

Contents lists available at ScienceDirect

#### China Economic Review

journal homepage: www.elsevier.com/locate/chieco



## Can land transfer through land cooperatives foster off-farm employment in China?



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#### ARTICLE INFO

#### Keywords: Land market Labor market Land cooperative Control function

Jiangsu

#### ABSTRACT

Functioning land markets are necessary for an increase in off-farm employment. However, there is limited empirical evidence on the impact of land transfer on off-farm employment in rural China. This paper investigates the drivers of households' cooperative membership, which is equivalent to transferring land through land cooperatives, and its impact on off-farm employment. Using a two-step control function approach and data from Suzhou and Yangzhou (Jiangsu province), we do not find a general effect of cooperative membership on household heads' current off-farm employment, though the effect is large for households which had surplus agricultural labor before cooperative initiation. The effect is also positive and large for household heads without off-farm experience and households located in Yangzhou. Policy-makers should be aware of the distributional consequences of these heterogeneous effects.

#### 1. Introduction

Off-farm employment helps to diversify and increase rural households' income (Atamanov & van den Berg, 2012). Because added value per worker is higher in the off-farm sector (Gollin, Lagakos, & Waugh, 2014), off-farm employment is an important source of household income contributing to poverty alleviation in rural areas. In addition, off-farm income provides cash for purchasing inputs to increase agricultural production (Matshe & Young, 2004). In recent years, developing counties such as Mexico (Valsecchi, 2014), Vietnam (Do & Iyer, 2008) and China (Groom, Grosjean, Kontoleon, Swanson, & Zhang, 2009; Uchida, Rozelle, & Xu, 2009), have, thus, made an effort to facilitate a shift in labor employment from agriculture to off-farm sectors.

Rural land market development can facilitate off-farm employment (Chernina, Dower, & Markevich, 2014; Mullan, Grosjean, & Kontoleon, 2011). Because land and labor are complementary inputs in agricultural production (Hertel, 1989), a change in the employment of labor may typically go along with a change in the employment of land. Empirical evidence shows that farmers' land transfer decisions and off-farm employment decisions are closely interrelated (Feng & Heerink, 2008). However, it is important to further acknowledge this interrelation. Several studies have investigated the impact of off-farm employment on land market participation (Huang, Gao, & Rozelle, 2012; Kung, 2002; Yan & Huo, 2016). However, only a few studies (Shi, Heerink, & Qu, 2007; Yan, Bauer, & Huo, 2014) have investigated the effect of land market participation on labor market participation in rural China, often ignoring the endogeneity of households' land transfer decisions.

In this paper, we investigate the effect of land transfer on off-farm employment, using data from the land cooperative program in China. This is the first attempt to consider the causal effect of land cooperative membership on off-farm employment. We employ a

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two-step control function approach to address the endogeneity of cooperative membership (Wooldridge, 2014). The rest of the paper is organized as follows. In section two we provide some background on the land cooperative program and demonstrate why cooperative membership may affect off-farm employment. In section three, we describe the data and empirical strategy. In section four, we present and discuss the results, followed by a concluding section.

#### 2. Institutional background and context

#### 2.1. Land cooperative program

Rural land in China is governed under the household responsibility system. Farmers contract with village committees to use land for agricultural production. For political reasons, land cannot be privatized in China, but contracts give households rights to use land and transfer it in rental markets. However, the egalitarian principle and the redistribution of land in response to population change have led to land fragmentation and insecure property rights. High transaction costs hinder the development of an efficient land market (Bao, Ito, & Ni, 2015; Jin & Deininger, 2009).

At the beginning of the 21st century, land and labor markets in rural China remain underdeveloped (Kung, 2002). According to the Agricultural Committee of the province, in 2006 in Jiangsu Province, one of the most developed regions in China, < 10% of the agricultural land has ever been traded in the rental market. This figure is even higher than the national average (Ito, Bao, & Ni, 2016). Despite the ongoing shift of labor from the agricultural to off-farm sectors, labor employment in agriculture in 2005 was still at approximately 45% (Deininger, Jin, Xia, & Huang, 2014). This provides an opportunity to achieve greater economic efficiency by developing factor markets in rural areas (Zhang & Tan, 2007).

The land cooperative program was initiated to facilitate land transfer and to release rural labor (Chen, 2015; Lin & Ma, 2014). In the early 1990s, it was first applied in Nanhai, Guangdong Province. In different local variations the program is now viewed as an important part of a collective economy by the central government, and it spread widely across the coastal provinces (Chen, 2015; Tian & Zhu, 2013). Jiangsu is the only province which has legally implemented the program via the release of the *Regulations of Jiangsu Province on Specialized Farmers Cooperatives* in 2009. The program is also implemented differently within the province. In Suzhou, for instance, the local government provides financial support to households who transfer land to the program. Similar support does not exist in other cities of the province. Such policy variation may indicate regional differences in the importance of the program.

Households that transfer land to the cooperative become its members and receive benefits in the form of stocks (Ito et al., 2016). The stocks issued by the cooperative make the households' land contract rights – the right to get a share of farmland in the village – independent from the direct use of land. Households then can transfer land to the cooperatives while retaining the right to benefit from the land. The stocks can be mortgaged, transferred, and inherited. Such institutional arrangements avoid the periodical land reallocation and secure households' land contracts right (Ito et al., 2016; Po, 2008).

The security of land contracts rights may encourage land transfer (Deininger et al., 2014). Because the land cooperative becomes the central contracting partner in a village, households have to deal with only one transacting partner which saves them costs of searching for and negotiating with others in the village (Bao et al., 2015). It is reported that between the start of the land cooperative program and 2013 approximately 50% of land has been traded in rental markets in Jiangsu (Ito et al., 2016).

#### 2.2. The role of cooperative membership in fostering off-farm employment

We expect that households' cooperative membership, which is equivalent to transferring land through cooperatives, has a positive effect on households' off-farm employment. This results from the complementary nature of land and labor in agricultural production and the assumption of imperfect land markets in China. If the local land and labor markets were perfect, land and labor resources would have been efficiently allocated. The emergence of land cooperatives would then have no effect on households' labor allocation.

However, it has been well recognized that land markets in rural China are imperfect (Deininger et al., 2014; Kung, 2002). Land fragmentation and insecure property rights have hindered the development of land rental markets (Bao et al., 2015; Ito et al., 2016). Consequently, a smaller amount of land had been traded and fewer farmers had engaged in the off-farm sector due to the risk of losing future benefits from land, i.e. the risk of land dispossession from land re-distribution (Kung, 2002). The emergence of land cooperatives, which secure households' future benefits from land, therefore provides households the opportunity to engage in the off-farm sector by transferring land to cooperatives.

The effect of cooperative membership on off-farm employment also depends on households' ability to access the labor market. Because the income gap between the farm and the off-farm sector often differs for heterogeneous households, they may choose different production strategies (Yao, 2000). Some would specialize in the off-farm sector if they had access to well-paid off-farm employment before cooperative initiation, which could surpass the risk of losing benefits from land. These households often used their land inefficiently when land markets were imperfect, for instance by giving it to kin relatives for free. Land cooperatives then provide them the opportunity to maximize benefits from land without an impact on labor allocation.

Others would focus on agriculture if potential off-farm employment available to them could not surpass the risk of losing future

<sup>&</sup>lt;sup>1</sup> This is the major difference between the land cooperative program and the collectivization policy in the Maoist period when farmers were not free to choose how to use the land.

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