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Inequality and small landholdings: Path dependence, land use and wellbeing

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ABSTRACT

China economic reform was initiated from rural land tenure reforms, leading up to four decades of fast economic growth. Small but more unequal land holding has been viewed as a dilemma for future development. Using data from rural households in three provinces, this paper attempts to quantitatively measure and examine land holding inequality between farmland and woodland across different regions. It was argued that the paths of land tenure reforms could play an important role: all farmland was allocated to households via administrative mechanism according to household size at the beginning of the economic reforms while woodland was allocated to households from the collective using market mechanism. The inequality between farmland and woodland also come from land uses because farmland is primarily used for food production for own consumption whereas woodland is used to produce products for sale. The determinants of the current holding size of land were compared and investigated. The role of wellbeing like household income is found statistically significant in forestland but not farmland. In contrast, the size of household is found statistically significant in farmland but not forestland.

1. Introduction

Land distribution has always been viewed as an important socio-economic issue with implications for income distribution, poverty and economic growth in rural societies (Raj, 1970; Griffin et al., 2002; Adamopoulos, 2008; Otsuka et al., 2016). Kay (2002) and Boyd et al. (2007) claimed the higher prosperity of Taiwan and South Korea compared to Latin America to be caused by equal land ownership by peasants among other reasons. Land disparity has widely been viewed as the cause of causing social instability and collapsing of dynasties in China (Wen, 2009).

The Household Responsibilities System (HRS) was used to redistribute farmland use rights to households in China. The 1982 Constitution and Land Administration Law determined that collective economy organizations that succeed the ownership of the land were allowed to allocate land to smaller units or households for use and management. By 1983, over 93% of production team had implemented the HRS. Although there is some evidence that suggests widening inequality distribution (Zhang, 2008; Tian et al., 2012; Zhao, 2014), small scale of farmland holding land use rights by households has not changed (Luo, 2017).

Forestland reform in the collective forest area started a few years later. Some provinces, such as Zhejiang started the reform soon after the

farmland reform, but other provinces took more time to act. From 1981 to 1985, a total area of 31 million ha of collective forest land had been re-allocated to about 56 million households under the HRS with an average of 0.56 ha per household (MoF, 1987). Unlike farmland, forestland adopted various arrangements (see Shen et al., 2009; Xu et al., 2013): *Ziliu-shan* (household land) was distributed from the collective to households based primarily on household size; *Zeren-shan* (responsible land) was assigned by village authorities to households to manage the land primarily based on their willingness to partake in the management (mostly in monitoring and prevention of illegal logging); *Tongguan-shan* still under collective management.

Unlike the success of farmland reform in improving productivity and efficiency of land and labor (e.g., Lin, 1992), widespread deforestation took place after forestland reforms, and the impacts of the reform were mixed and less certain (Yin and Newman, 1997; Zhang et al., 2000). In some places, such as Jiangxi, a lot of forestland that was contracted out had been taken back for collective management. Another approach called share-holding tenure became more popular. It was first adopted in Fujian but later gained popularity in many other provinces to stop wide-spread deforestation for *Ziliu-shan* and *Zeren-shan*. The purpose of share-holding tenure was to distribute earnings, but keep forestland intact under collective management. Villagers share earnings based on the shares held. Usually a special management team

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was established and managers were elected by the villagers. The purpose of such land tenure arrangement was to specify the share of forestland to each household without breaking down the forestland into smaller sizes (Yin and Newman, 1997; Song et al., 1997; Zhang, 2001). Currently few villages still keep the share-holding system, suggesting that it was not preferred by the rural population.

The paths and consequences of the farmland and forestland reforms appear markedly different (Xu et al., 2008). Forestland reform had fallen behind farmland by time, extent and intensity, so it was viewed as the second reform in rural area (He and Zhu, 2006). Forestland was much more difficult to be allocated to households due to heterogeneity of the land and forests. In addition, forests are harder to be protected than the crops (Zhang, 2001). It was estimated that by 1986 Fujian had 32% and Zhejiang had 76% of forestland under household management. Although it was estimated that 93% of forestland was under household management by 1986 in Jiangxi, the figure was apparently over estimated or large amount was returned to the collective since it was only 60% under household management by 2000 (Xu et al., 2008).

While farmland was redistributed by administrative mechanism, leading to relatively small-scale agriculture, forestland adopted market mechanism. Forestland reform generated less equal distribution but seemed more efficient according to some studies (see Zhu and Xiao, 2007). Farmland was more evenly distributed based on the household sizes within 1–3 years of economic reform. In contrast, only part of forestland was distributed to households initially, and was mostly held as collective land for a significant period of time after the economic reform, providing way to later implementation of market oriented allocation.

