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Local Control and Collective Action in Forest Management: The Case of China

- To encourage sustainable use of forests, in 2003 China allowed rural villages to choose among a range of options to manage forests, including individual user rights with joint management. We studied how this individual user rights-based joint management affected forests and households.

- Both property rights and voluntary decisions encourage cooperation. This resulted in better forest conservation in these villages in China, with about 10% more forest cover. This is also important because forests store carbon.

- Under joint management, forests are managed by people who are good at forestry, while those who are more productive in off-farm work can earn more income in off-farm employment. We find that households with individual user rights and joint management earned almost 50% more off-farm income after the reform, and were less likely to be below the poverty line than households in villages that didn't adopt this reform.

The absence of private property rights is a primary cause of overuse and degradation of natural resources. Attempting to incentivize sustainable use of forests, more than 27 countries have returned control of forests to local communities, in a process called "devolution." However, there have been mixed findings on the outcomes, according to studies by the United Nations Food and Agricultural Organization. Devolution ranges from individualized user rights (in some cases, full-fledged privatization of forest land) to various forms of collective action in forest management. China is one of these countries, and implemented its Collective Forest Tenure Reform starting in 2003. The reform involved a unique opportunity for rural villages to choose among a range of management options, including individual user rights, joint management by households, and community administration.

Some villages chose no reform, and the forest continued to be owned and controlled by the village committee. In other villages, the reform was adopted and forests became owned and managed by individual households. In a third group, the reform was adopted and forests became household-owned but are managed jointly. In this paper, we define the third type as devolution-based collective action, and study how it affects forests and households.

Both property rights and voluntary decisions encourage cooperation, and this will result in better forest conservation, in terms of forest cover expansion and forest quality protection. For villagers, voluntary joint management allows them to devote their time to the work they are most capable of. Simply put, forests will be managed by people who are good at forestry, while those who are more productive in off-farm work can earn more income in off-farm employment. To test these conjectures, we analyzed a set of data of nearly 3,000 households from two rounds of surveys and remote-sensing data of 262 rural villages in eight provinces in China.

Three main findings stand out. First, the devolution-based collective action increased forest cover in the first one to two years; village forest cover increased by 10 to 12 percentage points in the year after the collective action. Second, the collective action led to an average increase in off-farm income by 1,891 Chinese Yuan (CNY), equivalent to a 48% increase in total household income. This finding supports our conjecture that secure property rights can encourage

cooperation in taking care of the forest, which allows owners to put more effort into off-farm employment. Third, the collective action reduced the likelihood of income falling below the poverty line. Thus, our findings suggest a potential for poverty alleviation.

Our findings suggest that property rights-based collective action can lead to improved forest management and more engagement in off-farm work. The paper also touches upon another issue: forest restoration as a key to nature-based solutions to climate change. Because forest ecosystems store carbon, restoring forests can compensate for a large amount of human-caused emissions. However, this requires incentives for ongoing management by people on the ground, to thwart illegal logging, poaching, and forest fires.

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