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Chronic Poverty Research Centre

Isolation and poverty

The relationship between spatially differentiated access to goods and services and poverty

Kate Bird, Andy McKay and Isaac Shinyekwa

ODI Working Paper 322
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Results of ODI research presented in preliminary form for discussion and critical comment

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Acronyms

CPRC	Chronic Poverty Research Centre
DC	District Commissioner
DHS	Demographic and Health Survey
DRC	Democratic Republic of Congo
GoU	Government of Uganda
HIV	Human Immunodeficiency Virus
ICT	Information and Communication Technology
IDP	Internally Displaced Person
IFAD	International Fund for Agricultural Development
IHS	Integrated Household Survey
JVP	People's Liberation Front (Sri Lanka)
LADDER	Livelihoods and Diversification Directions Explored by Research
MFPED	Ministry of Finance, Planning and Economic Development
MOWHC	Ministry of Works, Housing and Construction
NGO	Non-Governmental Organisation
ODI	Overseas Development Institute
UBOS	Uganda Bureau of Statistics
UNDP	United Nations Development Programme
UNHS	Uganda National Household Survey
UPE	Universal Primary Education
UPPAP	Uganda Participatory Poverty Assessment Process
UTV	Uganda Television

Executive summary

It is intuitive that poverty levels are likely to be significantly higher for those living in remote or isolated locations, but so far there has been relatively little quantitative evidence to substantiate this. Such evidence as there has been has often been only at a highly aggregated level (e.g. north versus south of a country): for policymakers seeking to tackle poverty in often hard-to-reach areas, it is important to have such information at a finer resolution. This paper uses available quantitative data to develop composite indices of isolation for Uganda based on a series of indicators of access to infrastructure and services, and uses these to examine the relationship between isolation and different aspects of poverty.

The paper begins (Section 2) by reviewing different concepts of isolation and remoteness considered in the existing literature, which is focused predominantly on rural areas. It highlights the complexity of the concept, which has many different dimensions: isolation can be understood in terms of distance from infrastructure, from services, from an economic core or from political decision making, and these different dimensions are often strongly interrelated. This section also reviews existing literature on why isolation is likely to be associated with poverty.

This leads into a review (Section 3) of the current evidence on poverty in Uganda, considering both monetary and non-monetary dimensions. Particular attention is paid to geographic disparities in poverty, including an initial discussion of their possible causes and historical origins. Existing analysis does not distinguish between more and less remote areas of Uganda, though, so this paper then discusses the construction of a summary index of isolation for districts and communities in Uganda (Section 4). This draws on extensive fieldwork, which collected information on a series of indicators of isolation at the district level (physical remoteness; access to infrastructure; availability of services, facilities and means of communication). Factor analysis is used to create composite indicators of isolation in Uganda, thereby reducing the many different dimensions into single indices based on correlations apparent in the data. An analysis of these indices at the district level reveals significant differentiation within the four regions of Uganda.

Data from the 1999/00 Uganda National Household Survey (UNHS) are then used to examine the relationship between these measures of isolation and different dimensions of poverty, including measures of vulnerability. There is a strong correlation between isolation and poverty, including chronic poverty. Further analysis considers some of the channels underlying this association. Households in more remote areas have lower levels of market participation (including commodity and financial markets), itself associated with poverty; they make less use of public services (which are often more remote); and household members (women and children) in remote areas have to devote more time to fetching wood and water.

The paper then summarises the implications of these findings for likely future evolution of poverty, in particular considering likely future spatial patterns of growth. It discusses policy implications for tackling poverty in remote areas of Uganda and integrating those living there into the process of growth. It also identifies future research priorities, both specific to Uganda and to the issue of isolation and poverty more widely.

1. Introduction

Chronic poverty tends to be concentrated spatially rather than spread evenly. Most national household survey data show a significant regional dimension to the incidence of poverty, with greater proportions of poor households in remote, less favoured, weakly integrated or conflict-affected areas. High incidence of chronic poverty in such areas is of concern partly because of the numbers of people affected. Two-thirds of the estimated 1.8 billion people living in rural areas of developing countries are in less favoured or low potential areas (CPRC, 2004), and evidence suggests they are at greater risk of being poor and living in poverty for a long time.

There is a growing body of knowledge on spatial inequality (Kanbur and Venables, 2003a, 2003b, 2005a, 2005b; Shorrocks and Wan, 2005) and spatial poverty traps (Bird et al., 2002; CPRC, 2004; Jalan and Ravallion, 1997). However, much of the quantitative literature has focused on analysing differences between large regional blocks – for instance between the north and south of a country. Furthermore, analysis generally focuses on a limited number of variables, for example household income and regional location. In this paper, we attempt to go further. We use the international literature to identify some of the key correlates of spatial inequality and develop a composite index of isolation, which – given the data – is capable of delivering results with a much finer resolution. We apply our index to Uganda and show that, while the pattern broadly follows expectations, there are some surprising and counterintuitive results (see Figure 2). We believe this type of tool is capable of delivering information to support government decisions on spatially targeted investments, policies and programmes.

This paper begins (Section 2) by reviewing different concepts of isolation and remoteness considered in the existing literature, which is focused predominantly on rural areas. It highlights the complexity of the concept, which has many different dimensions: isolation can be understood in terms of distance from infrastructure, from services, from an economic core or from political decision making, and these different dimensions are often strongly interrelated. Section 2 also reviews existing literature on why isolation is likely to be associated with poverty.

This leads into a review (Section 3) of current evidence on poverty in Uganda, considering both monetary and non-monetary dimensions. Particular attention is paid to geographic disparities in poverty, including an initial discussion of the possible causes and historical origins. However, existing analysis does not distinguish between more and less remote areas of Uganda. Therefore, this paper then constructs a summary index of isolation for districts and communities in Uganda (Section 4). This draws on extensive fieldwork, which collected information on a series of indicators of isolation at the district level (physical remoteness; access to infrastructure; availability of services, facilities and means of communication). Factor analysis is used to create composite indicators of isolation in Uganda, thereby reducing the many different dimensions into single indices based on correlations apparent in the data. An analysis of these indices at the district level reveals significant differentiation within the four regions of Uganda.

2. Remote, less favoured and low potential areas

Spatial poverty traps are where 'geographic capital' (the natural, physical, political, social and human capital of *an area*) is low and where poverty is high, partly as a result. Research has found that the endowments of an *area* explain a substantial proportion of its poverty, once household characteristics have been controlled for (e.g. size, endowments, education) (Jalan and Ravallion, 1997). A combination of location-specific factors underpin spatial poverty traps, as do the relationships the area has with other areas through flows of people, labour, finance, goods and services and resources (Bird et al., 2002). Location-specific factors may include the following (CPRC, 2004):

- **Poor agro-ecology –** soil quality, slope, rainfall quality and distribution, temperature, vulnerability to natural hazards;
- **Poor infrastructure** – poor road, rail and river connections, leading to high transport costs;
- **Weak institutions/organisations**, especially market institutions, leading to high transaction costs;
- **Political isolation**, especially associated with political parties and networks and claims on local and central government services.

Box 1: Spatial poverty traps

Regions likely to have high concentrations of chronic poverty can be characterised as remote, low potential, less favoured or weakly integrated. Remote areas are those that are far from the centres of economic and political activity in terms of either distance or the time taken to get to and from them. The cost of travel and barriers to movement can also be an important determinant of perceived remoteness. These can be experienced differentially by the severely poor (limited ability to pay for even low cost public transport), by women (who may experience cultural barriers to mobility) and by the very young, very old and physically impaired. Low potential areas have limited agricultural or natural resources, and this categorisation is often equated crudely with drylands and highlands. Less favoured areas are those that are politically disadvantaged. Lastly, weakly integrated areas are areas that are poorly connected, both physically and in terms of communication and markets. They may have underutilised productive potential, but for historical or political reasons have received limited public or private investment.

Source: CPRC (2004).

Table 1, below, presents a conceptual framework for understanding spatial poverty traps. It shows that spatial poverty traps may lie in remote areas, low potential or marginal areas, less favoured areas or weakly integrated areas. In this paper, we discuss isolation, which we interpret broadly as including geographic isolation plus inadequate access to information (proxied by access to landline and cell phone networks, national radio and TV stations and national newspapers); exclusion from political decision making (proxied by distance from the nearest local government headquarters); and access to public services (proxied by distance from the nearest primary school and primary health care clinic). Aspects of isolation are experienced in many types of spatial poverty trap, but for the purposes of this paper we assume isolation and geographic remoteness (remote regions and areas) are largely synonymous.

