

## How Farmland Mortgages Could Stimulate Rural Entrepreneurship in China

Yanling Peng, Calum G. Turvey, and Rong Kong

February 2017



## About the Authors

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### Yanling Peng

Yanling Peng is assistant professor in the Institute of Regional Economy and Finance at Sichuan Agriculture University. She received her PhD from Northwest Agricultural and Forestry University. Dr. Peng also spent a year as a visiting scholar at Cornell University in 2015-2016. She conducts research in the areas of rural finance and entrepreneurship.

### Calum G. Turvey

Calum G. Turvey is the W. I. Myers Professor of Agricultural Finance at Cornell University, teaching in the Charles H. Dyson School of Applied Economics and Management. He also serves as the Editor of *Agricultural Finance Review*. Turvey received his PhD from Purdue University in 1988 and then joined the faculty of Agricultural Economics and Business at the University of Guelph, teaching there until 2002. In 2002, he joined the faculty of the Department of Agricultural, Food and Resource Economics as professor and director of the Food Policy Institute and Chair from 2003-2005. In 2005 he moved to the Department of Applied Economics and Management at Cornell, assuming the Myers chair. He conducts research in the areas of agricultural finance, risk management, and agricultural policy.

### Rong Kong

Rong Kong is professor in the College of Economics and Management at Northwest Agricultural and Forestry University, Shaanxi province, China. She has published a broad range of research on rural finance, agricultural insurance, migrant labor, and entrepreneurship. She received her PhD from Northwest Agricultural and Forestry University. In addition to her work at Northwest Agricultural and Forestry University, she also spent a year as a visiting scholar at Cornell University in 2006-2007.

**Acknowledgments:** This work has been generously supported by the National Natural Science Foundation of China (grant number:71373205). The authors would like to express their gratitude to the graduate students from Northwest Agricultural and Forestry University, Shaanxi province, China, who conducted the field survey, as well as the Chinese farmers who agreed to participate in the survey.

## Introduction

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**M**any farmers in China face considerable constraints in their effort to obtain access to credit. A significant source of these constraints has been tied to policies related to land use rights (LURs).

The very nature of LURs in China has, until recently, precluded farmers from transacting land for rent. Chinese farmers have also lacked the typical ownership rights seen in most other developing or developed nations. In this sense, Chinese land use policies stymied progress and precluded economic efficiencies of scale, size, and scope, and the ability to borrow against the land to advance more entrepreneurial activities among farmers.<sup>1</sup>



Photo: Flickr/Roy Cheung

To address these issues, China's policies related to land for agricultural and rural development have gone through significant transformations since 2003. The intent of these reforms has been to bolster farm incomes, facilitate urbanization, encourage rural development through small and medium-sized enterprises,

and establish some incentives for both innovation and entrepreneurship.

Although there are many economic models and paradigms relating entrepreneurship to economic growth, what China seems to have been seeking over the last decade is best understood through the prism developed by Joseph Schumpeter, the great Austrian-born American economist. Schumpeter argued that economic development is driven by adaptive responses to larger factors, such as population and global growth, as well as creative responses that arise largely independently and lead economic actors to do or create something outside the conventional range of existing practice.<sup>2</sup>

In fact, Schumpeter explicitly linked the role of credit markets to innovation and entrepreneurship.<sup>3</sup> What Schumpeter suggested was that reliance on savings and retained earnings could do little more than maintain investment at the intensive margin—in other words, to do more

of the same. To drive innovation, therefore, such as investment in new production technology, there is a need for a parallel effort at credit creation. And this need for credit creation is a useful prism for understanding China's recent economic reforms.

Perhaps the most significant policy change needed to encourage credit creation is recognition that savings alone would be inadequate to meet the financial needs of Chinese farmers. Viewed through this prism, some of the recent moves in China have been significant. For example, some policy changes have aimed to reduce or remove liquidity and credit constraints by permitting a broader range of transactions in land among farmers through formal rent agreements. China has also taken steps to encourage credit creation by allowing farmers to mortgage loans against the collateral value of LURs.

These new land policies are important. But going forward, there is a need to investigate the nature and outcomes of such reforms. Only then can a determination be made as to whether these reforms recognize actual conditions and address constraints within China's existing agricultural economy, credit markets, and labor force. And particularly when it comes to labor, a balance must be struck between the rates at which farmers rent out their LURs to leave agriculture—a number we believe to be high—and this

group's subsequent absorption into the non-farm economy as wage laborers or entrepreneurs. At the same time, it is important to question whether the reforms adequately meet rising credit demand and serve policy objectives aimed at building a more efficient, commercially oriented agriculture by a smaller number of farmers. Must more be done to smooth the transition of households from agriculture and/or the transformation of smallholders into commercial operations?

This memorandum explores how LURs reforms and the mortgaging of land use rights might encourage innovation and entrepreneurship in China's rural areas. An important focus is to evaluate the creation of new agricultural businesses and commercial-size farms through entrepreneurship. This is, after all, said to be a crucial objective of China's new land use policies.

