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METHODS

Forest incomes and rural livelihoods in Chiradzulu District, Malawi

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ABSTRACT

This paper examines forest income among rural dwellers in one of Malawi's most densely populated districts, Chiradzulu. 160 households were interviewed in two sites, only 20 km apart, purposely selected on the basis of access to a forest reserve. People are extremely poor, with 97% having incomes of less than 1 USD/day. Forest income constitutes around 15% of total income; only non-farm income (47%) and agriculture (28%) rank higher. The poorest segment depends more on forest income than the least poor group, but the medium income group exhibits the highest dependence. Fuelwood constitutes the major source of such income followed by fodder. The incomes mainly support current consumption. People with better access to the forest reserve have higher total income, forest income, and relative forest income. As revealed through a Gini-coefficient analysis, forest resources have an important income equalizing effect across rural households. A particular group of resource poor farmers (8.1% of sample), with little access to agricultural land and a high representation of female heads, derives an average of 65% of their income from the forest. An important policy lesson is that restricting people's access to forest resources can have substantial effects on household livelihoods and welfare, and would serve to increase income inequalities in the area. Livelihood researchers should now recognize the substantial income from forest resources.

1. Introduction

Poverty alleviation and loss of biodiversity through deforestation and forest degradation processes are major development challenges. Traditionally, they were seen as separate, both in development assistance and in research, and much effort was expended separating people from vulnerable environmental resources. These "fortress approach" policies are still today advocated for by conventional conservation and preservation proponents (Oates, 1999; Sanderson and Redford, 2003; Du Toit et al., 2004; Wilshusen et al., 2002). More recent approaches in research and development, however, see poverty and biodiversity management as intrinsically connected. Such approaches emerged with the debate over sustainable development (WCED, 1987) and ecological modernization (Hajer, 1995). They were developed and operationalized in the "sustainable livelihood and resource use approaches (Scones, 1998; Leach et al., 1997; Ellis 2000), in much of the thinking around deliberative politics (Etzioni, 1988; Dryzek, 1997; Ribot, 2002), and in the vast literature on local involvement and participatory approaches (Chambers, 1989; Pretty, 1995; Hutton et al., 2005).

Deforestation and land degradation remain major global environmental challenges. Historically, the world's forest

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cover has been reduced from 62 to 33 million km^2 over the last 8000 years (Bryant et al., 1997) and it is estimated that 0.62% of remaining forests disappear annually in Africa (FAO, 2005). Malawi experiences an annual deforestation rate of 0.9% (1990–2005), with similar rates for forest degradation. Since 1990, Malawi's forest cover has diminished by 494 000 ha or 12.7% (FAO, 2005).

According to the World Bank (2005), some 1.1 billion people (21.8%) lived below USD 1/day in 2001, and 2.7 billion people below USD 2/day (54%). In 2001, Malawi was the 6th poorest country in the world, with an average GDP of 170 USD/cap. 67% of the population was below the poverty line (USD 2) in rural areas. 80% of the population was net purchasers of maize, and 55% did not meet their basic needs, implying substantial malnutrition, starvation and increased child mortality (Harrigan, 2003). UNICEF (2005) estimated that some 4.6 million Malawians would not meet their minimum food requirements in 2006.

Is it meaningful to propose an optimal amount of forestland to be maintained in a country and an optimal conversion rate to agricultural land? Many researchers, especially economists, tend to argue that forest clearing for agriculture should be analyzed by means of a cost–benefit perspective and that one should see trade-offs between forest and agricultural land in a "sustainable development" perspective (Ehui and Hertel, 1989; Kaimowitz and Angelsen, 1998; Angelsen, 1999; Barbier, 2001; Wunder, 2001; Alix-Garcia et al., 2005). Removing forests potentially paves way for (at least individually) more profitable use of land through agricultural production. Most of the recent agricultural production increases in African agriculture have de facto not come through increased land productivity, but through conversion of forest to agricultural land, thus not merely degrading forests, but purposely removing them (Leach and Mearns, 1988; Kaimowitz and Angelsen, 1998; Wunder 2001).