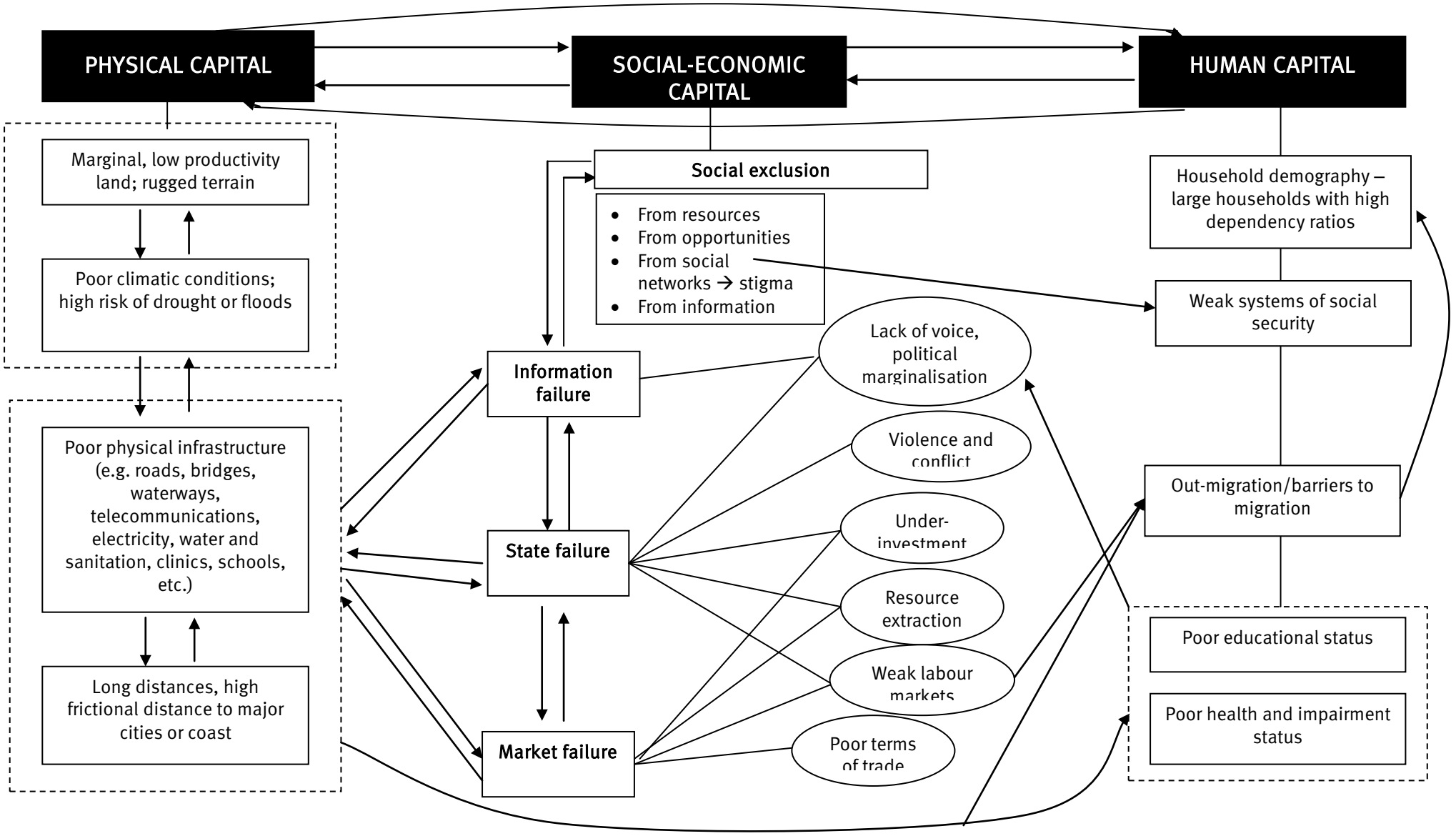
Figure 1, below, identifies the social, economic, political and environmental factors that promote uneven development and lead to the emergence of spatial poverty traps (CPRC, 2004). The figure shows that areas with poor physical capital tend to have poor physical infrastructure. This tends to contribute to information failures, state failures and market failures, which are all factors in exclusion and a range of negative outcomes.

Table 1: A conceptual framework for understanding spatial poverty traps

Spatial poverty trap description	Definition	Ecological characteristics	Poor infrastructure	Weak institutions (including markets)	Political isolation
Remote regions and areas (frictional distance and locational disadvantage)	Can include high and low potential environments. Costs of centrally supplied infrastructure and services are higher. Generally lower potential for non-farm activity, though remoteness offers some protection from competition. Poor urban residential areas remote from workplaces, with weak connections.	Geographically isolated, may have low or high population densities with different implications for resource exploitation. Geographical obstacles, such as slopes, ravines and marshes, contribute to isolation.	High infrastructure costs lead to poor quality or absent provision. Poor road, rail, river connections lead to high transport costs.	Low economic diversity and lack of growth. Dependence on agriculture or natural resources, which are low return and lowest wage sectors. Little wage labour available: out-migration or commuting 'solutions', but usually into low skill/return and insecure occupations. Few accumulation or expansion possibilities due to low demand. Few opportunities to augment skills, save, get credit. High risk for investments. Social capital may be high, but often excludes the poor or not useful for securing access to other resources.	Excluded. Relatively small (often fragmented) constituencies. Political access more constrained because less competitive. Voices rarely heard, especially if also ethnic or religious minority.
Low potential or marginal areas (ecologically disadvantaged)	Poor locations for built or productive environment: hillsides, roadsides, canalsides, riversides, dumps. Limited possibilities for technical change in natural resource based production systems.	High ecosystem diversity, fragile or degraded land resources, climatic variation. Bio-physical constraints limited rains, poor soils, steep slopes. Vulnerable to hazards, displacement.	Multiple costs to meet basic needs (shelter, water, transport, health, education) in settlements that are often unsafe and insecure. Low cash circulation as a result of low productivity. Dependence on remittances, public subsidy.	Poor economic and social infrastructure, 'over-population', low human and financial capital. Out-migration or commuting with positive and negative consequences depending on migrants' endowments. Includes poor areas within growth centres.	Political characteristics not usually considered but natural disadvantage may affect societal perceptions of people from such areas leading to stigma, discrimination and inequality. Illegal land holding increases vulnerability.
Less favoured areas (politically disadvantaged)	Can include high and low potential environments and pockets. Lower levels of infrastructure and services, stigmatised, 'hardship posting'. Private sector avoids investment; savings invested outside the area.	No clear patterns.	Lack of services for informal and illegal residents and enterprises. Low public investment in social protection and basic services leading to low cash circulation. Risk of falling out of labour market due to injury or death.	Limited market access, low population density, 'residual' populations left behind, old, very young, disabled, ill, discriminated.	Lack of protection against abuse by officials, lack of institutions able to safeguard and further citizen rights, no safety net.
Weakly integrated regions (poorly linked and economically disadvantaged)	Can include high and low potential agrarian environments, poorly serviced and connected peri-urban and urban areas.	No clear patterns.	Poor opportunities to commute or migrate; limited information on opportunities and rights.	Adversely incorporated into markets through exploitative or uncompetitive economic relationships: markets are fragmented and function weakly.	Politically marginal, unstable, liable to political fragmentation and conflict. Poor representation in political assemblies.

Source: CPRC (2004).

Figure 1: Multiple vulnerabilities in remote rural areas – spatial poverty traps based on poor geographic capital and covariant risk



Source: Moore (2002).

2.1 Factors contributing to spatial poverty traps

2.1.1 Agro-ecology

An area's agro-ecology and 'aggregate social characteristics' have been found to have a strong influence on the ability of residents to meet their basic needs (Benson et al., 2005). Agro-ecological factors influence the prevalence of poverty, and a study of 10 Sahelian countries found that poverty was worse in drier zones (61%) compared with wetter zones (26%) (UNDP, 1997). This suggests that areas with poor agro-ecology and low 'aggregate levels of social characteristics' are vulnerable to becoming spatial poverty traps.

2.1.2 Impacts of institutional, political and governance failures

Road bias means that professionals and administrators commonly do not travel through remote and isolated areas. This increases the likelihood of such areas being neglected (Bird et al., 2002). Governments may have a more weakly articulated 'contract' with citizens in remote, marginal and less favoured areas and, even where there is political will, the additional costs and constraints involved in working in a particular area may compromise the quality of service delivery and hamper the monitoring of service provision (Farrington and Gerard, 2002). However, the impacts of institutional, political and governance failures in remote and low potential areas are not limited to exclusion and the absence of effective voice. The weakness of institutional and political organisations in such areas also contributes to individuals and households being unable to bounce back effectively from covariant and idiosyncratic shocks. This is because resilience to shocks depends on the institutional and political context as well as on having access to the resources and assets needed to devise an effective coping strategy (Benson et al., 2005).

2.1.3 Stigma and exclusion

'Social failure,' between and within social groups, can lead to social exclusion and discrimination, breakdowns in security and political stability and increasing social and economic inequality (Bird et al., 2002).

'Mainstream' society often looks at people from remote areas with fear, anxiety or scorn. Stereotypes, labels and stigma based on race (e.g. aboriginal status), ethnicity, language, religion, culture or habits may result in exclusion and discrimination. People may suffer discrimination in labour, housing and credit, as well as in other markets if they try to migrate. They may be blamed for crime and political unrest and they tend to be poorly connected to political elites, and therefore are weakly protected (Bird et al., 2002).

2.1.4 Physical isolation and inadequate infrastructure

There is a clear link between high levels of remoteness, low levels of public and private investment and high incidence of chronic poverty (Bird and Shepherd, 2003). In many less favoured rural areas, low population densities drive up the costs of both extending physical infrastructure and providing basic services in comparison with in densely populated urban areas, where there may also be a more effective political lobby for investment (ibid). Most of the empirical studies that attempt to explain spatial inequality within countries find that public infrastructure is a key explanatory factor (Kanbur and Venables, 2005b). Transport infrastructure provides people with access to markets and services; influences returns to labour and investment; and supports regional integration, communication and the transmission of ideas and new technology.

Government spending in aggregate, and on infrastructure and services in particular, helps determine the geographic distribution of income poverty and standards of living (Bird et al., 2002). Investments in infrastructure can stimulate a virtuous cycle of agglomeration, by attracting new investments, industries and people (Kanbur and Venables, 2005b).

Inadequate physical infrastructure, as experienced in remote rural areas, restricts local access to markets and maintains spatial, political and social marginality. In Peru, household expenditure and living standards were found to be differentiated spatially *as a result of* the uneven provision of public infrastructure (Escobal and Torero, 1999). In Tanzania, households within 100 metres of a gravel road which is passable 12 months a year, with a bus service, earn about one-third more per capita than the (rural) average (IFAD, 2001). There are similar findings from Nigeria (Porter, 1997). Significant and substantial geographic effects on living standards were identified in Bangladesh, after controlling for a wide range of non-geographic characteristics (Ravallion and Wodon, 1999), and level of infrastructural development was found to have a significant effect on the incomes of the poor and a positive effect on their health (Bird et al., 2002). In China, one study highlights a highly significant positive relationship between higher road densities in a given area and localised consumption growth (Jalan and Ravallion, 1997), whereas in Nepal research shows that isolation – travel time from village to market – significantly reduces subjective well-being (Fafchamps and Shilpi, 2004).

In-depth quantitative evidence from Ethiopia supports our assertions of the importance of good links between rural areas and urban markets. Even when other factors were controlled for, an increase in distance between rural households and the nearest market town was found to have a dramatic effect on the likelihood that a household would purchase inputs or sell livestock, livestock products and processed food. Conversely, improving road quality was found to increase the likelihood that rural households would use local market towns to buy inputs and sell (most) outputs (Dercon and Hoddinott, 2005). The study found that agricultural producers living less than 8km from their nearest market town (equivalent to a four-hour round trip on foot) were more likely to sell agricultural produce in town than within their own or neighbouring rural communities. They were also more likely than more remote households to buy inputs and consumption items in the urban centre. They received better prices for their goods, as markets with larger concentrations of consumers are more able to absorb production from rural areas without driving farm-gate prices down, and they were able to access a wider variety of productive inputs, services and consumption goods, which were both regularly available and of better quality.

