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Summaries

Land degradation, agricultural productivity and common property: evidence from Côte d'Ivoire

VINOD AHUJA

There has been much controversy on the role of traditional land management systems in explaining land degradation and continuous fall in agricultural productivity in countries of sub-Saharan Africa. Even though the issue is mainly empirical in nature, empirical studies testing for the effectiveness of communities in regulating use of agricultural land continue to be rare. This study tests for the effectiveness of community controls in regulating use of common agricultural land in Côte d'Ivoire and tests for such factors as size, group heterogeneity and locations of villages in explaining the variation in effectiveness. The structural model is estimated using data from Côte d'Ivoire Living Standards Survey of the World Bank and Remote Sensing Survey of EarthSat Corporation.

The results suggest significant deterioration in community controls. Out of 51 villages included in the study, 49 rejected the hypothesis of optimal community controls. At the same time, about half of all villages also rejected the hypothesis of no community controls. Thus, although communities do exert some control in regulating land use, the controls are not optimal. The result is significant underinvestment in village-level biomass stock, which is found to be an important factor of agricultural production. The study also finds that smaller and ethnically homogenous communities are better able to coordinate their actions, thereby internalizing a higher proportion of the value of land as a factor of agricultural production than their larger ethnically heterogeneous counterparts. No evidence is, however, found in favour of income heterogeneity hindering or facilitating management of agricultural land.

It is suggested that rapid population growth in recent decades appears to have generated enormous land pressure in Côte d'Ivoire such that socially optimal arrangements in land allocation are no longer feasible. There is thus an urgent need to ease the pressure on land by creating income-generating opportunities outside the agriculture sector. The results also underline the importance of giving explicit consideration to such factors as the number, and the cultural, social and religious orientation, of the target beneficiaries in any project design and implementation exercise in

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Africa or elsewhere in the world. These findings are of topical importance in the context of the recent emphasis placed by the policy makers and practitioners on people's participation in the management of natural resources.

Environmental degradation, property rights and population movements: hypotheses and evidence from Rajasthan (India)

KANCHAN CHOPRA and S.C. GULATI

This paper examines the linkages between environmental degradation viewed primarily as deforestation and land degradation and the movement of population from one region to another within a developing country. The hypothesis postulated is that the link between population movements and environmental degradation is mediated by the nature of property rights in land and water resources. In some regions, in particular in developing countries, common property regimes take the place of open access through the agency of non-governmental institutions that have started working in rural areas. It is postulated that this leads to an increase in employment possibilities in the short run and productivity increases in the long run. The character of the options available at the source point of migration is altered and hence the relative attraction of the destination is reduced. This could have an impact on a(n) individual's/household's decision to migrate.

Primary data from a region in Rajasthan, where outmigration was substantial and where alternative institutional structures have emerged in the recent past, is used to examine the hypotheses. The interlinkages are examined with the help of alternative measures of participation in common resource regimes and migration. Further, econometric techniques, both single equation (OLS and logit) and systems estimation methods, are utilized to test different hypothesis.

It is found that institutional build up in villages through the agency of non-governmental organizations and the consequent specification of property rights do have a significant impact on the magnitude of migration. In addition, remuneration at destination point and the possibility of remittance are also important explanatory variables in some situations. However, household ownership of different kinds of assets impacts significantly both on participation in common resources creation and on migration. Possession of cattle, for instance, increases participation

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in land-related institutions, whereas access to private sources of irrigation hinders participation in common water-related institutions.

In the systems approach, it is postulated that a household's decision to migrate and/or to participate in creation of common property rights are interrelated, being parts of the household's decisions on labour force allocation. Other variables that impact on individual decisions to participate/migrate (albeit differentially) are asset ownership, dependence on common land and availability of schooling.

Extensions and alternatives to climate change impact valuation: on the critique of IPCC Working Group III's impact estimates

SAMUEL FANKHAUSER, RICHARD S.J. TOL and DAVID W. PEARCE

The chapter on the social costs of climate change has been one of the most controversial in the IPCC Second Assessment Report. Some people objected to the notion of expressing the impacts of climate change in monetary terms; others objected to the scale of the monetary estimates obtained; and others thought there was a distributional unfairness in the estimates. This paper takes a critical look at the main objections raised, acknowledges those criticisms that are justified and explains why the unjustified comments should be rejected. It deals with the issues of the choice between willingness to pay and willingness to accept measures of damage, the difficulties involved in benefit transfer (i.e., the extrapolation of regional case study results), the use of equity weights to correct for an unfair income distribution and the question of regionally differentiated vs. uniform per-unit damage values. Finally, the paper discusses the usefulness of monetary impact estimates for decision making. Although some of the alternatives put forward by the IPCC critics are not credible, the paper contains estimates for most of them, in order to illustrate the sensitivity of impact estimates to such assumptions. World aggregate damages are very sensitive to the aggregation rule used. Damage costs tend to increase, although decreases are not excluded. Depending on parameter choices, damage costs increase by up to a factor three. Equalizing per-unit values across regions at world averages decreases damages in richer regions and increases damages in poorer regions, leaving world totals roughly unaffected. Should richer regions assume partial accountability for global warming, then their share in the (unaffected) world totals increases, even if poorer regions also assume partial accountability.

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Economic policies and the environment: the case of tree planting on low-income farms in the Philippines

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This paper investigates the potential for economic policies to influence environmental outcomes. A dynamic model is used to measure the response of low-income farmers to changes in prices and price risk. Empirical analysis is based on data from 115 farms in Palawan, a frontier province of the Philippines. The relationship between cropping patterns and two environmental indicators—erosion and species diversity—are discussed. A series of econometric models and dynamic simulations using data on tree-planting decisions demonstrate that farmers respond primarily to relative prices and to a lesser extent to relative price volatility. Results provide an empirical, microeconomic foundation for assertions that trade and agricultural policies can influence environmental outcomes in remote and environmentally critical areas.