The memo's recommendations are partly based on findings from a survey of 1,465 farm households in China's Gansu, Henan, Shandong, and Shaanxi provinces, as well as case interviews and surveys of new Land Transaction Centers in Shaanxi, Henan, and Ningxia provinces.

After providing some background on the history of land use rights in China, the memo looks, first, at the evolution of new land use transactions and mortgage policies. It then proceeds to analyze the economic considerations

and consequences of China's new policies, and particularly how LURs are valued for the purpose of mortgages, current rural credit conditions, and rural entrepreneurship.

The paper provides preliminary evidence that mortgaging LURs could

enhance rural entrepreneurship in China by a relatively small number of farmers, a progression that needs to be encouraged. But it also highlights four areas where further policy actions are required to maintain, enhance, and make more sustainable these various LURs-related reforms.

## The Chinese Policy Environment

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Recent changes in China's land use rights and rural land mortgage loans may be the most pro-agricultural policies since the Household Responsibility System was first brought forward in 1978. In order to meet China's growing food demand the government is pushing toward a commercialized agricultural sector. The allocation of land use rights under the Household Responsibility System in 1978 was in response to the low output under the collective system that dominated China's agricultural economy from the 1950s. Under the new responsibility system, land was reallocated to hundreds of millions of rural residents with enough market mechanisms in place to incentivize increased production.

Because all arable land in China is owned by the government, LURs are essentially usufruct rights that decouple production from land ownership. Farmers can grow what they wish depending on individual ability, agronomic conditions, and market (and sometimes government) demand. But over time, Chinese farmers have faced several obstacles that ensured many lived a life of poverty or near-poverty.

First, the land allocation per person in a household was small, about 1 *mu*

(about 0.16 of an acre) per person in most areas. Thus a family of six would cultivate approximately 1 acre of land and from that derive whatever income they could. At poverty, savings would be miniscule, if not impossible. In recent years, more than 250 million of China's near 900 million farm population have migrated to work in the urban or industrial sectors, with remittances in many cases outstripping income from agricultural production.<sup>4</sup>

Second, because farmers do not hold legal title to the land, they have not until recently had a collateral base on which to obtain credit to purchase the necessary inputs to

improve output or gain efficiencies. The credit problems faced by Chinese farm households are well known and it is anticipated that registering, allowing transactions, and mortgaging LURs will relax credit constraints and reduce credit rationing to Chinese farmers. But credit is especially important. For one thing, in China, there are 250-300 million farm households that contribute to the agricultural economy, but a vast majority of them have not benefited from access to formal credit.<sup>5</sup> Despite recent reforms, credit constraints in rural China are still serious.<sup>6</sup> And even though many Chinese farmers have moderately inelastic to elastic

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demand for credit,<sup>7</sup> they still rely on informal loans from friends and relatives.<sup>8</sup> Indeed, only 10 percent of entrepreneurial capital in China comes from formal financial institutions.<sup>9</sup>

Some research has shown that as much as 83.4 percent of Chinese farmers agree that capital shortages are the primary and critical factor affecting their potential for, or lack of, entrepreneurship,<sup>10</sup> and that most farmers with an interest in entrepreneurial activity cannot do so because they lack capital.<sup>11</sup> In the absence of real collateral, *formal* lenders tend to be more prudent and cautious when supplying loans to farmers, due to the shortages of effective guarantees, high transaction costs, risk, and high monitoring costs.<sup>12</sup> In 2013, farmers in northeastern Jilin province, for example, could only meet about 30 percent of their financial needs, with about 80 billion yuan (~\$13 billion) in excess demand.<sup>13</sup>

Third, with no savings, no collateral, and costly origination and monitoring, there have been few market incentives for financial development and deepening in rural areas. For sure, there exist thousands of rural credit cooperatives (RCC) and the Agricultural Bank of China, but these institutions have muddled on inefficiently for four decades.<sup>14</sup>

Post-2003 financial reforms and the declaration for improved rural credit

that topped the 11th Five-Year Plan have opened rural credit markets to joint-stock commercial banking enterprises, including the conversion of RCCs into rural credit banks. But while deepening credit in rural areas is a positive step, it is not always the case that merely increasing credit in an agricultural region yields an increase of credit to agriculture.

Fourth, the institutional structure of LURs in China has restricted and disincentivized innovation. And when all four of these outcomes of the 1978 de-collectivization movement are taken together, it is clear that they have led to a Chinese agricultural economy with lower productivity, lower adoption of technology, lower household incomes, and rising inequality between rural and urban households relative to more developed agricultural economies.

Ultimately, the restrictions imposed on LURs were unsustainable as China's economy grew. Changes had to be made to encourage and improve agricultural efficiencies at the intensive and extensive margins to promote rural innovation and entrepreneurship. To accomplish this, new rules were needed in an effort to lift the constraints on farm size and encourage access to and use of credit by providing a structure for farm borrowing beyond traditional RCC micro credit and the reliance on group guarantees.<sup>15</sup>

## Reforming Land Use Rights and Rural Land Mortgage Lending

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**W**hat was at the heart of this policy change? At base, the reforms changed the laws regarding allowable transactions for mortgaging of land use rights.