Omamo (1998) confirms that distance from market (more than 8km on foot), poor roads and the high opportunity costs of travel time influence both producers' and consumers' decision making. They reduce farm incomes, ability of producers to supply food to the towns and ability of consumers to buy goods and services from urban areas. This suggests that remoteness and physical isolation can damage market integration, adding to the costs of a basket of goods and intensifying the poverty of consumers. Remoteness in terms of distance and journey time was found to lead to a preference to earn cash through migratory labour, leading to a sluggish (agricultural) supply response and limited engagement with national or international product markets, with implications for the wider economy. The finding that the majority of export vegetable production in Kenya takes place within 100km of the airport confirms the importance of road and communication infrastructure and power supplies for rural livelihoods (Minot and Ngigi, 2004).

Mobility in poor rural people's lives is often highly circumscribed, and in Ethiopia this was found to limit people's interactions with urban centres – other than the nearest market town (Dercon and Hoddinott, 2005). More remote households were found to be more likely to withdraw from market interactions, becoming increasingly reliant on production for home consumption. Communities with better roads had persistently higher rates of economic growth, and building more and better roads and improving transport were found to increase access to market towns and result in substantial and significantly increased consumption and welfare.

Poor road infrastructure and inadequate mass transport particularly affect poor women and older people, who are the least likely to own a vehicle, bicycle or motorbike. These practical problems may reinforce the effect of cultural norms limiting women's mobility, thereby circumscribing their access to services, markets and information, limiting their livelihood options and reducing enterprise profits and returns to their labour.

The assumption in much current development policy is that investments in roads will lead to market development. While such investments may reduce journey times for the poor (if supported by complementary investments in affordable bus and other transport services), improved market functioning may depend strongly on improvements in security and governance, greater access to trading capital and increases in disposable incomes or in population densities (Bird et al., 2002). This means that investments in infrastructure may or may not improve access to markets. They are more likely to facilitate access to labour markets and secondary and tertiary services first, before having a substantial effect on commodity markets.

2.1.5 Service delivery: education and health

Rural areas have lower levels of access to primary health care services, potable water and sanitation, as well as higher levels of morbidity and mortality. Access to adequate sanitation is lower in rural areas in 93% of countries, access to clean drinking water in 97% of cases and access to primary health care in 100% of cases (IFAD, 2000). Distance and journey time increase the opportunity cost of accessing education and health care, market imperfections resulting from transport deficiencies prevent access to medication and poor water and sanitation increase health risks (World Bank, 2000).

Widespread anecdotal evidence indicates that the more geographically remote and economically marginal a rural area is, the stronger the probability that health services will be not only below national averages but also below *rural* averages (Bird et al., 2002). Kanbur and Venables (2005b) found that disparities in school enrolment and neonatal care were a direct result of inequality in the distribution of public schools and public health facilities. In areas with poor physical infrastructure and service provision, preventable deaths become more likely, and ill-health and impairment further deplete human capital – already low because of poor education and the health impacts of poverty-induced malnutrition (CPRC, 2004).

Remoteness itself increases the costs of accessing health care and other services, and the poor lose a higher proportion of income making the journey. The relationship between fees paid for services and quality of services (e.g. education) is likely to be worse than elsewhere. If resource flows are lower and less reliable, personnel are less attracted to remote areas, and local politicians are less active in attending to their constituents. As a result, the chronic poor are likely to seek out local substitute services – traditional health practitioners or informal education, for example (Bird et al., 2002).

2.1.6 Communication, media and information and communication technologies

Remote rural areas in low income developing countries tend to lack landline telephone coverage, have poorer access to the internet and have limited mobile phone connectivity. In remote areas, terrestrial TV stations may be unavailable, radio reception may be poor and national newspapers may be difficult to obtain.

Lack of access to media, information and communication technologies (ICTs) and other forms of communication tends to result from a combination of factors, including illiteracy, not owning or having access to a radio or TV, censorship and an uncompetitive media. These problems can be compounded where an area is isolated and beyond the scope of national media; where cost and language act as barriers; where a monopolistic provider controls the supply of market information; where market information is poor; or where isolation and low population densities make mobile phone networks unprofitable. The result can be limits to people's access to information and knowledge on entitlements,

rights and obligations, markets and technology. In addition, poor communication drives up the costs of trading, as traders have to travel personally to obtain information and orders and to communicate with producers, wholesalers and retailers.

Poor communication also has wider political and economic implications, as flows of people, ideas, services and goods bypass remote areas, increasing their isolation, exclusion and marginalisation and reducing technical innovation and adoption.

2.1.7 Crime and insecurity

Northern development specialists tend to apply their experience of crime-affected areas (urban, poor) to Southern contexts, and crime rates in developing countries are generally assumed to be higher in towns and cities. However, patterns of crime and the behaviour of law enforcement agencies do not necessarily parallel those of the North. Crime may well be higher in remote areas, and police may be either inactive or a source of harassment and brutality (Bird et al., 2002). Isolated regions tend to have more banditry (e.g. tribal southwest Madhya Pradesh) and are more likely to harbour armed insurgent and terrorist groups, especially where crime finances insurgency (Fafchamps and Moser, 2004).

In Madagascar, controlling for the presence of law enforcement personnel, population composition and risk factors, it was found that violent crime was higher in the least populated areas, furthest away from major cities. Isolation was found to provide safe harbour and passage for criminals, reducing the effectiveness of law enforcement (Fafchamps and Moser, 2004). It was also found to nurture distrust among different ethnic groups, which then manifested itself in raids on cattle and property (shops, granaries), occasionally accompanied by homicide and rape. The limited range of sources of entertainment in isolated areas was also found to result in higher levels of alcohol consumption, resulting in high incidence of brawls, homicides and rape. High levels of crime and insecurity were found to have a direct impact on the economy, diverting business and trade, reducing investment and savings and wasting resources on the protection of property rights and ensuring personal safety.

There is evidence of high crime rates in other rural areas, too. In Zimbabwe in the late 1990s, fear of theft in semi-arid communal areas prevented some households from attempting to accumulate livestock and curtailed women's movement – damaging household livelihood strategies and well-being outcomes (Bird et al., 2000). In South Africa, the impact of social dislocation is compounded by poor policing, resulting in high levels of theft and sexual violence (Hamber and Lewis, 1997).

Box 2: Remoteness, marginality, governance and conflict

Weak state presence, the remote political status of certain groups and lack of access to markets are likely to increase vulnerability and, in certain contexts, generate grievance. In Sri Lanka, one of the key factors distinguishing the chronically poor from the transiently poor is lack of access to state services. Remote rural areas in the south provided the main support for the violent People's Liberation Front (JVP) uprising in the late 1980s.

Many of today's conflicts emanate from and are fought out in border regions that have historically suffered from marginality, limited voice and hardcore poverty. Conflicts in Nepal and Chiapas, Mexico, are clearly linked to differential development and patterns of exclusion. Such border regions may historically have had an ambiguous relationship with the state and been a magnet for potential dissidents. Conflict entrepreneurs have been able to mobilise around a discourse of grievance. Moreover, weak presence of the state in such areas has made it easier for militant groups to mobilise and establish base areas for their activities.

Source: Goodhand (2001).

Moving from crime to insecurity and conflict, we see that *spatial inequality* contributes to *interpersonal inequality* and, where such inequality is increasing, it may contribute to tensions, particularly where spatial divisions align with ethnic, tribal or religious differences (Kanbur and Venables, 2003a). Homer-Dixon (1999) identifies a causal relationship between environmental scarcity, competition for resources and violence. This suggests that remote and low potential areas may be particularly prone to conflict. Some marginalised groups are more likely than others to be drawn into conflict. For example,

pastoralists' livelihoods depend on their ability to move seasonally to maintain access to suitable water and grazing. They may resort to violent conflict if they are denied access. This is most likely to happen where the state has failed to integrate them politically and developmentally (Bird et al., 2002).

Violent conflicts often affect remote and border regions, even if they did not start there. For a start, fighters often retreat to remote areas. In addition, when people are displaced over international borders or within countries, they often settle in remote areas (Bird et al., 2002), to hide from the authorities, to keep away from fresh fighting or because low population densities mean they have the chance of finding some land to tend and a place to build a home.

Not only does conflict have an immediately negative impact on the well-being of local populations, but also it can limit investments in public goods in an area. This may limit the ability of the poor to benefit from overall growth processes, especially poor households facing social exclusion (Friedman, 2003).

2.2 Poverty and spatial poverty traps

2.2.1 Rural poverty

Rural poverty remains higher in rural areas in most developing and transitional economies (Bird et al., 2002), and living in a rural area in Africa significantly increases the probability of being poor (Hanmer et al., 1997). Analysis of survey data from 1980-1998 found that rural poverty was higher than urban poverty in 94% of countries included in the study (IFAD, 2001). In 65% of cases, rural poverty was one and a half times higher than urban poverty, and in sub-Saharan Africa, East and South Asia and Latin America rural poverty was three times higher (ibid). Vulnerability is higher in rural than in urban areas, and in remote or isolated areas vulnerability is higher still. In such areas, the covariance of risk makes it harder to identify and sustain appropriate coping strategies. (Bird et al., 2002).

There are wide spatial disparities in per capita income and on other socioeconomic indictors within many developing countries (Kanbur and Venables, 2005b). In six out of twelve countries studied in Africa, 50% more people in rural areas live in asset poverty; in Indonesia, rural poverty was found to be much higher in remote West Kalimantan (46.5%) than in non-remote Yogyakarta (10.7%) (Kanbur and Venables, 2005a). Also, correcting for individual worker characteristics like education and tenure, and firm characteristics like size and foreign ownership, workers in capital cities in five African countries were found to earn a premium of as much as 28% compared with the rest of the country (although this may be eroded by differences in costs of living) (Kanbur and Venables, 2003b).

2.2.2 Poverty and spatial poverty traps

Multidimensional deprivation, poverty and destitution are strongly concentrated, and can be found in spatial poverty traps even where a country has experienced economic growth and aggregate reductions in the poverty headcount (CPRC, 2004). Unfortunately, rather than becoming integrated more firmly into national economies, evidence suggests that spatial inequalities have increased in many areas (Kanbur and Venables, 2005a).

Interlocking sets of economic, social and political factors affect where spatial poverty traps occur. 'Market failures' tend to lead to under-investment and can be associated with economic activities that extract resources but fail to deliver pro-poor growth. 'State failure' can result in inadequate provision of infrastructure, an 'enabling environment,' basic services (particularly health and education) and social protection in many remote rural areas. Such problems overlay individual and household phenomenon and those specific to an individual's ascribed group (age cohort, ethno-linguistic group), livelihood group and location.

