, but their success in transforming these areas is also questionable.

In more general terms, even if one accepts the presence of poverty traps, resulting from the interaction of inequality and poverty on the one hand and market failures on the other, it is not easily established whether it is better to address the inequality or poverty first (for example by targeted transfers) or tackling the market failure (for example by establishing a voluntary insurance or a credit scheme). A combined approach may be most fruitful: use targeted transfers to address the market failure or its direct consequences. Some schemes arguably exploit this, such as transfer programme conditional on educational participation (redistribute resources, but address the underinvestment in education linked to credit market failure) or transfers linked to better common property resource management. However, their success largely depends on the correct identification of the underlying causes of the poverty traps.

All this means that more attention will need to be paid to the design of interventions – the products and opportunities offered. Not least in the context of 'poor areas', much more work is required to understand the processes underlying continuing impoverishment. All this would also mean that much more attention should be paid to the careful evaluation of programmes. In many ways, we have learned too little from past mistakes, and the lack of systematic data collection on most interventions taking place in the developing countries is mortgaging our ability to improve in the future. Addressing poverty is only a waste of money if it is done badly using poorly designed schemes.

Overall, nevertheless, and what may be different from the past, is that there is much more evidence to convince the economic policy maker that addressing poverty is not just an issue of equity. The trade-off with growth and efficiency is at worst far less than typically suggested; in many instances there may not be a trade-off at all.

The most striking example is the impact of risk on growth and poverty. Even though the evidence is still only limited, it all points to large income growth losses due to risk. This provides a powerful argument for increased attention to transfer schemes to the poor in times of need, and, at least as important, for the design of better insurance and protection schemes for the poor. The potential benefits would be substantial.

However, such schemes can only be successful if they are credible. The poor have often felt cheated by empty promises, and one can forgive their scepticism. Policy documents and government statements have persistently been full of promises of safety nets and other programmes targeted to the needy, often with the best intentions. To deliver these promises, strong and sustainable institutions are necessary, and in most contexts they do not exist. Credibility is especially a key issue if one aims to encourage the poor to engage in more profitable but risky activities. Credibility is not easily gained and policy makers in poor developing countries face an uphill struggle to acquire it. There is clearly an important role for aid and the donor community: by supporting and guaranteeing the enforcement of these measures it would allow these social protection mechanisms to provide genuine insurance against poverty.

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