



# Women and farmland preservation: The impact of women's participation in farmland management governance in Japan



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## ABSTRACT

Women's empowerment is considered vital for successful natural resource management. However, owing to the problem of reverse causality, previous empirical studies have uncovered little evidence that enhancing women's presence in community institutions for natural resource management leads to resource preservation. This study explores the causal impact of women's participation in farmland management governance in Japan on farmland preservation. In 2010, municipal agricultural committees managing farmland in Japan set the goal of having at least two women members in the executive committee (EC), the principal decision-making body. We use the timing of the election of EC members as an instrumental variable. Using panel data on agricultural committees from 2011 to 2015, the results show that agricultural committees with a high proportion of women members show significantly greater improvements in farmland preservation. This beneficial impact of women's participation is likely attributable to not only the increased role of women in decision making, but also the increase in the meetings of EC members for in-house training.

## 1. Introduction

The role of women in agriculture has become increasingly important in most countries (De Janvry et al., 2002). Even though women agricultural laborers account for 43% of the world's agricultural labor force (FAO, 2011), they do not demonstrate their skills to the best of their abilities. In developing countries, the gender gap mainly manifests itself as women's lower access to inputs, resources, and services for agricultural production, and greater vulnerability in land ownership compared to men, owing to a range of institutional- and norm-based constraints (Kalabamu, 2006; Croppenstedt et al., 2013; Djurfeldt et al., 2018). Agricultural productivity differences by gender have been reported in developing countries, such as Burkina Faso (Udry et al., 1995; Udry, 1996; Akresh, 2005), Ghana (Goldstein and Udry, 2008), Ethiopia (Tiruneh et al., 2001), Zambia (Horrell and Krishnan, 2007), and the Philippines (Mishra et al., 2017). If access to, and use of productive inputs were taken into account, and women's skills and talents were used more fully, gender differences in agricultural productivity would disappear and productivity would increase (World Bank 2012).

Likewise, there are expectations that women actively participate in management groups for natural resources, such as irrigation, forests, and fisheries (Pandolfelli et al., 2008). Some research report that the

gender composition of natural resource management groups determines the success of collective action for the management of natural resources (Westermann et al., 2005; Godquin and Quisumbing, 2008; Pandolfelli et al., 2008). This idea is based on the fact that women and men differ in the nature and extent of their dependence on and use of natural resources, which is predicated especially on the gender division of labor and economic endowment (Agarwal, 2009). In addition, men and women tend to play different complementary roles in collective action for natural resource management. For example, women tend to be more cooperative and altruistic than men when dealing with natural resource decisions (Folbre, 1986; Revollo-Fernández et al., 2016). As a result, the presence of women leads to improved group functioning and greater cooperation, solidarity, and conflict resolution; this facilitates compliance by other women, thereby reducing monitoring costs (Meinzen-Dick et al., 1997; Westermann et al., 2005; Agarwal, 2009).

There are some quantitative studies investigating the impact of gender in groups for natural resource management, including those focusing on forest management (Agarwal, 2009), water management (Meinzen-Dick and Zwarteveen, 1998; Were et al., 2008), and fishery management (Sultana and Thompson, 2008). However, barring a few exceptions, there is little quantitative research with statistical testing on this topic. Therefore, our understanding of a manifestly simple

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question, such as the relationship between gender composition of groups responsible for natural resource management and their impact on resource management is limited. This is caused by the endogenous nature of women's participation in groups responsible for natural resource management. For instance, endogeneity makes it difficult to identify if women with high ability improve natural resource management through their actions and knowledge, or if groups with better management of natural resources include women with high ability. Therefore, the endogeneity problem makes it difficult to show whether there would be an impact of women's participation, and if so, whether it would be positive or negative. The causal effect of gender composition on natural resource management can be resolved with clear empirical evidence that is not confounded by endogeneity.

In this study, we explore the causal impact of women's participation in the executive committees (ECs)—the principal decision-making bodies—of agricultural committees (ACs) on farmland preservation and transactions. The ECs are institutions at the municipal level for promoting local agriculture and managing farmland in Japan for farmland preservation and transactions. In order to identify the effect of gender composition, we exploit a quasi-natural experiment in gender composition created by an exogenous change in EC members.