Remoteness is associated with higher dependency ratios, working in insecure and low productivity occupations and being female (or young) and in ethnic minorities (de Haan and Lipton, 1998). Such

areas also experience exposure to higher levels of risk, lower levels of social protection, food insecurity, poor policy, low levels of service delivery and constraining social factors (Bird et al., 2002). These composite disadvantages operate at the level of the individual (being female), household (having no one literate), group (being low caste or ethnic minority) and region (remote and with few resources), and interact between levels. They result in households and individuals having low asset holdings: low quality 'human' assets (uneducated, in poor health); few natural assets (no land, limited access to common property resources); few physical assets (poor quality housing, limited tools); minimal financial assets (no savings account, no access to formal credit); and limited 'social capital' (a network of kin and neighbours with few assets and highly vulnerable to risk). Add to this a lack of 'political capital' – the capacity to 'voice' needs and preferences and influence decisions in social and political arenas – and it seems that people in remote rural areas and spatial poverty traps are likely to experience a 'vicious circle of chronic poverty' (Bird et al., 2002).

Bitare village in Kisoro district, Uganda, illustrates how different forms of deprivation can combine to create a poverty trap (Box 3).

Box 3: Remoteness and multiple deprivations

Bitare village is located in a steep, hilly region of southwest Uganda, near the conflict-prone border of the Democratic Republic of Congo (DRC). It is also close to the Bwindi 'impenetrable' forest, a national park that cuts the community off from relatives and employment opportunities in neighbouring districts. It is 28km – nearly 2 hours in a four-wheel drive vehicle – from Kisoro town, where there are hospitals and other services. A connecting road for the village was built in 2001, but the last kilometre is still a narrow footpath. The sub-county headquarters (16km away) has a health unit but no secondary school. There are primary schools, but the quality is very poor, particularly as there are no teachers' houses to attract good quality teachers to the area. Electricity does not extend beyond the periphery of Kisoro town, so no rural households have access to electricity. The high concentration of extreme poverty in Bitare (54 of 121 households are very poor) constrains local economic growth by inhibiting demand for goods and services, with little other than a few forest products and eggs produced for sale. The remoteness and the rugged terrain drive and maintain chronic poverty. The terrain has encouraged soil erosion and reduced agricultural productivity; made access to schools, health services, markets and information difficult; provided camouflage for rebel activity; and increased construction costs. Remoteness has also reduced labour opportunities. Shocks – weather, crop failure, animal diseases, landslides, rebel skirmishes and the absence of adequate public responses to these composite problems – have also contributed to keeping people poor and pushing others into poverty.

Source: Ssewaye (2003), in CPRC (2004).

2.3 Isolation, chronic poverty and subjective well-being

Poverty in remote rural areas has been found to be intractable. In Indonesia, for instance, economic growth was less effective in driving down poverty in remote areas (Kalimantan, Maluku and Irian Jaya) than in non-remote areas (rural Java and Bali) (Friedman, 2003). This may be because there are fewer opportunities for off-farm work: such opportunities have been found to be a crucial poverty interrupter, as they tend to be clustered in areas with well developed transport networks and ease of access to large urban and export markets (ibid). In Ecuador, Madagascar and Mozambique, geographic characteristics were found to be strongly correlated with inequality, even after controlling for demographic and economic conditions (Elbers et al., 2003)

Differing sets of factors underpin concentrations of persistent poverty between and within regions, and it is important to avoid simplistic geographical determinism (Bird et al., 2002).

It has additionally been found that individuals' sense of well-being is influenced strongly by the comparison that they make between their own experience and that of others (relative deprivation) (Fafchamps and Shilpi, 2004). Because isolation reduces the size of the *reference group*, it may paradoxically increase subjective well-being. People may feel less poor in an isolated village because everyone around them is also poor. Furthermore, isolation may raise subjective well-being where residents value the characteristics associated with isolated areas, for example social cohesion,

closeness to nature and lack of congestion. Alternatively, isolation may reduce subjective well-being, particularly where residents give high value to access to public services such as schools, hospitals, road infrastructure and a choice of consumer goods and services. In Nepal, isolation, indicated by travel time from village to market, significantly reduces subjective well-being.

2.4 Isolation and growth

The growth literature refers in places to the problems of lagging regions. Evidence suggests that the poor in such regions are badly placed either to seize local opportunities or to migrate to benefit from those in other areas (World Bank, 2000). Convergence is likely to be lower where market failures are high and where migration is difficult. Infrastructure is crucial in communicating the beneficial effects of national-level growth across space. Differential access to markets as suppliers and consumers may partially explain such differences (Kanbur and Venables, 2003b). Returns to investment (even investments in human capital) will be also be low in areas with low geographic endowments (Ravallion and Wodon, 1999). This is generally true in remote rural areas, partly because markets do not function so well: they are 'thinner' – more interlocked (Singh, 1989), with smaller marketable surpluses, higher transactions costs and possibly less good social cooperation to overcome obstacles. All of these are related partly to distance from major urban centres. Greater distance reduces trade, specialisation opportunities and access to credit. Distance interacts with agro-ecology as a determinant of geographic capital (Bigman and Fofack, 2000).

Evidence shows that households with limited access to markets and public services did not benefit from economic growth in the 1990s, and provision of public goods was crucial in enabling poor households to benefit from the opportunities that economic policy reforms and growth created (Kanbur and Venables, 2005b). Country-specific evidence illustrates that the binding constraints to growth in remote areas are not always the same. In Ethiopia, road infrastructure was most important, whereas in Uganda it was electricity. In Indonesia, reductions in rural poverty have been more likely following economic growth in the central locations of Java and Bali than in more remote regions like Kalimantan, probably because of better public infrastructure (Kanbur and Venables, 2003b). In eight African countries, economic growth was found to be a key correlate of poverty reduction, but its impact on poverty depended crucially on how remote poor households were from the centres of economic activity and how well served they were by infrastructure services (ibid).

Private sector firms tend to locate away from 'lagging and inland regions' because of their poor infrastructure and poor connections to the coast and major urban clusters (Kanbur and Venables, 2005). Once certain patterns have been established, powerful forces of agglomeration tend to lead to a concentration of economic activity (ibid). These magnify the natural geographical advantages that a region may enjoy and intensify the marginality of remote and isolated areas.

All this suggests that governments, donors and non-governmental organisations (NGOs) have arguably focused on the wrong areas. There has been a long-running debate within development circles as to whether resources should be invested in higher potential areas or in low potential areas, where poor people often live (Bird et al., 2002). The majority of interventions have been directed towards high potential areas and the 'easy to reach' poor, with the assumption that such investments will create 'growth poles' and generate positive spill-over effects and multipliers to draw in and benefit people living in more remote areas. It appears that this has largely failed to happen. Investments have supported economic growth and the expansion of opportunity in areas with reasonably functioning markets and integration into national and global economies, but areas experiencing 'comparative disadvantage' have commonly lagged behind. Without targeted programmes to counter these disadvantages, regional inequality in many countries has grown rather than declined.

3. Poverty in Uganda

3.1 An overview of poverty in Uganda

Poverty in Uganda fell consistently over the 1990s, from a national headcount of 56% in 1992/93 to 35% in 1999/00 (Table 2). This reduction was observed in all regions but much less in the north. Between 1999/00 and 2002/03, poverty at the national level and in most regions rose, although per capita expenditures rose over the same period this implies an increase in inequality over this period. There was then another important reduction in poverty, nationally and in all regions of the country except the north, between then and 2005/06 (Table 2; Appleton, 1998, 2001a, 2001b; UBOS, 2006). By 2005/06, 31% of Ugandan lay below the poverty line, although in rural areas of the north nearly two-thirds of the population fell below the poverty line. Inequality also fell marginally over this period (UBOS, 2006), having risen consistently over most survey periods up to this point. Urban poverty is consistently much lower than rural poverty, although the level of urban poverty in 2005/06 was still above its level in 1999/00. Poverty reduction has occurred most rapidly in the Central and Western regions and very slowly in the Northern region.

Table 2: Poverty in Uganda by region, 1992-2006 (consumption poverty headcount %)

Region	1992/93	1997/98	1999/00	2002/03	2005/06
National	*55.7*	*44*	*35.1*	*38.8*	*31.1*
Rural	*59.7*	*48.2*	*39*	*42.7*	*34.2*
Urban	*28.2*	*16.3*	*10.1*	*14.4*	*13.7*
Central rural	52.8	34.3	25.6	27.6	20.9
Central urban	21.5	11.5	7	7.8	5.5
Eastern rural	61.1	56.8	39.2	48.3	37.5
Eastern urban	40.6	24.8	17.4	17.9	16.9
Western rural	53.8	43.2	29.4	34,3	21.4
Western urban	29.7	19.9	5.6	18.6	9.3
Northern rural	72.2	61.7	66.7	65.0	64.2
Northern urban	52.6	32.6	30.6	38.9	39.7

Source: Appleton (2001a); Appleton et al. (1999); UBOS (2006).

There is other evidence to support the reversal of poverty trends in the early years of the current decade. Krishna et al. (2004) present data from a long-term study of poverty and poverty dynamics undertaken in 36 villages in Central and Western Uganda. They found that the rate of income poverty reduction had been relatively high in the early 1990s but slowed from the mid-1990s, despite higher economic growth, because of increased downward mobility. The non-poor were becoming poor largely because of health-related expenditures (70% of all those falling into poverty); increased family size; expenditure on marriages and funerals; land division; and crop and business losses. The first Uganda Participatory Poverty Assessment Process (UPPAP I) (MFPED, 2000) also found that the poorest were experiencing deepening poverty. This was extremely controversial at the time, as household surveys during the 1990s had provided evidence of poverty reduction, and the apparent contradiction led to a vigorous debate (Brock et al., 2004). Growth during the 1990s has been shown to be 'pro-poorest,' in other words particularly benefiting those households in the lowest deciles (Grant, 2005). This was not the case between 1999/00 and 2002/03, though, when the poorest were, if anything, getting poorer, a fact confirmed by evidence of a reduction in wages (Okidi et al., 2004). However, between 2002/03 and 2005/06, living standards improved throughout the entire distribution.

There is also strong evidence from the 1990s that a significant proportion of the poor are chronically poor. While there was substantial mobility into and out of poverty through the 1990s, evidence from the analysis of Uganda' panel data supports the assertion that nearly 20% of Ugandans remained in poverty (i.e. were chronically poor: Lawson, McKay and Okidi, 2006; Okidi and Mugambe, 2002).