Farmers could not transfer or rent their LURs to another farmer, at least not legally. Many villages surreptitiously permitted this as the village leaders and cadres cast a blind eye, but many other villages did in fact enforce the rule strictly. Thus even if a farmer wished to gain some advantage and efficiency by renting another's LURs this was not legally permitted, and in many instances the village leaders would reallocate LURs every 5 years or so to ensure fairness under an egalitarian principle. In many villages of uneven landscape, farmers found their LURs fragmented, so that in the name of fairness, all would have a piece of land on flat ground and another on hilly ground.<sup>16</sup>

Starting in 2003, however, the underlying state policies began to change. From March 1, 2003, farmers were permitted to rent their LURs to other farmers on the basis of the issuance of the land contracting law. But the genesis of the Chinese LURs reforms lay in the issuance of a 2007 property law, which provided the property base

for LURs through a national registry. Although this registry did not begin in earnest until 2014, policies have been promulgated since 2007 that essentially decoupled LURs from production, creating previously unexploited or unmarketable economic value that could now return rents to farmers.

The most important change came in 2014, when LURs began to include two additional rights that had not previously existed in a legal framework in China. The first of these is the operational right that permits individuals to cultivate land, and the second is the contracting right that forms the legal basis for transacting LURs.

Other policies around LURs are relevant too. For example, steps in 2008 on "financial advancement for economic development" encouraged Chinese financial institutions to expand the scope of rural collateral and explore various credit products there. The provisions in this effort, issued in 2009 by the People's Bank of China (China's central bank) and China Banking Regulatory Commission (CBRC, its bank regulator), aimed to enable farm households to mortgage LURs in some locations. The clear intent behind this was not just to improve the scale of existing operations, but also to link LURs to longer-term credit, thus

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supporting a broader effort at farm commercialization, while advancing entrepreneurial activity.

Subsequently, China's first policy documents issued in 2014 and 2015—the so-called No. 1 central policy—allowed farmers to mortgage LURs in certain locations and under certain conditions. These are known as rural land mortgage loans. On August 10, 2015, the State Council, China's cabinet, approved another policy document concerning the trial implementation of rural management rights over contracted land and farmers' homes as collateral for bank loans. This top-level approval confirmed that Chinese farmers would now be allowed to transfer LURs and use LURs and homes to raise mortgages,<sup>17</sup> in addition to converting LURs into shares in large-scale farming entities.<sup>18</sup>

These various laws formalized the decoupling of contracting and operating rights from land use rights. In that sense, they made 2014 the most transformative year in China's agricultural development since the reforms had begun in 1978, since they established a new framework for developing and commercializing rural land mortgage loans.

For the first time in nearly 50 years, farmers could now expand their operations to commercial size and efficiency, using the land's underlying productive value and other assets as

collateral against loans with which to invest in capital at the intensive and extensive margins.

To put this in simplest terms: A farmer who wished to *exit* farming in order to move to a city or start a new business could now use their contracting rights to legally enter into a binding rental agreement. This would have the effect of transferring the operating right to a third party—typically, another farmer, cooperative, or agricultural enterprise.

The new land mortgages in this reformed system are secured not by the LURs per se but by the operating rights, which are now held by the tenant. So a tenant can rent LURs from multiple farmers, expanding their farm size, and then use the transferred operating rights as collateral to secure a mortgage.

By targeting the extensive margin, multiple policy goals could be achieved, including the absorption of the farm population and rural labor supply into China's urbanization process, while improving rural investment, GDP, and reducing rural-urban inequality. Ultimately, however, whether allowing LURs to be transacted or mortgaged will have these desirable effects remains to be seen. Some research has found a fairly significant spread between the willingness to sell and purchase prices for transactionable land. This suggests that many farmers will need significant economic incentives to transfer their rights.<sup>19</sup> But in areas of China with

new Land Transfer Centers (LTCs) and pilot programs for rural land mortgage loans, the prospects appear to be more promising.

## **Land Banks and Land Transfer Centers**

The new laws have encouraged development of a new-type of institution for farmers--the so-called LTC.<sup>20</sup> LTCs facilitate contractual rental agreements that consolidate rental contracts from farmers. Farmers are issued contracts of at least five years duration and longer. LTC pilot projects in Shaanxi, Henan, Ningxia, Hubei, Jilin, and Heilongjiang provinces have also established intermediaries, or exchanges, which will “rent” the small holdings of many farmers in a village, and then rent out larger parcels to more commercial operations. Rent is collected and paid by the LTC, which eliminates the farmer’s current challenge of needing to seek out reliable tenants. Nor do tenants need to negotiate separately with farmers since the LTC performs this function. Tenants are usually larger farms, cooperatives, or agricultural enterprises that need contiguous land parcels to meet the scale of mechanized technology.

As of late 2016, there were 232 pilot programs across China at the county

level for transacting farmland, but only 59 of these could facilitate mortgages on farm homes. The first of these centers was a pilot project at the district level, now part of greater metropolitan Xi’an city in Shaanxi province.<sup>21</sup> This LTC was established in 2010 to provide services for land use rights transfers, LURs mortgages, and also to facilitate mortgages for rural homes. Approaches to valuing LURs are evolving. Between 2010 and 2014, the



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center relied on regulations and laws passed by the Ministry of Agriculture to certify and register LURs as to the ownership of the rights and land location. But when China launched its national registry in 2014, the center

began to rely on national registration.

