

A LITERATURE SURVEY ON ENVIRONMENT – POVERTY NEXUS

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Abstract

The subject of causal relationship between environment and poverty has been studied numerously in the literature. There are numerous studies focused on different countries, time periods, and econometric models have been used to analyze environment and poverty nexus.

This paper provides a survey of the literature of environment-poverty nexus. The survey addresses that most empirical studies focus on either analyzing the role of poverty on environment or exploring the direction of causality between these two variables. Although these studies proved negative role of poverty on environmental degradation, the results of these studies have been varied and produced conflicting results and there is consensus neither on the existence nor on the direction of causality between environment and poverty. The policy implications of these relationships can be significant depending upon what kind of causal relationship exists.

Key Words: *Environmental Pollution, Poverty*

JEL Classification: P36,P46, Q2,Q3,Q5

1. INTRODUCTION

There are many studies on environment and poverty relations. Some of these studies have suggested that environmental degradation have impact on poverty as environmental quality is an important determinant of poor people's health, earning capacity, security, energy supplies and housing quality. Additionally environmental disasters and environment related conflicts may have regressive impacts because the poor are least capable of coping with their effects (Buys, 2006).

In some of the studies it is claimed that poverty may cause environmental degradation. Rapidly increasing population growth may cause over exploitation of fragile lands or invasion of areas that government wants to protect for environmental reasons. The strength of poverty-environment linkages may be affected by factors as diverse as economic policies, resource prices, local institutions, property rights, entitlements to natural resources and gender relations (Dasgupta et al, 2005).

The aim of this paper is to provide a survey of the literature of environment-poverty relations and shed light on further studies.

1.1. Theoretical Researches on Environment –Poverty Relations

Moghissi (1998) claimed that the challenge of the 21st century is to allocate optimized resources to reduce or eradicate poverty and ignorance and to protect the environment. Excessive expenditures in either one of these is likely to cause degradation of the other to. He argues development which is the primary approach for fighting poverty, education, and environmental protection requires the inclusion of sciences and engineering in decision-making process.

Duraiappah (1998) suggested that the literature analysis provide enough evidence to refute the hypothesis that poverty is a major cause of environmental degradation. The powerful and wealthy only degrade the environment if there are institutional or market failures.

Balsdon (2007) developed a dynamic theory of “shifting cultivation” with special attention to an environmental impact variable in this study. The key environmental impact variable is the length of cultivation period. The model of this theory indicates that poverty reduction will lead to accelerated extraction of a natural resource, and to a longer extraction period at the same time. The model finds that poverty alleviation encourages conservation. The goal of rural poverty alleviation has indirect impact on environment as well as discount rates, prices and other parameters. While higher prices or productivity for agricultural output has positive impact on poverty alleviation it would have the opposite impact on conservation.

1.2. Specific Country Researches on Environment –Poverty Relations

Rozelle et al. (1997) studied the relationship among population, poverty and environmental factors, and the impacts of them on China’s land, water, forest and pasture resources. The cases demonstrated that rising incomes may be relaxing the capital constraints that are keeping their poverty stricken counterparts from adopting available technology which may be environmentally sustainable in the long run.

Reddy and Chakravarty (1999) found that forestry conservation measures may increase poverty, unless additional measures are introduced to combat poverty, depending on their data collected in rural India. They claimed that forestry makes a significant contribution to the alleviation of poverty.

Cavendish (2000) demonstrated regularities in the rural poverty-environment relationship using panel data from Zimbabwe based on a household survey conducted in two different years (1993-1994 / 1996-1997). A considerable economic significance of environmental resources to rural household was found as a result. According to results in both years environmental income makes a substantial contribution to total incomes. A majority of households depend more heavily on environmental resources than the average households. Resource dependence varies systematically with income. The poor are definitely more resource-dependent than the rich. But, nevertheless, the poor are not the main users of environmental resources in quantity terms. The quantity of environmental resources consumed rises systematically with total income quintile. Environmental resources are important for key economic activities. The use and value of environmental resources are likely to vary substantially from year to year in response to both climatic variation and other relevant economic parameters.

Bekalo and Bangay (2002) attempted to highlight the extent of environmental degradation in Ethiopia and illustrate the relationship between ongoing degradation and poverty. They argued that given the intimate relationship between environmental degradation and poverty, environmental

education has an important role in poverty alleviation strategy. The study concluded that the formal sector is not well suited to delivering a meaningful program that could elicit progress towards more sustainable land-use practices.