To the extent that crop choice influences environmental outcomes in developing countries, agricultural policies that affect prices—including liberalization of agricultural trade—are likely to have an impact on the environment. This finding is important because it underscores the importance of economy-wide policies in affecting environmental outcomes. The analysis shows that changes in relative prices play a more important role in conditioning tree crop adoption than do changes in price variability, but that behavioural predictions based on relative price changes alone will likely overstate the response of households to price changes. In the case of the Philippines, past policies have discriminated against tree crops to the detriment of rural incomes and the environment. Agricultural liberalization has the potential to reverse the situation. It would also lead to lower erosion rates and greater local species diversity.

Poverty, market imperfections and time preferences: of relevance for environmental policy?

STEIN T. HOLDEN, BEKELE SHIFERAW and METTE WIK

It is frequently claimed that poverty may lead to short planning horizons, which again may lead to environmental degradation. However, very few

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studies have investigated this. The poor tend to have limited or no access to credit and this creates consumption smoothing problems as they often live in risky environments. Short planning horizons, or more appropriately high rates of time preference (RTP), may also have negative effects on investment, for example in environmental conservation. High RTPs may be a potential disincentive to investment in conservation, even when property rights are adequately secure.

This study has investigated the RTPs among rural poor in Indonesia, Zambia and Ethiopia in case-study areas where environmental degradation was evident. Land tenure security appeared to be good in all three areas, although the rights were not tradable (except in Indonesia and a rental market for land in Ethiopia). The study aimed at testing the hypothesis that poverty and liquidity constraints or scarcity lead to or are correlated with high RTPs against the hypothesis that RTPs are constant household characteristics that do not adjust to location and time specific circumstances. The findings have policy implications as poverty reduction will reduce the RTP ('intertemporal externality') if the first hypothesis is true. Hypothetical questions were used to identify the trade-offs between preferences for current versus future consumption. Furthermore, the factors influencing, or correlated with, the RTP were investigated. The RTPs were very high. We found higher RTPs in the case studies in Indonesia and Zambia, where poverty was most severe. The RTPs varied systematically in each case-study area. Poorer households and/or households with severe immediate cash needs had higher RTPs. In the Ethiopian case study, where the households in the sample were relatively better off than in the other two countries, total income and oxen capital explained more of the variation in RTPs than could immediate cash needs. In the Indonesian and Zambian case studies, immediate cash needs and consumption smoothing problems were most significantly affecting or being correlated with the RTP. In Indonesia, the causal relationship between poverty and RTP could be tested. Average RTPs were found to be significantly different in two settlements inhabited approximately at the same time by people of the same origin. If the rates are permanent individual characteristics, the rates should only vary among individuals while average rates should be approximately the same in the two settlements. The RTPs were found to be significantly higher in the poorer settlement. It was also found that past wealth (land ownership five to ten years earlier) had a significant negative impact on current RTP, also supporting the hypothesis that poverty leads to high RTPs.

Our findings indicate that poverty and cash scarcity may have important consequences for behaviour. They lead to or are correlated with high RTPs, which again may affect investments in environmental conservation. In poor rural economies, introduction of private property rights may, therefore, not be a sufficient policy instrument to achieve sustainable management of natural resources. Additional policy interventions are needed to create incentives for poor households to invest in conservation. With a causal relationship between poverty and high RTPs, as our study may indicate, poverty reduction itself will also reduce the RTPs and possibly improve incentives for conservation, thus representing a win–win–win policy option.

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Opportunities and limitations of contingent valuation surveys to determine national park entrance fees: evidence from Costa Rica

STEVEN SHULTZ, JORGE PINAZZO and MIGUEL CIFUENTES

Between 1994 and 1996, Costa Rica changed national park entrance fees three times without using any formal or objective economic analyses and this resulted in controversy and public debate. Current fees are not considered optimal in terms of revenue generation or as an effective strategy to equalize visitation among different parks.

The contingent valuation method (CVM) has been used in at least eight cases in developing countries to determine the monetary value that visitors place on parks and protected areas. None of the three previous Costa Rican CVM park-related studies that are reviewed in this paper either surveyed both resident and foreign visitors or used all of the following 'state of the art' CVM techniques: dichotomous-choice question formats; multivariate WTP (willingness to pay) models with the inclusion of a wide variety of explanatory variables; and a focus on different publicly owned national parks.

The CVM study presented here was conducted in 1995 and focused on determining the WTP of both Costa Rican and foreign visitors for future visits to the Poas Volcano and the Manuel Antonio national parks. A total of 416 usable surveys were evenly split between resident and foreign visitors to the two parks. Each of four logistic, dichotomous-choice-based WTP models were statistically robust. Mean WTP values for residents to Poas and Manuel Antonio were $11 and $10 respectively or approximately 900% greater than current fees, while mean WTP values for foreigners to Poas and Manuel Antonio were $23 and $14, which are considerably higher than the fees at the time of the survey and the current fee of $6. Few socioeconomic or park-use-related explanatory variables were found to have a statistically significant influence on residents' WTP or for foreigners' WTP for the Manuel Antonio. However, variables representing origin, gender and park quality significantly influenced WTP among foreign visitors to Poas.

In addition to demonstrating that the CVM is a useful tool to help determine optimal and differentiated national park entrance fees in a developing country, this paper has also noted the following methodological limitations associated with park-related CVM studies in developing countries: the need to include potential park visitors in CVM survey samples; the need for more detailed information framing and contingent scenarios for park-related WTP questions; and the threat of cultural-strategic biases from using personal surveys with residents of a developing country.

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