

Dimova, Ralitzka; Gang, Ira N.

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## Good and efficient? Women's voice in agriculture

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land rights held just by women, by men only, or jointly reduce the incidence of poverty among households.

The lack of beneficial effects of female- and jointly-titled LUCs across several of the measures of economic security and vulnerability suggests that simply issuing land-use rights by itself is not sufficient to guarantee improvements for women. Reforms also need to encompass institutional changes such as easier access to credit markets, fewer gaps in the social safety net, and changes in cultural attitudes against women in order for land rights to have meaningful impacts.

What do these measures of economic security and household vulnerability mean for women's empowerment? The results for women's relative status suggest that land-use rights in women's names do indeed strengthen women's bargaining positions, thus providing a clear rationale for strengthening procedures to encourage women's titling to land. However, such procedures would have more potent impacts if they were embedded in a broader framework that sought to change existing institutional structures that currently disfavor women.

## GOOD AND EFFICIENT? WOMEN'S VOICE IN AGRICULTURE

**Ralitza Dimova and Ira N. Gang**

**Editorial Note:** In this study the authors use the Third Integrated Household Survey (IHS3) of Malawi to analyze whether female cash crop decision-making has positive impacts on both efficiency and welfare.

### INTRODUCTION

Throughout Sub-Saharan Africa, lucrative cash crops are typically perceived as “male crops,” while lower-value crops for home consumption are perceived as “female crops.” However, the potential of engaging female agricultural producers in high-value crop activities has been an increasing focus of much of the recent development literature and policy discourse, the assumption being that women cultivating “male crops” not only bolsters women's economic empowerment, but also improves overall household welfare. While we know that significant barriers, such as a lack of access to production inputs and technology, prevent women from cultivating high-value crops, we know less about the consequences of interventions that would remove these barriers and allow women to cultivate more lucrative cash crops. Using a representative household survey from Malawi, this work draws a profile of successful women farmers, and the policies and interventions associated with this profile. The study finds that female cash crop decision-making has positive impacts on both efficiency and welfare. Female cash crop decision-making is encouraged by female ownership of land, credit allocations to women, and village-level infrastructure (development agencies, credit unions, etcetera).

### CONTEXT

Malawi is one of the poorest countries in the world and is predominantly agricultural. It shares key character-

istics with many other poor tropical African economies, namely a comparative advantage in cash crop activities,<sup>9</sup> and it is threatened by food insecurity—especially in an environment of rising food prices and potential drought. While farmers engaged in subsistence agriculture have typically been shown to restrict themselves to low-risk and low-return activities, there are significant entry constraints facing smallholders in pursuing more lucrative agricultural activities. Entry barriers to high productivity activities are found to be greatest for women. Specifically, exclusionary land ownership patterns, lower access to extension services, limited ability to acquire inputs, and a lack of access to credit have been identified as the four most important barriers to female empowerment in Malawi's agricultural sector.

### METHODOLOGY

This empirical analysis uses the Third Integrated Household Survey (IHS3) of Malawi, conducted between March 2010 and March 2011. The survey is representative for the entire country, and was conducted by the National Statistical Office of Malawi, which received technical assistance from the World Bank as part of the World Bank's Living Standards Measurement Study (LSMS). After accounting for missing observations and other data inconsistencies, the analysis included a total household sample of 10,401 observations. The authors restricted the sample to those households that had access to land and derived income from agricultural production in the reference period, leaving a sample of 10,085 observations.

9 Most importantly tobacco, but also more traditional commercial crop activities such as groundnuts, cotton and hybrid maize.

The survey is incredibly rich. Aside from the usual LSMS household and individual-level questions aimed at assessing expenditure, household income, labor force characteristics, education, and social assistance, the survey contains a separate section on agriculture. It is not only possible to identify the different crops produced and the inputs and outputs from the production process; it also includes information on which household member is responsible for which activity, who owns the land used in agricultural production, and who is responsible for the allocation of earnings derived from each activity. In addition, the survey contains useful information on various interventions. This data was of particular importance to the analysis, as it allowed the authors to identify the person in the household towards whom the intervention was directed. While there is certainly not a one-to-one correspondence between the survey responses and various policy interventions, the intervention programs do link somewhat naturally to the nature of the interventions perceived by respondents.

The study addresses three related questions: a) are high value cash crop activities of women more welfare-enhancing than subsistence agriculture; b) if so, how do alternative interventions influence women's involvement in high value crop production; and c) which interventions are most effective in reducing women's access barriers and enhancing their agricultural productivity?