This study selects Japan as the focus for natural resource management groups, because even though it is a developed country, its society has apparent gender differences between men and women. Since the Basic Act for Gender Equal Society was implemented in 1999, various efforts have been undertaken toward realizing genuine equality between men and women. The Japanese government set a goal that, by 2020, the proportion of women in leadership positions in all sectors of society should be at least 30%. However, Japan has made slow progress toward meeting this goal, and is ranked 111 out of 144 countries according to a gender gap index (World Economic Forum, 2016). Agriculture is no exception with regard to gender difference. Women constitute approximately 40% of Japan's agricultural labor force. However, the participation of women in farm management and management groups for natural resources has not progressed. For instance, according to the 2015 Census of Agriculture and Forestry in Japan, the percentage of farm households where a woman is a manager, is only 6.7%. Furthermore, though there are no available latest data on women ownership in land, according to the survey of Ministry of Agriculture, Forestry and Fisheries in 1999, about 9% women have the right to farmland. Therefore, the participation of women in agriculture has continued to be a major agricultural policy issue. Japan's experience of gender differences provides meaningful insights for resolving such differences in developing countries.

The rest of this paper proceeds as follows. Section 2 describes the gender composition of ACs. Section 3 presents the identification strategy. Section 4 describes the data. Section 5 investigates the impact of women's participation as EC members on farmland preservation and transactions. Section 6 concludes.

## 2. ACs and gender composition

ACs, which provide the context for this study, were established in 1951 as administrative committees to protect the achievement of land reform implemented from 1947 to 1949, after enforcing the Act on Agricultural Committees in 1951. In principle, each municipality has established one AC but municipalities with significant extent of farmland can establish more than one. Conversely, municipalities with no farmland cannot establish ACs, while it is optional for a municipality with farmland of less than 200 ha to establish an AC. There were 1,708 ACs with 35,618 EC members in 1,698 of Japan's 1,741 municipalities in 2015. An AC has goals: (1) to grant permission for farmland transactions among farmers and (2) to promote the efficient use of farmland (concentrating farmland and eliminating unused farmland). First, ACs have the authority to grant licenses or approve the purchase, sale, and rental of farmland. If farmers buy or rent farmland in Japan, it is

necessary to obtain permission from the relevant AC. The AC decides whether to grant permission by investigating whether the farmland is efficiently utilized by farmers, with either higher agricultural productivity or a desirable efficiency purpose. Second, in terms of promoting the efficient use of farmland, ACs have undertaken additional work of concentrating farmland among core farmers, each of whom is defined as "already or aiming to be an efficient and stable farm and expected to lead the agricultural sector," (Arimoto, 2011) in line with a revision to Act on Agricultural Committees in 2004. ACs act as intermediaries between core farmers and farmland lenders. Third, in order to eliminate the growth of unused farmland, ACs' main work since revision to Act on Agricultural Committees in 2009 has been investigating the utilization conditions for all farmland and providing administrative guidance, as well as recommendations regarding landowners of unused farmland. According to the latest available statistics from Japan's Ministry of Agriculture, Forestry and Fisheries in 2010, about 396,000 ha of farmland (10.6% of abandoned farmland) were abandoned nationwide. Therefore, ACs currently place importance on promoting the efficient use of farmland (i.e., concentrating farmland and eliminating unused farmland).

An AC consists of an EC as the core decision-making body. EC members (mainly farmers) comprise elected committee members and recommended committee members, both having terms of three years. Members are mainly composed of farmers. The elected committee is constituted by farmers' voting, and the recommended committee is appointed by the mayor of the municipality from among candidates recommended by agricultural organizations (agricultural cooperatives, agricultural mutual benefit associations, and land improvement districts) and the municipal council. In the case of elected committees, the candidates have been selected beforehand in most districts. Therefore, in most cases, the number of candidates is the same as the number of elected committees in the district. As a result, elections for elected committees are not conducted in most districts. Further, in addition to EC members, ACs have legally been permitted to have some members (cooperative members and farmland consultation members) that support the activities of EC members. They are part-time members appointed by ACs. Cooperative members are farmers who are knowledgeable about the utilization conditions of farmland in the district in which they reside. They are requested to visit each farmer for examining the utilization conditions of farmland and to participate in the meetings held by the community's farmers (Horibe, 2015). Cooperative members offer the information obtained from their activity to ACs. Farmland consultation members are mostly retired local government staff with knowledge of legal systems of farmland transactions and provide advice about farmland transactions, farm management, and unused farmland to EC members. Support members contribute to the efficient use of farmland.

On average, in October 2014, ACs had 21 EC members (five members of recommended committees and 16 members of elected committees). In 69% of the ACs, at least one woman EC member was present, while 7.3% of EC members were women; 2% of elected committees comprised women, and 23% of the recommended committees comprised women. Women members of ECs are elected mainly to recommended committees. Even though women constitute approximately 40% of the agricultural labor force, their participation in ECs has not progressed. The causes of the imbalance of gender composition lie in prejudice against women, cultural norms, and women's passive attitudes caused by lack of knowledge about agriculture (Fujimoto, 2009).

## 3. Method

### 3.1. Women and the efficient use of farmland

There are two channels through which the increase in women EC members is likely to influence the efficient use of farmland. The first

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