There is also some evidence to suggest that poverty and social indicators are diverging. Household survey data and other sources commonly identify strong links between income poverty and other measures of deprivation. There is a substantial body of work looking at non-income aspects of poverty. Uganda's two large participatory poverty assessments (UPPAP I and II), carried out under the aegis of the Ministry of Finance, Planning and Economic Development (MFPED), have highlighted the way poor people in Uganda identify the links between income poverty and other dimensions of ill-being. Some argue that, whether or not the poverty headcount has declined, levels of ill-being have remained high, with the income-poor commonly experiencing multiple deprivations or multidimensional poverty.

The evidence is contradictory. During the 1990s, there was broad-based income growth, yet there was little improvement or even deterioration on many human development indicators – especially health outcomes – between the 1995 and 2000 Demographic and Health Survey (DHS). Many key indicators saw a decline (child stunting, child and infant mortality, life expectancy, deaths from malaria). Against these largely negative trends were a number of positives:

- Universal primary education (UPE), introduced in 1997, resulted in 90% of children being enrolled in school in 2004, with near equal participation of boys and girls (Okuonzi, 2004). Enrolment rose dramatically at the start of UPE, although the increase has been more limited since then. Although retention has been low since UPE (with only 23% of those enrolling in 1997 completing seven years of schooling), literacy has increased, especially for rural women. This is despite falling incomes and a rise in the poverty headcount.
- Health user fees were abolished in 2001 and resulted in a substantial increase in the use of public health services, especially by poor women (Nabyonga et al., 2005; Okuonzi, 2004), although some informal charges remain.
- HIV infection rates fell from nearly 30% in the early 1990s to about 4% in 2004 (GoU, 2004; Okuonzi, 2004).

So, although there is some evidence of income level being associated with human development outcomes – especially fertility (Popsec, 2005) – the changes in Uganda have not always moved in the same direction. Such divergent trends have been found elsewhere (Appleton and Song, 2001; Baulch and Masset, 2003).

Inequality in Uganda rose significantly over the 1990s, falling only modestly between the two most recent surveys. Income growth at the upper end has been a particular driver of increased inequality. Between 1999/00 and 2002/03, the only deciles to experience income growth were the top two; all others experienced a decline in income in both urban and rural areas (Appleton, 2001a, 2001b; Deininger and Okidi, 2002). Inequality was stable between 1992 and 1997, but analysis of the 1997 Ugandan household survey onwards shows that mean income inequality rose after that, with the Gini coefficient rising from 0.35 in 1992 to 0.43 in 2003. There are suggestions that current figures underestimate real income inequality in Uganda. One factor distorting inequality figures has been the underrepresentation of internally displaced persons (IDPs) in recent household surveys. The severity of their income poverty would arguably increase inequality measures (national and within and between regions).

In regions that are making reasonable progress on poverty reduction, substantial pockets of relative deprivation can be found, and growth in inequality within regions is greater than inequality between regions, except that urban-rural inequality growth is substantial (Ssewanyana et al., 2004). However, there are some indications that inequality between regions is also rising. Northern (incidence) and Eastern (numbers) Uganda remain the country's poorest regions, whereas Central and Western Uganda experience economic growth and poverty reduction (Table 2). The relative deprivation of Northern Uganda is well documented, including in a poverty mapping exercise carried out by the Uganda Bureau of Statistics (UBOS) (Emwanu et al., 2004), with findings from both Uganda National Household Survey (UNHS) data and UPPAP I and II reflecting substantial inequality across the whole range of development indicators.

As mentioned above, national statistics provide poor coverage of the unstable Northern region and therefore underestimate poverty and inequality and overestimate positive trends in health and education service delivery and welfare indicators.

3.2 Remoteness and poverty: participatory evidence[1]

To complement the above quantitative summary of poverty, we reviewed seven Uganda participatory poverty assessments from UPPAP II to assess specifically whether being isolated appeared to have an impact on community members' perceptions of poverty. The seven districts were selected purposively, based on their ranked isolation score (access to infrastructure and services). UPPAP II reports existed for only 12 of the ranked districts; of these, we identified the five most isolated districts, along with a control group of two. These were (from most to least remote) Ntungamo, Moroto, Arua, Soroti, Bugiri, Masinde and Jinja.

The review showed that communities in Uganda do identify isolation as contributing to their poverty. Many communities emphasised the link between inadequate roads and poor access to basic social services, as well as barriers to accessing produce markets. Poor access is a problem even within some of the best connected districts, and in Jinja a community[2] reported, '*people do not come to buy our maize because of [the poor] road and we cannot transport it to better markets.'* In Soroti, one of the more isolated districts in the sample, people blamed the collapse of market communities on roads that were so poor that truck drivers could not reach them to buy their produce (MFPED, 2002e). In Masinde, lives are lost when roads became impassable during the rainy season, and people cannot leave their villages to access medical treatment (MFPED, 2002c). In Soroti impassable roads in the rainy season discourage children from going to school (MFPED, 2002e: 60). Poor access, therefore, has a bearing on household well-being, the building (or protection) of human capital and livelihood choices and incomes.

Ease of access to key public services was identified as crucial to the uptake of both education and primary health care. One internally displaced community in Masinde district is over 9km from its nearest state primary school. The nationally accepted maximum is 5km and being so far from the nearest school causes access problems, particularly for the youngest children (MFPED, 2002c). The lack of schools in Ntungamo district (one of the villages is 15km from the nearest primary school) was felt to make life difficult for poor communities, with poverty then affecting households and individuals (MFPED, 2002f). Health workers may live a long way from their clinic and close it promptly at 5pm: '*for us, we are supposed to be sick only during the day but not at night.'* In Bugiri district, primary health care units in remote areas provide immunisation and treatment only for very minor ailments, referring patients to the main hospital, 38km away (MFPED, 2002d). In Moroto district, only 24% of the population is within walking distance of a health centre (MFPED, 2003). Nevertheless, distance is not always the key constraint. There were reports of other constraints to access to medical treatment: shortages of drugs at clinics; the need to pay bribes; and socio-cultural norms that meant that some husbands would not let their wives travel to seek medical attention (MFPED, 2002b, 2002f).

Distance from potable water is an important dimension of isolation. In Arua district, Baito community's nearest bore well was reported to be 5km away. Some women still make the journey, carrying two large jerry cans on their heads to avoid having to walk the distance too often, but the weight of the jerry cans when full damages their spines. Other women collect water from the river, putting the health of their families at risk. The time taken to collect water means girls are withdrawn from school to help with domestic tasks (MFPED, 2001).

[1] This section draws heavily on Proudlock (2007).
[2] Lwitamakoli village in Buyengo sub-county, Jinja district.

Obutamanha, or a lack of knowledge, particularly about 'remedies for poverty,' was seen as an important driver and maintainer of poverty in several of the island communities in Bugiri district (MFPED, 2002d), which have poor connections with the mainland and arguably poorer access than many to technical information. People in Bugiri also reported that distance seemed to make their politicians unresponsive: '*Very often you hear the members of parliament from Ntungamo district on Radio West boasting about what they have done in their constituencies but you do not have a telephone to call and dispute whatever they are saying. You become annoyed and feel like breaking the radio*' (old man in the 'poor' well-being category, Cell I Ntungamo Town Council; MFPED, 2002f). This was echoed by another, which indicates how marginalised many feel: '*Our representatives at central government do not come back to help us, they just go to get rich!*' (woman, Buwoya East village, Bugiri; MFPED, 2002d). In Moroto, communities from Lokileth argued that their area had become increasingly isolated and abandoned since independence: '*since we grew up, we had never seen a DC [district commissioner] coming to this place. We are happy that Uganda has remembered that we also exist. Please when you go back, tell whoever opened the door of life to us also that we are still here in our bush*' (rich man, Lokileth; MFPED, 2003).

All the UPPAP II reports examined for this review showed that the radio is an important source of information. However, access to radios is gendered: women – particularly poor women – have much less than men. In many households, men rather than women tend to own radios, and women get to listen to them only when their husbands are home. In Bugiri district, most women reported that their husbands 'denied them access' to the 'family radio.' In Arua district, men controlled all assets, including radios. Women in Bugiri district reported that, even when they had access to a radio, their heavy workload meant they could not listen to broadcasts (MFPED, 2002d). Women slum dwellers in Moroto district reported that they rarely knew what was happening outside the slum, as they were preoccupied with finding enough to eat (MFPED, 2003).

All the sample districts, except Masindi, highlighted crime and insecurity as an important driver of poverty, but the nature of crime differed according to the degree of remoteness. Piracy and murder in Bugiri district and cattle rustling in Soroti and Moroto contrasted with robbery in urban Arua. In all cases, risks affect livelihood choices and outcomes. In Moroto district, a disarmament programme has worsened the vulnerability of those who have given up their weapons: '*the removal of the gun has caused us more misery because of the Turkana. They have chased us from their places as well as our land … We have become defenceless because we don't have anything to defend ourselves with. The deployment of the army does not follow the directions of the people who know where danger is'* (poor old man, Lorukumo; MFPED, 2003). Insecurity affects women in Moroto by increasing the risk of rape and murder while they gather wild foods (ibid).

These examples illustrate that, although distance is an important determinant of isolation, poverty, political exclusion, crime and insecurity and gender-based norms can also play an important role. The local manifestations of these may all, in turn, be influenced by remoteness and isolation.

3.3 Dimensions of remoteness in Uganda

Before embarking on a quantitative analysis of the links between poverty and remoteness in Uganda, we now review evidence relating to remoteness in Uganda. We summarise briefly the situation in relation to infrastructure, roads, electricity, communications and the media.

3.3.1 Infrastructure in Uganda

Analysis by Deininger and Okidi (2003) and Deininger (2001) suggests that lack of access to education and health services and inadequate roads, communications and electricity provision have contributed to high poverty incidence in certain parts of Uganda. Historical factors may also affect current levels of infrastructure, development and poverty. The colonial and post-colonial elite saw Northern Uganda as a

labour reserve (MFPED, 2002a), and Karamoja was a 'closed district' – in both areas few development investments were made and inadequate investments over an extended period have probably helped fuel conflict, crime and insecurity. Deininger (2001) shows that distance from infrastructure (a proxy for scarcity of economic opportunities and government investment), asset inequality (social tension), presence of cash crops (expropriable wealth) and lower levels of human capital (ability to take advantage of opportunities in a regular economy) all increase the propensity for civil strife in Uganda.