In Yangling, a district of Xianyang in Shaanxi province, the LTC pays farmers a rent of 770 yuan per *mu* (~\$700/acre) for land typically planted to double-crop corn and wheat. This rent will increase by 10 percent every 4 years. The land bank charges about 1,000 yuan per *mu* (~\$900/acre), or about 30 percent higher than the LTC to renting enterprises. Of this 30 percent, 10 percent is returned to farmers as a “dividend,” with the remaining 20 percent placed in a risk fund. The minimal lot size rented out is 30-50 *mu* (~5-8 acres) for an expanding family farm, and between 300-500 *mu* (~50-80 acres) for cooperatives and agricultural

enterprises. In late 2015, LURs in Henan could be rented through the LTC for about 975 yuan per *mu* (~\$900/acre) per year, while, in some cases, being rented out at about 1,050 yuan per *mu* (~\$960/acre) per year.<sup>22</sup>

To put these figures in context, one of the authors' field surveys asked (by recall) farmers to indicate gross revenues and costs of production for their agricultural activities. In the Baoji City area of Shaanxi province and in Henan province where most of the land is double-cropped corn and wheat, we found on average economic rents of about 489 yuan per *mu* (~\$465/acre) in both regions.<sup>23</sup>

Using this as a baseline, a rental contract through the LTC would actually *improve* the return to the LURs by providing the farmer 975 yuan per *mu* (~\$900/acre) in risk free rent, thus providing the farmer with an opportunity to seek wage income elsewhere. At the same time, farmers or enterprises renting farmland but paying 1,050 yuan per *mu* (~\$960/acre) could expect substantial efficiency gains from further investment at the intensive and extensive margin to justify the rental expense.

### ***Mortgaging of Land Operating Rights***

Land use rights registration has paved the way for land transfer programs. But the mortgaging of LURs is still limited in China, restricted to just 33 regions involving some 18 counties in 12 provinces approved by the MoA.

The authors' field research, including meeting with a village bank that makes mortgage loans, suggests that many lenders will ultimately respond only tepidly to the new policy of mortgaging LURs. Still, the Agricultural Bank of China (ABC), China Postal Savings Bank, and some commercial banks have defined strategies to develop business around land use rights mortgages. Big state banks such as the Industrial and Commercial Bank of China (ICBC), China Construction Bank (CCB) and China Development Bank (CDB), a big policy lender, are also planning to support rural land use rights mortgages.

But many obstacles remain. To facilitate mortgaging LURs, the government has authorized and organized a formal registry that identifies the rights held by each household and its members. Under the current model, farmers can borrow up to 70 percent of the value of LURs (plus an adjustment for non-moveable ground attachments, such as irrigation and, in some cases, farmhouses). But the reality is that no bank of which the authors are aware will lend more than 50 percent of the assessed value.

The value of land, attachments, and farm homes is based on assessments done by the LTC. That center, in turn, provides a certificate to the borrower. The borrower presents these certificates and documents to the lender, who will usually accept the valuations at face value and then proceed with due diligence on the character and creditworthiness of the borrower.

But a significant problem raised by one village bank was that it is difficult to determine how to place an economic value on the LURs and related mortgageable assets. The basic guideline from the Chinese state has been that such banks should compute the present value of income over 13 years expiring in 2028.<sup>24</sup>

As of October 2016, the center was using a value between 1,200-1,300 (~\$1,150/acre) yuan per mu as the base income for that calculation of present value. This is said to be the average over the past three years of production income. Then, in addition to the present value of income, the center would also make adjustments for immovable improvements on farmland and the farm house.

These computed values are provided to the farmer in an official document, which could then be taken to the bank. In interviews, one village bank that provided rural land mortgage loans to farmers, cooperatives, and farm enterprises stated that it took the certification provided by the LTC at face-value, so that the loan approval process involved only due diligence on the farmer's credit trustworthiness.

As of October 2016, the village bank could issue mortgages for up to 5 years at a yearly rate of 8.3 percent, which is about 4 percent higher than the basic bank rate of 4.35 percent. In reality, however, most mortgages are issued as one-year notes. As a point of comparison, unsecured loans for

farmers participating in a group guarantee micro-loan would pay as much as 14.58 percent per year.<sup>25</sup>

What is missing, however, is any sense of how these LURs are valued in the market and may differ by locality. The formal rules state that the income generated under the operating right should be discounted using its present value. One of the LTC, for example, used a base income of 1,250 yuan per mu (~\$1,150/acre) per year, which was to be capitalized over 13 years, corresponding with the year 2028. No discount rate was provided, but with mortgage rates at 8.3 percent per year, a typical discount rate would be higher than this to account for unforeseen risk. (In

our studies, we use 10 percent).