The objective of this study is to quantitatively measure the disparity of rural landholding. We are particularly interested in the variation of farmland and forestland among regions, and attempt to understand the causes of the variations, and what might affect the holding sizes, particularly the variation between farmland and forestland because of different underlying economic behaviors. As the variation of farmland and forestland appears too obvious to investigate, some fundamental economic questions have not been carefully thought and largely neglected. The China's land reform in the past four decades provides a good case for the investigation.

2. Data

In order to compare overall disparity between farmland and forestland, we use data collected from Fujian, Jiangxi and Zhejiang provinces. All the three provinces are located in the southeastern China. All data were collected through face to face questionnaires and interviews in 2014.

While the districts or regions from each province were not randomly selected for practical reasons, households were randomly sampled from each area. Collectively, 401 households were investigated in 12 counties in Zhejiang, Fujian and Jiangxi. In Zhejiang and Jiangxi, we focused on southern part; In Fujian, north-western part was selected in order to make the three provinces more comparable in terms of population density and distribution of woodland and farmland, and also geographically adjacent. After representative counties in each province were chosen, 42 towns from these counties, and 93 villages from the towns were randomly selected, and 5 households were randomly selected on average in each village. Data on forestland and farmland were collected from 289 and 112 households, respectively: for 289 households with forestland information: 68 from Zhejiang, 147 from Fujian, and 74 from Jiangxi; for 112 households with farmland: 27 from Zhejiang, 52 from Fujian, and 33 from Jiangxi.

Farmland size is based on all farmland that households have. Forestland includes timber forest, economic forest, non-commercial forest, and bamboo forest. The variable of village cadre is based on the history of present household members. Data on family members, annual household income and population density of town were gathered based

on the time of interview in 2014.

3. Disparity measurement and factors affecting the holding sizes

We used two indicators to measure land holdings disparity-coefficient of variation (CV), equal to standard deviation divided by the mean of area per household (APH), and Gini Coefficient. We used these measures and simple OLS regression to identify factors that determine holding size of farmland and forestland (practically the difference between farmland and forest land). We believe that to a large degree the paths of reforms, land use objectives and household characteristics collectively influence holding size.

The current land distribution is fundamentally a result of the beginning distribution of the land reform in China. This is like the concept of path dependence used in new institutional economics to state that current status is limited by the decisions one has made in the past or by the events that one has experienced. Land is not good in liquidity and transaction cost is high, and land holding size usually cannot be adjusted easily (Nguyen et al., 1996; Wan and Cheng, 2001; Tan et al., 2006). Path dependence might be important; land transaction is often less frequent (Borras Jr, 2005). The initial stage of land ownership will have long-lasting effect on the later distribution (Oded et al., 2003). During the transition to market economy subject to numerous constraints in land use right transaction, it is expected that the adjustment might be even slower. The overall farm land distribution is resulted from distribution initially based on a per capita basis (Kong and Unger, 2013). In contrast, the forestland would be quite different as it was largely based on market mechanism.

Land holding size is likely associated with the objectives of the land uses (Toth, 2007). Zhang et al. (2005, 2009) found that increasing number of American families own small forests for recreation, family legacy, aesthetics and conservation purposes compared with the situation decades ago although it is not efficient as far as timber production is concerned. In the mountainous areas such as Southeastern China, farmland is primarily used to produce food for own uses, but forestland is more likely used to produce timber for sale. In other words, farmland is operated for self-subsistence type of economy, while forestland is managed to generate income and profit. This is consistent with our results that forestland has been managed considering more of costs and the value of outputs, whereas farmland use takes into account more food consumption for food safety and self-employment. Further, financial sources borrowed to manage farmland accounted for 10% but 25% for forestland as found from this study.

Apart from variation between forestland and farmland in terms of management objectives, land owners (users) have differing abilities to capture value even for same uses such as crop or timber production, and thus have different optimal holding sizes. Each family leases in or leases out to maintain an optimal operational holding which is proportionate to size of the family (Fed, 1985). Household's migration, income as well as topographic characteristic of cultivated land affect land transaction in China (Chen et al., 2010). Different owners face different costs in capital and labor, and prices of the products.

Household income (INC) is very important and likely impacts landholding and sale (Taylor and Wyatt, 1996; Chen et al., 2010). The contribution of off-farm income to total rural households' income inequality has been more important relative to land-based income (Liu et al., 2014). When land market emerges, income from both off-land and land-based income could influence the distribution of land by land market mechanism. Some researchers believe that size of holding is positively correlated with an owner's income (Straka et al., 1984; Xu et al., 2013). As inequality in China is on the rise, it is expected that land will be more unequal as well (Liu et al., 2014).

The size of family (POP) is important for two reasons. First, land was distributed according to household size at the beginning land tenure reform; second household size is strongly related to either the demand for food or timber, or the supply of the labor for land management. This

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