Kerr (2002) suggested the presence of poverty alleviation trade-offs in the effort to raise agricultural productivity and conserve natural resources through watershed development according to the evidence from 70 villages in India.

Agudelo et al (2003) conducted a survey in a hillside zone of the Colombian Andes to 165 families. Nine household types were distinguished based on the components such as total area, area in pasture, area in coffee, area in forest, value of live stock herd, labor availability, number of person who live on the farm, educational level, percentage of farm in fallow, quantity of wood harvested, area deforested, quantity of wood sold, area burned: Small coffee growers, medium-sized diversified farmers, day workers, large coffee growers, sugarcane growers, frontier colonizers, cattle ranchers on shares and large livestock ranchers.

According to findings, household poverty was not found to be directly correlated with environmental degradation. Depending on the type of assets that they own, degradation seems to be a function of farmers' productive activities rather than the general wealth level. Small coffee growers, medium-sized diversified farmers, day workers and large coffee growers were found to exert relatively low pressure; large scale ranchers and cattle ranchers on shares were generating the greatest relative pressure; and sugarcane growers and frontier colonizers were also generating heavy pressure on natural resources based on the indicators firewood use, wood gathered, deforestation, burned area, hunting, soil loss per farm and soil loss per hectare. It is concluded as a result that natural resource management calls for decisions based not only on incentives but also on public infrastructure and awareness at the local level (Agudelo et al, 2003).

Bahomondes (2003) illustrated how income from nonfarm employment and government credit programs permitted agricultural intensification that allowed environmental recovery of fragile, arid common lands, using household surveys of three farming communities in Chile in 1991 and 1999. The relationship between productive activities and natural resource impacts was measured by one index for livestock activity and another for firewood gathering. The livestock impact index was based on the member of livestock units, location of forage and production of forage. The environmental impact index of firewood gathering was based on quantity of wood consumed, location of wood gathering and planting of woodlots.

Bahomondes (2003) examined the household asset levels, how asset levels affect the choice of agricultural practices and how those practices affected natural resource status. The results showed that human capital, physical capital in the forms of land and livestock, access to nonfarm employment and access to agricultural credit and technical advice largely explain the recovery of a fragile natural resource base.

Swinton and Quiroz (2003), depending on multiple regression analysis of 1999 farm survey data from the Peruvian Altiplano, found that natural resources sustainability is not correlated with poverty rather it varies by management activity. Soil erosion and fertility loss are reduced by fallowing; overgrazing and range species loss are increased by herd size but reduced by rotational grazing; deforestation results from fuel wood harvesting by the poorest households.

Ravnborg (2003) found that the immediate agents of environmental degradation are the nonpoor farmers, not the poorest in the Nicaraguan hillsides. Due to the limited access of poor farmers to

productive resources such as land, forest and forest resources, agro-chemicals and irrigation, the environmental impact of their resource management is limited in comparison with that of the nonpoor.

Madulu (2005) attempted to examine the environmental and health implications of human activities in the basin in relation to poverty indicators, people's lifestyle, and integrated water resource use in the Wami River basin in Tanzania. He concluded that poverty level is linked to the issues related to population pressure, pollution, wild life, pastoralism and many others. He argued that the current poverty levels observed in almost all villages, leads to non-sustainable resource use and destruction of the natural ecosystems as the villages rely on natural exploitation as a strategy to overcome household poverty.

Buys et al. (2006) developed an optimization model to assess alternative approaches to provincial allocation for poverty-environment programs in Lao PDR. There were four objectives of the model's welfare function as the poor people served, the proportion of poor people served, the quality of service and environmental improvement. According to the implication of model, the results highlighted serious potential inconsistencies in conventional, non-optimizing strategies.

Tschakert (2007) assessed to the extent to which specific groups of farmers are able of willing to participate in and benefit from potential carbon offset programs, based on a conceptual framework including economic, institutional, policy and livelihood factors in Senegal. This study confirmed that carbon sequestration programs among poor smallholders in the Sahel, if implemented without carefully designed pro-poor mechanisms, are likely to favor better-endowed land owners.

Narain et al. (2008), based on the survey in India, found that conditional dependence is higher for the poorest and the richest households than for households with intermediate incomes; the poorest and the richest households are at the same time least likely to collect any resources at all; dependence on fuel wood and dung declines with income while dependence on fodder and construction wood increases; non-collecting households tend to own more productive assets, including human capital; resource dependence tends to be higher in villages with higher biomass. They claimed that common-pool resources are productive source of income not just for the poor but also for the rich and that improvement in the stocks of these resources can potentially form the basis of poverty reduction efforts in these economies.