*Clearly, lack of access to credit is an inhibiting factor that constrains rural entrepreneurship in China today.*

In addition land attachments might be valued as high as 10,000 yuan (~\$1,500), and a house might be valued at 150,000 yuan (~\$22,000). The discounted present value of income is 8,879 yuan per mu (~\$8,000/acre). So if we assume that a farmer has 60 mu of land under cultivation (~10 acres), and then add to this the value of land attachments and the house, this would give a total value of 692,752 yuan (~\$100,000). Of this, 50 percent could then be used as collateral. So the maximum mortgage would be 346,376 yuan (~\$50,000).<sup>26</sup>

In Yangling, Shaanxi province, a typical household will have about 4.79 mu (~0.8 acre) in LURs. There, the farmer can

receive 770 yuan per *mu* (~\$700/acre) in rent per year but cannot mortgage the house. So assuming no improvements, the farmer can mortgage the LURs *only*. Using the same discount rate over 13 years, the present value of the rent payment would be 26,200 yuan (~\$4,000), of which up to 13,100 yuan (~\$2,000) can be mortgaged.

A village bank would generally not mortgage less than 30,000 yuan (~\$4,400). So in this district, for example, the Yangling LTC instead partnered with the local credit cooperative to monetize the rental payments into micro loans, secured by rental income and by the loan reserve fund, without the need for a group guarantee.

The point of these various technical examples is simply to illustrate the range of credit options and alternatives available under the current mortgaging program. The average mortgage taken out for a farm household is between 30,000 (~\$4,400) and 50,000 yuan (~\$7,400), up to a maximum of 1.5 million yuan (~\$240,000). For amounts less than this, a partnership between the land transfer centers and rural credit cooperatives or banks can fill the gap with small micro-loans.

### ***The Value of Land Use Rights and Mortgage Decisions***

How important, then, are these various liquidity problems in constraining the potential for rural entrepreneurship? Our surveys in Gansu, Henan, Shaanxi, and Shandong provinces asked farmers directly

about the various factors that affect rural entrepreneurship. And the results are instructive.

Among those farmers we surveyed who said they would *not* consider starting a new business under current circumstances and constraints, 51.1 percent ranked “access to funds” as one of their top three reasons, with 21.3 percent indicating that lack of funding would, in fact, be their number one reason.

Of farmers who had not started a business but would *consider* doing so, 16.2 percent indicated that the loans available to them were insufficient, thus they had refrained from even trying. And 21.8 percent indicated that they would be unable to obtain a needed mortgage. Indeed, even among those rural Chinese entrepreneurs in our survey who actually *had* started a business, 16.4 percent claimed that they *still* could not obtain adequate funding, with 11.7 percent indicating a lack of mortgage credit as the main problem.

Clearly, lack of access to credit is an inhibiting factor that constrains rural entrepreneurship in China today.

Our surveys also asked respondents to evaluate a hypothetical: If credit constraints were *relaxed* for land use rights transactions, would they respond positively, and how? 20.4 percent replied that they would remain in agriculture, with 11.63 percent indicating that they would start a new business. Other farmers suggested that they might actually leave

agriculture entirely, collect rent, and seek wage employment. Of those farmers who indicated a desire to start a new business, 35.6 percent and 38.3 percent indicated a desire to remain and expand livestock and crop farming respectively as their top three business choices; 18.3 percent and 16.5 percent respectively indicated that doing so would be their first choice.

This desire to entrepreneurially engage in new farm activities, such as starting a new livestock or crop farming business, may be aspirational. After all, of those survey respondents that had actually *started* a new business in the current environment, only 4.9 percent and 11.9 percent had actually invested in expanded breeding and crop production respectively. And related fields, too, also show constraints on entrepreneurship. For instance, just 8.2 percent indicated they would start an agriculturally related business, including marketing or food processing. If given the chance, the majority of farmers in our survey—fully 57 percent—indicated that they might prefer to leave the agricultural sector entirely as a first choice.

Here are some results from distinct places in three provinces:

1. *Yangling, Shaanxi*: By November 2015, the Yangling Land Transfer Service Center had transformed nearly 53,200 *mu* (~8,900 acres). By 2016 the center had transformed 57,600 *mu* (~9,600 acres), an addition of 4,300 *mu* (~720 acres) over 2015. All told, over 12,300 farm households had transferred their rights. In

2015 a large amount of land was rented to an agricultural enterprise planting kiwi fruit.<sup>27</sup> In 2016, most land was rented to family farmers involved in growing crops under contract to a value chain. Other land was rented for development of a farm/restaurant combination, via a form of agro-tourism.

2. *Linying, Henan*: In 2015, the Land Transfer Center in Linying County, Henan had facilitated the transfer of nearly 180,000 *mu* (~30,000 acres), planted primarily to double-crop corn and wheat. Assuming the same proportions as in Yangling, this suggests that nearly 41,618 farm households used the Land Transfer Center to exit farming. On the other side of the equation, meanwhile, the land rented from farm households was then rented out in 100 *mu* (~16 acres) lots for same-purpose agriculture but to farmers who sought higher, near commercial, efficiency gains.