Using stochastic frontier analysis—a popular technique for assessing agricultural productivity—the authors explore the efficiency-enhancing impact of government and institutional/social interventions designed to remove barriers to women's entrance into high-value agriculture. As is common in frontier analysis, the authors use variables, such as those capturing cooperative village arrangements and proxies of government policies, to explain the (in)efficiency parameter of the production function estimate. The analysis assesses the effects of these interventions on productive efficiency in agriculture, as well as the effects of institutional factors (such as land ownership), and female decision-making in cash crop production, comparing the results for male and female-headed households.

The authors follow the efficiency analysis with a Heckman-type treatment model, accounting for the non-random selection of individuals into an activity, in order to test the null hypothesis that the entry of women into cash crop activities is more welfare-enhancing than reliance on subsistence (food crop) agriculture. In addition, the authors attempt to create a profile of the

characteristics of women who undertake high-value agriculture and which policies/interventions are associated with this involvement.

## RESULTS

Overall results indicate that female cash crop decision-making is good for efficiency and welfare. In fact, the analysis finds that while female agricultural decision-making generally (without allowing for control over resources derived from agricultural production) lowers welfare, female cash crop decision-making raises welfare. This brings in an important policy dimension to the recent debate on the benefits of movement from cash crop into food crop activities in the context of food crises and chronic food insecurity in developing countries.

Despite some controversies in the literature on *de facto* matrilineal versus patrilineal land ownership, the analysis indicates that the *de jure* female ownership of land has a strong positive effect on female involvement in agriculture. However, female ownership of land improves productive efficiency only in female-headed households, and even there the effect disappears after controlling for other efficiency-enhancing variables. In other words, the results indicate that there is scope for efficiency and welfare-enhancing policy interventions that go beyond and countervail deeper-rooted institutional factors. The strongest of these efficiency-enhancing interventions across different types of households (female or male-headed) is the presence of overall village development association. The results are more controversial insofar as coupons and extension services are concerned. Coupons improve efficiency only of male-headed households, while extension services in fact deteriorate the efficiency of female-headed households.

## EFFICIENCY

In the whole sample, a woman being a commercial/cash crop decision-maker has a strong efficiency-enhancing effect, though the opposite is true for land ownership. While owning land promotes female decision-making in cash crops, for efficiency, it only matters if the female is also a head of household. In contrast, among female-headed households it doesn't matter whether a woman makes cash crop decisions, but female ownership of land has a strong positive impact on efficiency.<sup>10</sup> Hence, if it is a non-female-headed household and a woman owns the land, it has a deteriorating effect on efficiency, as the male spouse has less incentive to use the land efficiently. Once we

10 This is consistent with the other studies, which have found that males in matrilineal settings do not have incentives to invest in agricultural production.

include policy variables, the effect of both land and female decision-making in crops disappears; policy can counteract other household effects.

The receipt of coupons for the purchase of either seeds or fertilizers has a significant efficiency-improving effect in male-headed households, and an insignificant effect in female-headed households and the overall sample. When coupons were directed to poorer households, such as those headed by females, bartering might have taken place to alleviate immediate consumption constraints. Extension services have a small efficiency-deteriorating effect in the female-headed sample, perhaps due to time allocation issues. Among the village-level variables, the strongest efficiency-enhancing effect comes from village development institutions. These form the catalysts through which cooperative action in the community occurs. In the case of the overall sample and the male-headed sample, agricultural cooperatives have an efficiency-deteriorating effect.

## WELFARE

Not only do women as cash crop decision-makers improve household welfare, but women as cash crop producers and sole household decision-makers on what to do with the earnings amplify this positive effect. The results are less robust among women as food producers or as producers of anything other than cash crops, which strengthens the call for women to shift toward cash crops.

Female land ownership has a strong positive effect on women making cash crop decisions. The allocation of credit to women has a strong positive impact of female allocation into cash crops and the opposite is true for credit allocated to men. Village development agencies, savings and credit unions, and female groups have strong positive impacts on female participation in cash crops. Insofar as household variables are concerned, female-headed households are more likely to be involved in cash crop production; the same is true for polygamous families, but not monogamous ones. Education has a strong positive impact on women becoming cash crop producers. As for understanding the impact on welfare as measured by household per capita consumption, high dependency ratios negatively impact welfare; female-headed households expectedly have lower welfare; marriage is bad for welfare (whether monogamous or polygamous). Education is good for welfare.

## POLICY IMPLICATIONS

A key policy determinant of female involvement in high-value agriculture is the presence of village-level infrastructure, especially village development agencies and savings and credit unions. However, for improving efficiency and promoting the movement of women into cash crops, different policies matter. For getting women into cash crop production, it is also important to promote the provision of loans to women, the allocation of land to women, increasingly efficient policies related to input subsidization and extension services, and increased financial deepening.<sup>11</sup>

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11 But these matter more for women in cash crop decision-making than in other forms of agricultural decision-making.