Analysis of the determinants of economic growth and poverty reduction in Uganda found that access to electricity and infrastructure had an important impact on household poverty. Initial conditions of a household, including their bundle of assets and their health status, strongly influence the degree to which household members can gain maximum returns to their education and benefit from improved infrastructure, including electricity (Deininger and Okidi, 2002). Access to education and financial markets is also crucial in enabling rural households to diversify their livelihoods, and neither can be delivered cost effectively without adequate infrastructure (Deininger, 2001; Deininger and Okidi, 2003).

3.3.2 Roads

Road transport in Uganda accounts for 99% of the country's passenger traffic and 95% of freight traffic, and provides the sole form of access to most rural communities (Obwona et al., 2002). This heavy reliance on road owes partially to Uganda's poor rail network and few regional airports.

Until 1974, Uganda had one of the best highway networks in sub-Saharan Africa, but neglect, civil strife and the disruption of the civil administration between 1974 and 1985 led to the network's deterioration. This resulted in freight being transferred onto the roads, and the increased pressure greatly accelerated the road network's decline, increasing transport costs and damaging transport fleets. Eventually, around 55% of the investment in the road network was lost (Obwona et al., 2002).

Substantial investments in roads since 1986 have led to substantial improvements. However, inadequate attention has been given to the system of rural feeder roads. These earth and gravel roads cover about 24,603km (MOWHC, 2001) and link rural communities to the main roads. They are outside the direct responsibly of central government, which affects the amount of attention transport planners give them. Nearly 78% of community roads are in very poor condition owing to a lack of maintenance, and only 2% are in 'good' condition. Around 40% of district roads are estimated to be in a 'fair' state and 40% in a 'poor to very poor' state (Obwona et al., 2002). Poor road quality reduces access and mobility and increases transport costs. During the rainy season, many rural roads are completely impassable, and there have been instances of crops perishing at collection points because of the lack of transportation to markets.

Weak rural infrastructure has an impact on price information and results in a lack of certain goods and services. It also results in information asymmetries, giving private traders the opportunity to increase their margins at the expense of both producers and consumers.

3.3.3 Electricity

Only 5% of Ugandans and less than 1% of rural Ugandans have access to electricity from the national grid.[3] Most Ugandans depend on energy derived from biomass resources, which provide more than 90% of total national energy needs. This applies to rural small-scale industries such as brick and tile making and agro-processing of tea, tobacco and fish products.

[3] Installed capacity of electricity stagnated at 183 MW (180.0 MW hydro-electric power and 3.0 MW of thermal power) between 1996 and 1999 but, following the extension of the Owen Falls Dam, capacity was increased to 263 MW in 2000. The generation of electricity increased from 1,300.1 million kWh in 1996 to 1,341.7 million kWh in 1999 (UBOS, 2001).

3.3.4 Communication and ICTs

Before 1996, Uganda had one of the least developed telecommunications infrastructures in Africa, with 70% of services concentrated in urban areas (MWHC, 2002). Policy changes have supported a dramatic improvement, but levels of communication and ICT infrastructure and services in Uganda are still low in comparison with other economies in the world (ibid). While mobile network coverage is good, many rural areas are still not served and poor people are unable to afford services.

3.3.5 Media

Following the removal of Radio Uganda's state monopoly in 1992, a vibrant radio sector has developed. By 2004, over 117 FM radio stations had been licensed, although many of these were local stations based in Kampala with a limited broadcast range. In most parts of the country, listeners have a good choice of radio stations, although services may not be broadcast in the local language.[4]

In addition to satellite channels, six terrestrial TV stations are available in Uganda: the government-owned Uganda Television (UTV) and five privately owned stations. The UTV signal covers about 75% of the country but the privately owned stations tend to cover only Kampala and parts of central Uganda. Programmes are broadcast largely in English (with the exception of the Wavah Broadcasting Station and UTV). Of course, having access to a reliable power supply is a limiting factor, so few rural dwellers are able to access TV.

Electronic and print media communications grew rapidly during the second half of the 1990s. However, coverage is largely limited to major towns, particularly Kampala and Jinja. Uganda has two main national newspapers published in English: the state-owned *New Vision* and the privately owned *The Monitor*. In 2001, the *New Vision* had a circulation of 38,000 copies a day and *The Monitor* had a circulation of around 35,000 copies. Both papers produce local language papers, with *New Vision* producing *Orumuri, Etop, Rupiny and Bukede* and *The Monitor* producing *Ngoma in Luganda*.

Records for *New Vision* from 23 September 2001 show that 57% of copies were sold in Kampala. This reflects higher levels of illiteracy outside the capital and the inability of many rural dwellers to afford a daily newspaper. It has been estimated that 13 people read each copy of *New Vision*; even if this is true, it means that less than 1% of the Ugandan population reads a newspaper.

[4] Radio Uganda broadcasts in English and Kiswahili and another 26 local languages; FM radio stations broadcast in English and/or the local languages of the area.

4. Constructing measures of remoteness for Uganda

As the two previous sections discussed, there are many different aspects to remoteness, and many of these can be summarised by quantitative measures. The analysis presented below is based on extensive fieldwork in Uganda collecting detailed information on different dimensions of isolation at the district level. This is based on the 47 districts[5] in 1998-1999 that formed the strata for the 1999/00 UNHS. Some indicators were computed directly from the survey data, including measures of average distance to primary and secondary schools as well as average distance to the main municipality in the district and to Kampala. Much of the rest of the data was collected from administrative sources, including the Ministry of Works, Housing and Construction (MOWHC) (data on the density of feeder roads), the United Nations Development Programme (UNDP) (data on access to health and safe water), the Uganda Electricity Transmission Company Limited (data on the availability of electricity at district level) and the Ministry of Information (data on radio and TV stations).

In practice, some indicators could not be constructed for all districts. This was in part because the 1999/00 UNHS could not be conducted in all districts, because of serious insecurity problems at the time of the survey – unfortunately including some of the more remote districts. Much of the administrative data was also not available for all districts. Comprehensive information on a range of core indicators was available for 41 out of the 47 districts

In order to look at the relationships between isolation and poverty, it is valuable to focus on a limited number of measures of isolation. That said, the different indicators of isolation are all potentially important in their own right. It is highly desirable, therefore, to construct one or more overall summary isolation indices combining this different information. One convenient way of doing this is through factor analysis, and by selecting the first factor as a single dimension summary index of isolation. This technique has been used widely in the analysis of DHS data to define asset quintiles, by combining information on a diverse range of assets that the household may or may not own and reducing this to a single asset index (Sahn and Stifel, 2000). In this instance, the values of the asset index are then used to define asset quintiles.

The same factor analysis technique is used here to construct summary measures of isolation. Two different isolation measures have been constructed, one essentially based on remoteness in terms of the average distance of the district from key amenities and locations (such as roads and the main district town), and the other on the availability of key facilities and amenities within the district (schools, health centres, etc.). For the former index, higher values indicate greater isolation; for the latter, higher values indicate lesser isolation, in other words greater availability of facilities. The discussion below focuses primarily on the former index, but some reference is also made to the latter.

These indices are a statistical construct and, as such, their absolute values do not have any meaningful interpretation. However, their ordinal values are meaningful in ranking districts according to their remoteness. It therefore makes sense to use the index as a basis for defining quartile groups and using this (in the next section) to look at the relationship between poverty and isolation. Table 3 presents the indicators used to construct the indices and the relative weightings on the different components.

[5] Many of these districts have since been subdivided, with new districts created.

Table 3: Details of two isolation indices constructed for Uganda

Variable	Score coefficients for first factor
Isolation Index 1 – based on distance	
Distance to municipality	0.08041
Distance to district capital	0.19377
Distance to Kampala	0.17263
Distance to infrastructure	0.04465
Time to infrastructure	0.30617
Distance to nearest primary school	0.11449
Distance to nearest secondary school	0.36286
Isolation Index 2 – based on facilities	
Proportion with electricity	0.37595
Proportion with safe drinking water	0.18721
Availability of government hospital/clinic in LC1*	0.17407
Availability of private hospital/clinic in LC1	0.35168

Note: For both indices, the eigenvalue associated with the first factor was greater than one, with all others less than one, and the first factor accounted for a large majority of the variation observed in the data.
* LC1 is the lowest local government administrative unit, equivalent to a village.

For both indices, each of the indicators has a positive weight in the index, as expected, given that all individual components are associated with greater distance (Index 1) or better facilities (Index 2). Each index explains a substantial proportion of the variation in the underlying (district-level) data, meaning that the simplification involved in the use of the composite index based on only one factor does not result in a substantial loss of information. The weights on the different components reflect patterns of correlation present in the data. In Index 1, particularly high weight is placed on time taken to reach infrastructure and on distance to the nearest secondary school, variables which are often less correlated with other constituents of the index. In Index 2, highest weight is placed on the indicators for electricity and availability of private health facilities in the LC1.

The values of these indices are then used to classify districts into quartile groups depending on the average degree of isolation. In both cases, the quartiles are numbered such that the higher values indicate greater isolation (thus greater distance or *fewer* facilities) in order to aid comparison. Table 4 classifies the districts into quartiles according to the two indices, and Figure 2 summarises them graphically in the case of Index 1. There are some significant differences in the districts these two indices identify as most or least remote (e.g. Kalangala), but in general the classification of districts is broadly similar. The numerical values of the two indices are significantly negatively correlated, as expected, with a correlation coefficient of -0.42.

The distance-based isolation index (Index 1) shows that the most isolated districts are the Northern region and the Western region (Table 4 and Figure 4). Districts in the Central and Eastern regions are on average much less remote. However, there is significant heterogeneity within most regions. For example, within the Central region, the least remote overall – the districts of Mubende and Nakasongola – are in the top quartile of remoteness; within the Western region, Bushenyi district is in the lowest quartile of remoteness. The exception to this heterogeneity within regions is the Northern region, where, unsurprisingly, all districts are in the top two quartiles of remoteness by distance.