3. *Pingluo, Ningxia*: In this county, more than 648 million yuan (~\$95 million) has been borrowed under the land mortgage program, and, in the first quarter of 2016, the amount loaned was 59.962 million yuan (~\$9 million). Only 62 loans exceeded 200,000 yuan (~\$30,000) but these loans amounted to 28.5 million yuan (~\$4 million). Nearly 40 percent of the land in Pingluo had been rented, totaling some 390,000 *mu* (~65,000 acres). With about 20 *mu* (~3 acres) allocated per household, this translates into the holdings garnered from about 19,500 farm households.

## Policy Change Needed: How Farmland Mortgaging Could Stimulate China's Rural Economy

As seen in earlier sections, China has made significant strides since 2003 in reforming its laws and rules governing land use rights. Among these, the most significant change was the decision to permit farmers to rent their land use rights to other farmers or to agriculturally-related enterprises. In some regions of China, farmers now have the ability to collateralize and mortgage their land use rights.

The central prescriptive message of this memo, based on field surveys, is that these new rules have the *potential* to change rural economic development for the better but *only* if entrepreneurship grows too.

Relaxing rules and easing a potentially large outmigration of farmers from agriculture to other pursuits is fine, as it goes. But it cannot lead to job-expanding and wealth-creating economic development unless it also takes place alongside a growth of innovation and entrepreneurship.

We can reach some preliminary conclusions about the relationship

between reforms to land use rights, mortgaging of land use rights and related assets, and entrepreneurial activity.

For one, our surveys have explored whether those in China who believe that land use rights will stimulate entrepreneurship are also the people who, in the same surveys, say they are more likely to actually start a

business. This yields preliminary observations about whether policy change has begun to produce a changed landscape for entrepreneurship in China.

Although we investigated just

four pilot sites, the number of farmers who have given up their land use rights and thus, in essence, have left small-holder agriculture runs into the tens of thousands. Across Yangling, Linying, and Pingluo, some 73,418 farm households had transferred their rights through Land Transfer Centers. Freed from the land, many of these people will enter the wage market or start new businesses.

And this is rational behavior. After all, in Yangling, the rent contract is currently 770 yuan per *mu* (~\$700/acre), with



Photo: Flickr/Atibordee Kongrepan

a 10 percent increase every 4 years. Simplifying to 2 percent annual growth and a 10 percent discount rate, the present value of this payment is 9,818 yuan per *mu* or about 58,905 yuan per acre. This is about \$8,688 per acre—well above what an American farmer might receive for grain land.<sup>28</sup> So there are strong financial incentives to transfer land rights and move into the wage market.

In fact, the operating rights being transferred from farm households are a leading force for the commercialization of Chinese agriculture. Farmers, farm enterprises, and cooperatives rent the operating rights to expand production at the extensive margin, and further invest at the intensive margin.

To justify the higher rents, gains in size and scale must be sufficiently high to justify the high rental rates. In Henan, for example, land is rented out in 100 *mu* lots (~16.7 acres). In Yangling, the transformation of double-crop corn and wheat has been transformed through a new company that, as noted above, began to grow kiwi fruit. And to accommodate this new kiwi crop, storage facilities were constructed and new supply chains to urban markets developed. We also have anecdotal evidence of agro-tourism emerging—in other words, where land has been rented and then used to grow crops and raise livestock, providing Chinese consumers with a farm/restaurant experience.

Our conclusion is that the new policies are both liberating and transformative.

They are “liberating” in the sense that they provide an economically humane mechanism for thousands of farmers to leave agriculture and seek alternative employment.

In Yangling, many farmers, having contracted their LURs to the LTC, then left to work as day laborers for the kiwi company that had rented out this land. For those who needed capital to start a new non-farm business, the rental stream could also be used to secure a loan.

Meanwhile, the new policies are “transformative” because new land and mortgage policies may help to commercialize China’s agricultural economy.

Contracting and operating rights are enabling individual farmers, farm enterprises, and cooperatives to expand in an orderly way. This has unbound the land constraint to promote improved and efficient gains in scale and size economies. Using the operating rights to mortgage land relaxes the *very* capital constraints that farmers and other agriculturally-related businesses have complained about for years.

The mortgages can be used to pay the rent on land. And they can also be used for investment in new technologies, including mechanized technologies, which then have positive economic



spinoffs on agricultural-related industry. Borrowed money is also being used in rural China today to purchase improved inputs and labor, thus enabling Chinese agriculture to grow a more diverse set of crops, with greater yields, and with greater efficiency. These will have positive spinoff and multiplier effects throughout rural China.

Will these changes for households translate into economic growth for China? It is too soon to say for certain. But the Schumpeterian view of innovation and entrepreneurship rests on a few principles that *should* lead to economic growth.

These include the introduction of a new public good, a new method of production, the opening of a new market to trade, and the harnessing of a new source of supply of raw materials. Our preliminary assessment of the new land use rights mortgaging policy suggests that China's new approach to LURs could have such effects.

Here is the critical takeaway from our surveys: A minority of farmers (8.2 percent) are highly likely to mortgage available land operating rights in an entrepreneurial way, but still within agriculture. The remaining farmers, perhaps in excess of 50 percent would simply transfer their operating rights and exit agriculture altogether.