Harris (2008) examined the intersections of gender poverty, livelihoods, landlessness, and related considerations in the context of large-scale water development in Turkey's Southeastern Anatolia region. Findings suggested that certain populations (particularly the landless, poor, women, and those who previously engaged in animal husbandry) experience enhanced vulnerabilities, and considerable losses.

Silva et al. (2009) analyzed the environmental and social impacts of an increase in residential electricity tariffs in Montenegro. The analysis showed that a significant price rise will impose a heavy burden on the poor households and it may adversely affect the environment because of the increase the proportion of households using fuel wood for space heating.

1.3. Multi-Country Researches on Environment –Poverty Relations

Barbier (2000) examined a number of case studies of African countries faced poverty and land degradation problems, focusing on the potential role of policy. These studies demonstrated how policies may influence the economic incentives of poor smallholders to manage their land. It also

indicated that a better understanding of how existing policies and public investments affect the land management and agricultural decision of rural smallholders is necessary to design better policies to tackle both rural poverty and land degradation.

Wunder (2001) is giving an overview of the literature on the contribution of forest research and development to the goals of poverty alleviation and biodiversity conservation. Study explores the two way casual links between poverty alleviation and natural tropical forests. Poverty has an ambiguous effect at macro level. Macroeconomic wealth may or may not reduce forest loss and degradation, depending on whether price-incentive-reduction effects dominate over capital-endowment expansion effects according to Latin American experience. If extensive agriculture or cattle ranching is promoted by an economic crisis and accompanying government policies, then forest loss would rise. Micro impacts of rising poverty can increase or slow forest loss. On the other hand, natural forests widely serve as “safety nets” for the rural poor, but it proves difficult to raise producer benefits significantly. Urban consumers benefit from forest is limited and seldom favor the poor. Absorption of poor unskilled labor is low in forestry. For these reasons, natural forests may have poor comparative advantage for large-scale poverty alleviation. Even country experiences differ according to factors such as geographical regions, forest types, degree of forest abundance and the wealth of forest resources; there are few win-win synergies between natural forests conservation and national poverty reduction.

Moseley (2001) examines in his article the relations, time preference and environment in Africa. Common belief in literature suggests that the poor have a higher rate of time preference because they are more concerned about present survival than they are about saving for the future. Hence, wealth allows people to consider the future and invest in environmental conservation; and poverty leads to people to exploit the environment. According to the evidence, households in many African contexts behave quite to the contrary.

Swinton et al. (2003) found that nonpoor and the poor are both responsible from the degradation of national resources such as agricultural soils, rangeland, and forests according to evidence across Latin America. They concluded rising rural populations are threatening the sustainability of the natural resource base in most of Latin America,

Dasgupta et al. (2005) found little evidence of general poverty-environment nexus in three countries. They suggested that household-level problems associated with indoor air pollution, contaminated water, and lack of access to adequate sanitation are the most important in Cambodia. On the other hand, outdoor air pollution, deforestation, and fragile lands are not significantly associated with poverty at district level. The welfare of the poor in Lao PDR might be significantly enhanced by close integration of poverty- alleviation and environmental strategies. The poverty-environment nexus for fragile soils and indoor air pollution are important in Vietnam.

Rafi Khan and Rafi Khan (2009) didn't find a clear association between poverty and resource dependence in Swat in Pakistan, depending on their quantitative research results. They also demonstrated that there is no necessary overlap between poverty and forest degradation, utilizing satellite imagery and poverty mapping.

Namara et al. (2010) addressed the poverty and agricultural water management nexus. They concluded that interventions to improve agricultural water management affect poverty through several pathways such as improved productivity and production, employment generation, keeping food prices within the affordable range for the rural and urban poor, multiplier effects, reducing

vulnerability, nutritional effects, equity impacts, multiple uses, and effects on the environment and human health.

2. CONCLUSION

The aim of this study is to survey the literature dealing with the casual relationship between poverty and environmental degradation. Understanding the relationship between poverty and environment in order to design effective poverty alleviation and environmental policies and to choose a policy instruments such as incentives, tariffs, trade barriers and property rights is very important for policymakers as poverty reduction and environmental protection are important.

The general conclusion of this study is that there is not any consensus either on existence or the direction of causality between poverty and environment in the literature due to different data sets, country characteristics, variables and econometric models used in studies.

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