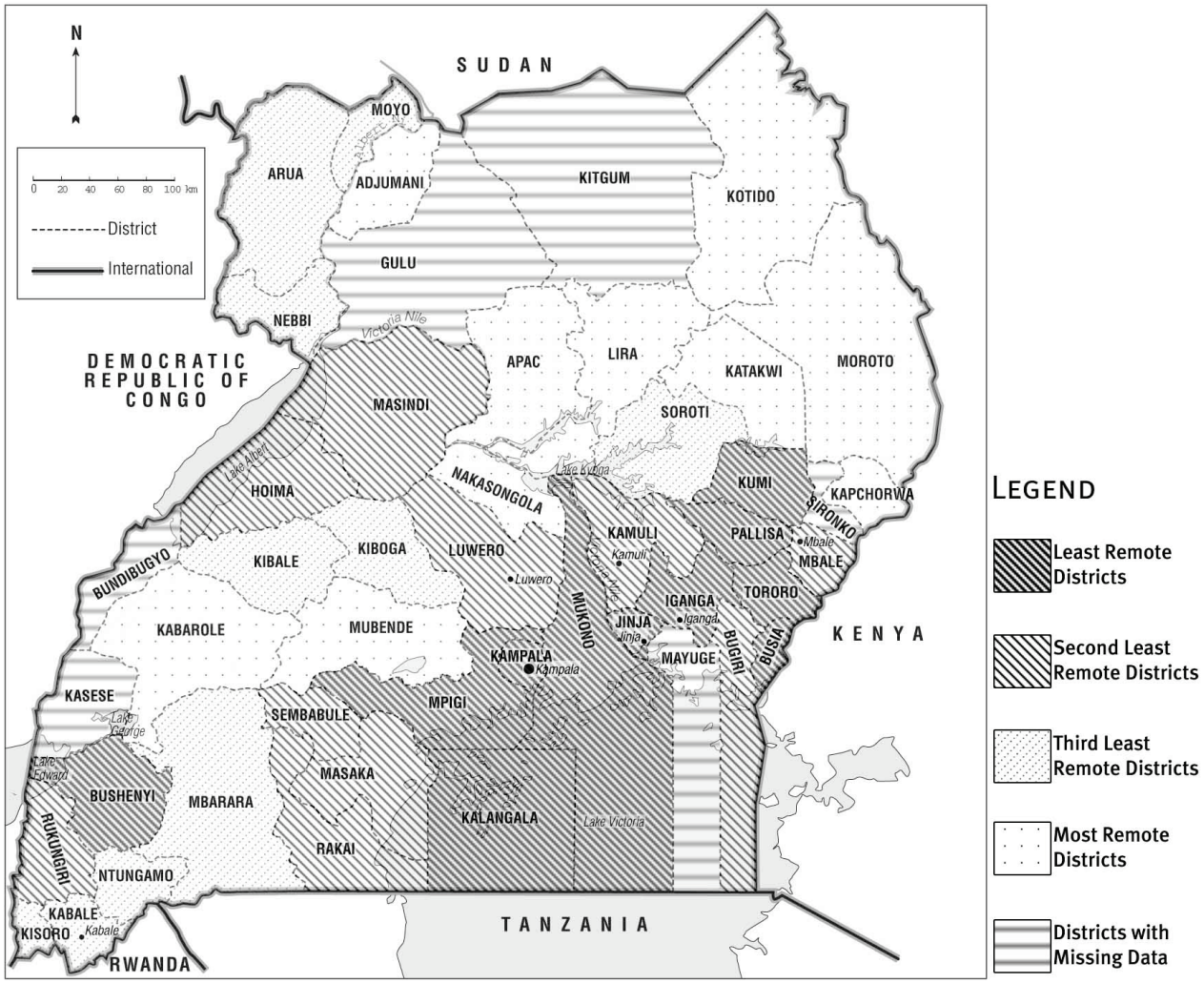
Table 4: Classification of districts in Uganda by isolation quartile according to the two indices

Least isolated quartile	2nd quartile	3rd quartile	Most isolated quartile
Isolation Index 1 – based on distance			
Bushenyi	Bugiri	Arua	Adjumani
Busia	Hoima	Kabale	Apac
Iganga	Kamuli	Kibaale	Kabarole
Jinja	Luwero	Kiboga	Kapuchorwa
Kalangala	Masaka	Kisoro	Katakwi
Kampala	Masinde	Mbarara	Kotido
Kumi	Mbale	Moyo	Lira
Mpigi	Rakai	Nebbi	Moroto
Mukono	Rukungiri	Ntungamo	Mubende
Pallisa	Sembabule	Soroti	Nakasongola
Tororo			
Isolation Index 2 – based on facilities			
Bugiri	Adjumani	Bushenyi	Apac
Jinja	Arua	Kabale	Busia
Kampala	Hoima	Kabarole	Kalangala
Kapuchorwa	Iganga	Kotido	Kibaale
Luwero	Kamuli	Kumi	Kiboga
Masinde	Katakwi	Lira	Mbarara
Moyo	Kisoro	Moroto	Nakasongola
Mpigi	Masaka	Mubende	Nebbi
Mukono	Mbale	Ntungamo	Rukungiri
Rakai	Soroti	Pallisa	Sembabule
			Tororo

The geographic pattern is less strong according to the facilities-based index, where one district in the Northern region is in the top quartile (best provided) and four districts in the Central region are in the bottom quartile (least well provided). The rankings of districts on the two indices are still significantly correlated, with in general more remote districts in terms of distance also less well provided for in terms of facilities. Nevertheless, the several exceptional cases highlight that the indices are picking up different concepts of remoteness. It is certainly possible for a district to be remote in term of distance but still well provided for in terms of facilities.

These measures of remoteness, in particular the classification of districts into quartile groups, form the basis for the analysis in the next section of the paper, looking at the relationships between remoteness and poverty, including chronic poverty.

Figure 2: Map of Uganda, showing index of isolation results



5. Remoteness and poverty in Uganda

In this section, we seek to clarify the extent to which poverty in Uganda – including chronic poverty – is associated with remoteness, as well as to understand some of the factors that might account for this. We begin by looking at how some basic indicators of poverty from the UNHS survey conducted in 1999/00 are associated with the two isolation indices. Following this, we look at poverty dynamics in relation to remoteness based on the 1,105 households surveyed in the UNHS, which formed a panel with the earlier Integrated Household Survey (IHS) conducted in Uganda in 1992/93. This enables an examination of the extent to which households are more likely to be trapped in chronic poverty in remote areas and how difficult they find it to escape from poverty. The analysis then turns to look at the extent to which households in different remoteness categories are able to make use of different public services – from public and private transfers – and also their engagement in markets (which has been identified as important in enabling escape from poverty in Uganda: Ssewanyana and Bategeka, 2007).

The data show a strong association between isolation and consumption poverty. Looking at isolation by distance (Table 5), incidence of poverty increases monotonically with remoteness quartile, to the extent that poverty in the most remote quartile is more than twice that in the least remote quartile. This national pattern partly reflects urban-rural differences (less remote areas being more urbanised on average), but poverty also increases with remoteness within each of rural and urban areas. Similar relations are apparent in relation to depth of poverty as well. Looking at a non-income poverty indicator, the likelihood of the household head and the spouse of the head being uneducated is also somewhat higher in more remote locations, as defined by Index 1, even though the relationship with remoteness is not necessarily monotonic for these indicator.

Table 5: Indicators of household poverty in Uganda, by remoteness (Index 1 – distance measure)

	Least remote quartile	2nd quartile	3rd quartile	Most remote quartile	All
Incidence of poverty					
National	23.2%	31.5%	36.2%	53.8%	35.1%
Rural	30.1%	32.9%	37.9%	55.5%	39.0%
Urban	6.5%	15.6%	13.1%	24.1%	10.1%
Central	14.9%	25.1%	29.4%	30.7%	20.1%
Eastern	38.1%	34.4%	46.6%	36.4%	37.3%
Western	21.5%	36.2%	24.4%	32.3%	28.0%
Northern	.	.	53.4%	71.6%	64.8%
Depth of poverty					
National	22.7%	24.9%	28.0%	38.6%	29.9%
Rural	23.1%	25.0%	28.1%	38.9%	30.3%
Urban	19.2%	21.6%	21.4%	28.1%	21.9%
Household head uneducated					
Rural	23.0%	22.7%	29.5%	37.6%	28.2%
Urban	5.9%	15.9%	10.1%	16.1%	8.7%
Spouse of head uneducated					
Rural	35.0%	32.0%	45.7%	48.4%	40.1%
Urban	6.7%	16.2%	16.9%	27.5%	10.9%

Source: Authors' computations using UNHS survey data and isolation index.

Table 6: Indicators of household poverty in Uganda, by remoteness (Index 2 – facilities measure)

	Least remote quartile	2nd quartile	3rd quartile	Most remote quartile	All
Incidence of poverty					
Total	21.5%	37.2%	44.2%	37.2%	35.1%
Rural	29.2%	39.2%	45.8%	38.5%	39.0%
Urban	5.2%	16.5%	16.6%	21.7%	10.1%
Household head uneducated					
Rural	20.8%	25.2%	38.2%	24.7%	28.2%
Urban	5.3%	14.9%	14.5%	14.4%	8.7%
Head uneducated					
Rural	29.0%	39.3%	47.8%	39.9%	40.1%
Urban	5.1%	16.2%	20.4%	24.8%	10.9%

Source: Authors' computations using UNHS survey data and isolation index.

Interestingly, though, within regions the association between poverty and remoteness according to Index 1 is apparent only in the Central and Northern regions. There is no systematic pattern of association with remoteness in the Eastern and Western regions. However, there is a more consistent association with depth of poverty in these regions (results not presented here), which tends to increase with isolation in these regions.

There is also a statistically significant correlation between isolation and poverty using these indicators, when isolation is measured in terms of available facilities (Table 6). This relationship is quite strong in urban areas, but in rural areas is much weaker than for the distance measure. In rural areas, poverty outcomes in the third quartile are frequently worse than those in the quartile least well endowed with facilities. This might suggest that the facilities isolation index does not consider the most important indicators, or simply that availability of these facilities in a given location today is not necessarily the most relevant determinant of these poverty indicators.

By looking at the subset of households that form part of a panel with the 1992/93 IHS, it is also possible to draw some conclusions about the relationship between isolation (using the distance measure) and dynamic poverty status (Table 7). Focusing first on rural areas – where the sample size is much larger – the results indicate that those in more isolated location are much more likely to have been poor in both periods (chronically poor) compared with those living in less isolated locations. The proportion of households that are chronically poor increases monotonically with the remoteness quartile, to such an extent that, in the most remote quartile, more than twice as many households are chronically poor compared with in the least remote quartile. The converse of this is that those in the least remote quintile are much more likely to not have been poor in either period. In urban areas, it is also the case that the likelihood of not being poor in both periods tends to decrease with the remoteness quartile. The likelihood of being chronically poor is much higher in the least remote quartile in urban areas but, aside from this, there is not a systematic relationship between isolation and chronic urban poverty (which is anyway quite small in this sample).