However, loss of forestland also implies economic costs of forest resources foregone, biodiversity degradation and reduction of other forest-related public goods in addition to substantial economic distributional effects. Forests do not only provide for timber and fuelwood and other material resources, but for a wider set of public goods and services such as water retention, soil erosion prevention, biodiversity conservation, carbon sequestration, recreation etc. (Sunderlin et al., 2005). It is further estimated that more than 1 billion people, mostly poor, depend on forests in varying ways for their livelihoods (World Bank, 2004; WRI, 2005).

Rural households rely heavily on natural resources. Meta-studies indicate that as much as 20–25% of rural people's income may be derived from environmental resources in developing countries (WRI, 2005; Vedeld et al., 2007). Poor people typically engage more in low-return forest activities, but often fail to accumulate capital from such activities. A forest-led poverty reduction strategy could be to facilitate sustainable access with higher returns from such activities. Increased attention to different groups' demand for forest resources may promote effective and legitimate strategies for poverty reduction. An issue beyond the scope of this paper, but still framing this study, is that converting forestland to agriculture may deprive poor people of natural resource access, as the conversion often implies a transition from communal to individual resource control (see Place and Otsuka, 2001; study from Malawi). This can leave segments of rural people worse off than before, despite a total production increase for the country.

A key sector of pro-poor growth in Malawi has traditionally been agriculture, contributing 34% to GDP and employing more than 80% of the population (GOM, 2002a). The amount of agricultural land has increased from 40.2% in 1990 to 48.3% in 2006 (World Bank, 2008). The high rates of deforestation in Malawi between 1960 and 1980 (up to 3.5%) can be linked to very high population growth, increased subsistence farming and a substantial expansion in commercial estate farming (Eschweiler, 1993). With agriculture as the main economic option, this spurred deforestation through land clearing but also economic growth. The reduction in deforestation rates in the 1990s is most likely linked to a somewhat lower population growth in rural areas, increased urbanization, less and more marginal forest land left to convert, decreasing profitability in agriculture and more profitable economic options industry, manufacturing and service sectors (World Bank, 2008).

A question is how a continued land clearing will affect Malawi's poverty challenges. Some 21% of all land in Malawi is now under some kind of protection located in forest reserves, national parks, or other protected areas (GOM, 2002b). These areas are generally not available for exploitation or conversion by local people. Their primary function is to conserve biodiversity resources, secure watershed protection and other ecosystem services. There are also forests on customary land (7% of total land area) that is more accessible for rural Malawians (GOM, 2002b). Not much research has been carried out in Malawi on forest income dependence, but there are reasons to believe that dependence may be similar to findings from other countries (see Fisher, 2004). Some 75% of total energy use in Malawi is from forest resources (GOM, 2000, 2001a,b), and also fodder and wild foods are important in current consumption and as safety nets in times of crisis.

This environment-development nexus thus forms a fertile ground for empirical research and much remains to be done. Sunderlin et al. (2005) offer an account of the state of the art of the research field of livelihoods, forests and conservation. They emphasize the lack of efforts to combine policies for poverty alleviation and forest management and conservation. They stress the need for further detailed research on the role of forests in poverty alleviation, the relationship to conservation, and not least spatial dimensions of dependence on forest resources.

In this paper we examine, through a case-study from Malawi, rural households' income and their degree of *dependence* on forest income (Kamanga, 2005). Strictly speaking, we are not primarily concerned with *environmental* income, which refers only to income derived from wild resources (see Sjaastad et al., 2005), but with income from trees that are both wild and planted.[1] We look at how forest income enters into people's different livelihood *diversification* strategies. We also study the *distributional* profile of such income, and to what degree different groups depend on these incomes. We examine how contextual factors beyond households' immediate control, such as geographical location, market access,

[1] Both reserves and private land contain planted trees.