For entrepreneurial farmers who remain in agriculture, China's new land use policies might well unleash new economic activities if liquidity constraints can be overcome.

But this is not the end of the story. We believe further reforms in the following four areas could significantly enhance the current reform efforts:

## 1. Catastrophic Insurance

Despite the progress, there remains considerable uncertainty about the stability of rents offered and paid through the LTCs. The LTCs have reserve funds to cover losses, but large systemic losses may not be so easily covered. Likewise in areas with land and asset mortgages, there is a serious risk of widespread weather events leading to drought conditions.

Shaanxi and Henan are historically not immune to natural calamities. The land mortgages are protected by a reserve or risk fund, and this is sufficient to cover loan defaults at the individual level, but widespread risks that could affect hundreds or thousands of farms at the same time could deplete these reserves quickly.

To guard against these possibilities, credit should be protected by some form of government or private guarantee, or by catastrophic insurance.

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*For entrepreneurial farmers who remain in agriculture, China's new land use policies might well unleash new economic activities if liquidity constraints can be overcome.*

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China has one of the fastest growing crop insurance programs in the world. But at the moment, these policies are designed to recover costs of production, rather than lost income. This is a good start but it is imperative that, as the agricultural economy transitions toward commercial agriculture, China's insurance industry adapts. There are limiting factors, of course: for example, small farm sizes, which make underwriting and adjustment very costly, and lack of crop yield and weather data. And to be sure, risk measurement is difficult even in the United States and Canada, which have well developed, publicly run crop insurance programs. But advances in index insurance or weather insurance in China may relieve the data pressures in the short run.

## **2. Public Investments in Agricultural Technologies and Machinery**

Existing policies toward agriculture will also have to adapt, not only in terms of productivity but also the introduction of cost-reducing technologies including significant investment in machinery and equipment. Transitioning from labor-intensive agriculture to mechanized agriculture requires substantial new investments in machinery and technology. Substituting for labor, as it departs the farms, with mechanization will require large upfront investments that can be challenging even for the most entrepreneurial of farm businesses. For example one or two

furrow plows might do for a 100 *mu* (~16 acres) farm, but a farm of larger size might require 4 or 6 or even more furrows—with each requiring more energy and horsepower to do the work.

One solution is to ensure that a suite of affordable machineries and technologies are available to meet the likely changes in farm size. If these technologies are not readily available, then binding labor and technology constraints could reduce economic efficiencies. So China's MoA should further invest in the modernization of agricultural technologies and production efficiencies.

## **3. Innovative Agricultural Finance Products**

As Chinese farms expand, so will the demand for capital. This, in turn, will increase business and financial risk. Agricultural insurance linked to agricultural credit is a smart policy that can reduce risks to both lender and borrower, increasing both the supply and demand of agricultural credit.

This can be done by offering new products directly to farmers at the micro level, or, in the case of LTCs, on an area or index basis at the meso-level.

To facilitate this, the CBRC and the CIRC should establish a joint task force to determine ways and means to best deliver these two financial services to Chinese farmers. This should be supported by immediate efforts

by national, provincial, and county agricultural agencies to start collecting scientifically valid crop yield records for public and private use.

#### **4. Continued Monitoring**

Finally, China will need to monitor and document how formal lenders approach the mortgaging of land use rights. Many Chinese financial institutions are developing approaches to meet demand, but the volume of loans, number and nature of the borrowers, and use of the loans are still not well understood.

In addition, the expectation in Shaanxi and Henan provinces is that rents will increase by 10 percent every 4 years. But this may not be realistic or

sustainable. The rent Chinese farmers currently receive is already well above what an American farmer might receive for grain land.

As specialized commodity prices become more market-determined, it is possible that market risks and competitive pressures will drive prices and profits *below* the contracted rental rate.

Therefore, local governments need to closely monitor the price of agricultural products and issue guidance regarding the appropriate pace of rent growth.