Table 7: Dynamic poverty status for households in the 1992-1999 panel, by remoteness (Index 1 – distance measure)

	Least remote quartile	2nd quartile	3rd quartile	Most remote quartile	All
Urban					
Never poor	63.6%	63.9%	58.3%	47.1%	59.0%
Moving out of poverty	23.6%	22.2%	30.6%	20.6%	24.2%
Chronic poor	5.5%	11.1%	5.6%	23.5%	10.6%
Descending into poverty	7.3%	2.8%	5.6%	8.8%	6.2%
All	100%	100%	100%	100%	100%
Rural					
Never poor	44.6%	38.3%	39.0%	25.2%	37.0%
Moving out of poverty	32.5%	30.8%	30.7%	27.1%	30.3%
Chronic poor	14.3%	17.8%	22.0%	31.3%	21.1%
Descending into poverty	8.7%	13.0%	8.3%	16.4%	11.6%
All	100%	100%	100%	100%	100%

Source: Authors' computations using UNHS survey data and isolation index.

Looking at transitions into and out of poverty, in rural areas the likelihood of a household escaping from poverty decreases systematically with the remoteness quartile, although the differences across quartiles are less strong in this case. There is no obvious relationship in urban areas, though the small size of the sample may mask any patterns. There is no evident systematic relationship between falling into poverty and remoteness in either urban or rural areas.

The remainder of this section looks specifically at rural areas, the main focus of this paper. Further analysis of UNHS data reveals an association between remoteness in terms of distance and use of facilities (Table 8), which is often particularly strong in comparing the fourth quartile with the others. The likelihood of primary school-age children not being at school is highest by far in the most remote quartile. Similarly, use of a protected drinking water source and access to electricity tend to fall with remoteness. There is no evident relationship between use of health facilities and isolation, though.

Table 8: Use of services, engagement with market and access to different income sources, rural areas only, by remoteness (Index 1 – distance measure)

	Least remote quartile	2nd quartile	3rd quartile	Most remote quartile	All
Use of services					
Not consulting when ill	29.5%	33.6%	28.0%	27.3%	29.6%
Children not in primary school	7.8%	7.1%	9.1%	21.1%	11.5%
Unprotected water source	46.6%	43.4%	48.5%	54.7%	48.3%
Electricity	2.5%	0.5%	0.1%	0.6%	1.2%
Engagement with markets					
Purchased food share	47.4%	44.6%	42.7%	48.7%	45.9%
Working in non agric activity	15.2%	14.0%	10.4%	9.3%	12.3%
In non-agricultural wage activity	6.2%	5.3%	3.9%	3.6%	4.8%
Migrated in past five years	9.9%	9.0%	6.1%	8.9%	8.5%
Access to income sources					
Receiving remittances	52.0%	52.4%	43.2%	47.3%	48.8%
Receiving social security income	0.8%	1.0%	0.3%	0.6%	0.7%
Receiving income from pensions	0.4%	0.5%	0.5%	0.2%	0.4%

Source: Authors' computations using UNHS survey data and isolation index.

The likelihood in rural areas of a household member working in a non-agricultural activity is low in general, and especially so in relation to non-farm wage activity. In both cases, there is a strong systematic relationship with isolation: as remoteness increases, the likelihood of one or more household members engaged in these activities falls monotonically (Table 8). This is a very significant finding because, for many, this is a key route for escaping poverty, a finding that other analysis of the Uganda panel data confirms. International evidence also shows how engagement in non-farm activity, often in the context of livelihood diversification, plays a very significant role in reducing insecurity, which in turn is important for investment and future income. The greater distance from roads, markets and urban centres associated with more remote locations significantly reduces the opportunity for non-agricultural activities, and this is likely to be greater where the population is more dispersed.

Rural households in Uganda obtain nearly half of their food consumption from non-purchased sources, the vast majority of this from their own agricultural production. The proportion supplied from purchases is found to be higher in the least remote and most remote quartiles compared with the two intermediate quartiles. In less remote quartiles, households are more likely to be engaged in non-agricultural activities and also to be better off; it is to be expected, therefore, that they may purchase a higher proportion of their food needs. The proportion purchased falls gradually across the first three quartiles. But in then rises in the most remote quartile. Clearly a different mechanism is in operation here, given that the fourth quartile is where both poverty levels and reliance on agricultural activities are highest. The issue here is likely to be low levels of agricultural productivity, such that households are unable to produce enough to meet many of their food needs.

Nearly half of rural households reported having received income from remittances (Table 8). While this tends to decline with isolation, the proportions still remain high even in the third and fourth quartile of remoteness. However, the majority of households in the two most remote quartiles do not report receiving income from such sources which, if correct, raises a question as to how they can finance essential purchases including food (bearing in mind also their limited engagement in non-farm activities) without selling assets or becoming more indebted. Receipts of income from social security and pensions are extremely low in rural areas.

The UNHS also collected responses from households on a number of ‘poverty indicators,’ measures regarded as being reasonable correlates of poverty status. Table 9 presents average values of these indicators by remoteness quartile (now using both remoteness indices), again based on rural areas only. The first four indicators (owning a radio, owning blankets for all, having recently visited town and having recently eaten meat or fish) are all higher in the least remote quartile, and decrease, sometimes substantially and mostly monotonically, with movements into more remote quartiles. The likelihood of not having a development project in the community also increases with remoteness. For the other indicators, correlations with the first index of remoteness are less strong. Experience of civil conflict is highest in the most remote quartile; this may in part reflect the disproportionate representation of the Northern region in this quartile.

Table 9: Selected welfare indicators in rural areas, by quartile of remoteness (Indices 1 and 2)

	Least remote quartile	2nd quartile	3rd quartile	Most remote quartile	All
Isolation Index 1 – distance					
If own radio	57.1%	54.7%	41.6%	36.6%	47.6%
If own blankets for all	62.0%	68.4%	50.8%	43.4%	56.3%
If visited town recently	24.6%	21.2%	18.2%	17.6%	20.4%
If ate meat or fish	49.5%	39.5%	35.2%	32.7%	39.3%
If affected by civil strife	8.8%	10.7%	8.0%	14.4%	10.5%
If not member of community organisation	44.1%	41.5%	40.2%	49.1%	43.8%
If no development project	9.9%	10.5%	10.8%	14.7%	11.5%
If no help available	21.8%	26.5%	16.6%	24.8%	22.5%
Isolation Index 2 – facilities					
If own radio	47.8%	41.4%	43.4%	61.4%	47.6%
If own blankets for all	53.5%	49.7%	55.3%	69.9%	56.3%
If visited town recently	16.2%	21.8%	23.8%	19.0%	20.4%
If ate meat or fish	36.4%	29.8%	44.8%	49.6%	39.3%
If affected by civil strife	10.5%	12.8%	8.8%	9.3%	10.5%
If not member of community organisation	39.3%	50.1%	40.0%	43.7%	43.8%
If no development project	8.3%	11.3%	13.0%	13.2%	11.5%
If no help available	18.6%	18.8%	25.6%	28.2%	22.5%

Source: Authors' computations using UNHS survey data and isolation index.

The relationship between these poverty correlates and availability of facilities (the second remoteness indicator: Table 9, lower panel) is much less strong and sometimes counterintuitive. Those in areas least well supplied with facilities are nonetheless more likely to have a radio, to have blankets for all members and to have eaten meat or fish. Incidence of civil strife is slightly less in these less well provided locations. But, at the same time, those in less well provided locations are less likely to benefit from a development project, and are more likely to report that no help is available in the case of a crisis.

These results show a strong association between remoteness in terms of distance and deprivation, in terms of income or non-income poverty, in terms of chronic poverty and in terms of poverty correlates. This is especially striking among the rural population, with differences between communities in more and less remote districts often substantial. Remoteness is associated with an increased reliance on agricultural activities only, with less likelihood of receiving remittances and with less access to many facilities (safe drinking, electricity). Many of these latter factors may of course be important causes of poverty in the first place.

6. Policy conclusion

There is clear evidence that 'hard core poverty' exists in 'spatial poverty traps' in developing countries. It is likely that current development processes will do little to mitigate or reverse high levels of poverty in such areas, and instead may well act to trap people in persistent and chronic poverty (de Haan and Lipton, 1998; IFAD, 2001; Jalan and Ravallion, 1997; World Bank, 2000). However, the inequality decomposition literature indicates that within group income inequality is high (in excess of 75%) even at high levels of disaggregation. In other words, variations across spatial units can explain only 25% of interpersonal inequality (Kanbur and Venables, 2003b). This might suggest that attention should be focused equally on within group inequality. However, tackling spatial poverty traps would still reduce inequality by a quarter, and it might be easier to achieve than within group inequality (ibid).

The unevenness of economic activity in a country might be addressed by removing any barriers to the deconcentration of economic activity. These can include the need for firms to locate near political and administrative centres. The development of economic and social infrastructure is commonly necessary to support deconcentration. Such investments can also support the development of growth poles (Kanbur and Venables, 2005a). Where concentration remains high, supporting migration from the economic periphery can increase income (through remittances) and well-being, and can increase levels of investment, thus reducing the intensity of poverty in some spatial poverty traps.

More concrete linkages remain challenging. The construction of physical infrastructure in many remote areas, especially in mountainous areas and on remote islands, often not only is less politically desirable for central governments but also can be technically very difficult: the governments of even middle income countries struggle with producing services and infrastructure for remote areas (Bird et al., 2002). Distance and difficult terrain can increase technical complexity, and low population densities can create diseconomies of scale, increasing the unit cost of provision to politically and financially unacceptable levels.

Public investment remains highly politicised, with patterns of distribution dependent on policymakers' perceptions of potential returns in each area (Bigman and Fofack, 2000, 135 in Bird et al., 2002). Therefore, the volume of government spending in spatial poverty traps is thus often limited by the high degree of political marginality that helps define such areas. Where such areas are sparsely populated, the reduced electoral mileage provided by the area can reinforce political marginality. Where ethnic and religious differences have a spatial dimension, they provide an additional layer of complexity. The political economy of public investment in areas of spatial disadvantage thus remains extraordinarily challenging.

Private investment has the potential to raise the geographic capital of an area, but the prospects for growth in a spatial poverty trap depend on governments and community organisations overcoming the negative perceptions of the area among private investors (Jalan and Ravallion 1997, in Bird et al., 2002).

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