## Endnotes

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<sup>1</sup> Restrictions and ill-defined property rights not only resulted in prolonged, poverty-inducing, inefficiencies in agricultural productivity, but also established liquidity constraints that discouraged investment and entrepreneurship in rural areas. See, Deininger, K., Jin, S., “Securing Property Rights in Transition: Lessons From Implementation of China's Rural Land Contracting Law,” *Journal of Economics Behavior and Organization*, 70(2009), (1-2), 22-38; Weber, J. G., Key, N., “Leveraging Wealth from Farmland Appreciation: Borrowing, Land Ownership, and Farm Expansion,” *Land Economics* 91(2), 344–361; Ding, C., “Land Policy Reform in China: Assessment and Prospects,” *Land Use Policy*, 20(2), 109–120; Eggertsson, T., “The Role of Transaction Costs and Property Rights in Economic Analysis,” *European Economic Review* 34(2–3), 450–457; Feder, G., *Land Policies and Farm Productivity in Thailand*, World Bank Research Publication (USA); Feder, G., & Nishio, A. (n.d.). A., “The Benefits of Land Registration and Titling: Economic and Social Perspectives,” *Land Use Policy* 15(1), 25–43; Yang, C., Wu, C., *Ten-Year Reform of Land Use System in China*, Zhongguo Da Di Publishing House, Beijing, China; Zhang, X. Q., “Urban Land Reform in China,” *Land Use Policy* 14(3), 187–199; Ma et al. (2015) have argued that land property-right institutions and land registration is the basis for improved tenure security, economic behavioral changes, land productivity improvement, access to formal credit, developing markets and encouraging long-term investment, Ma, X., Heerink, N., Feng, S., Shi, X., “Farmland Tenure in China: Comparing Legal, Actual and Perceived Security,” *Land Use Policy* 42(7), 293-306. In the Chinese context Khantachavana, et al.(2013) point out that a market for mortgaging LURs, if developed, would provide farmers with access to credit markets, stimulate investment and improve operational performance and productivity, while enabling farmers to reallocate resources and responded to the changing Chinese economy, Khantachavana, S. V., Turvey, C. G., Kong, R., Xia, X., “On The Transaction Values of Land Use Rights in Rural China,” *Journal of Comparative Economics*, 41(3), 863–878.

<sup>2</sup> On innovation Schumpeter writes “it is by means of new combinations of existing factors of production embodied in new plants, and typically, new firms producing either new commodities, or by new, i.e. as yet untried, method, or for a new market, or by buying means of production in a new market... (Innovation) means producing at smaller cost per unit, breaking off the old ‘supply schedule’ and starting on a new one. It is quite immaterial whether this is done by making use of a new invention or not” ( pages 377-378, Schumpeter, J. A., “The Instability of Capitalism,” *The Economic Journal*, 38(151)); see also Page 151 of Schumpeter, J. A., “The Creative Response in Economic History,” *The Journal of Economic History*, 7(02), 149–159. The defining characteristic of entrepreneurship “is simply doing of new things or the doing of things that are already being done in a new way (innovation).” ). By inference, the new supply functions amount to shifts, not along the production function, but to the production function at both the extensive and intensive margins.

<sup>3</sup> “This process of innovation in industry by the agency of entrepreneurs supplies the key to all the phenomena of capital and credit. The role of credit would be technical and a subordinate one in the

sense that everything fundamental about the economic process could be explained in terms of goods, if industry grew by small steps along coherent curves. For in that case financing could and would be done substantially by means of the current gross revenue, and only small discrepancies would need to be smoothed” , Schumpeter, J. A., “The Instability of Capitalism,” *The Economic Journal*, 38(151), 361–386.

<sup>4</sup> According to the statistical report from National Bureau of Statistics of PRC, the number of migrated famers is 277 million in 2015. Among them, 168.84 million of famers work in the local cities, and 108.63 million of farmers work in the other cities.

<sup>5</sup> Huang, C., Lu, H. and Liu, J., “Microfinance and Rural Poverty Alleviation: China’s Rural Micro-Financing Poverty Alleviation Mode Training and Seminars Review,” *China Rural Economy*, 9 (9), 19-26.

<sup>6</sup> Han J., “Research on the Establishment of Rural Financial System,” *Journal of China’s Rural Credit Cooperatives*, (12), 21-23.

<sup>7</sup> Turvey, C. G., He, G., Jiujie, M. A., Kong, R., Meagher, P., “Farm Credit and Credit Demand Elasticities in Shaanxi and Gansu,” *China Economic Review*, 23(4), 1020–1035.

<sup>8</sup> Turvey, C. G., and Kong, R., “Informal Lending Amongst Friends and Relatives: Can Microcredit Compete in Rural China?” *China Economic Review*, 21(4), 544–556.

<sup>9</sup> Hao Z., Ping X., Zhang H., Liang S., “Famers’ Entrepreneurial Choice and Its Influencing Factors---An Empirical Evidence from ‘Rural Finance Survey’,” *Journal of China Agricultural Economics*, (4), 57-65.

<sup>10</sup> Mao F., Wang X., Kong X., “Financing Supply Service of Farmers’ Cooperative and Its Influencing Factors,” *Journal of China Soft Science*, (7), 26-39.

<sup>11</sup> Danes, S. M., Stafford, K., Haynes, G., Amarapurkar, S. S., “Family Capital of Family Firms: Bridging Human, Social, and Financial Capital,” *Family Business Review*, 2009.

<sup>12</sup> Wu Y., Yu Q., “Information Structure, Financing Channels and Financial Reform,” *Journal of World Economic Papers* 1, (4), 111-120.

<sup>13</sup> “Jilin Starts LURs Pilot,” *Xinhua News*, March 25, 2015, [http://www.jl.xinhuanet.com/2012jlpd/2015-03/25/c\\_1114750141.htm](http://www.jl.xinhuanet.com/2012jlpd/2015-03/25/c_1114750141.htm).

<sup>14</sup> Guo P, Jia X., “The Structure and Reform of Rural Finance in China,” *China Agricultural Economic Review*, Jan 30;1(2):212-26.

<sup>15</sup> Typically Rural Credit Cooperatives and Rural Credit Banks, as well as Village Banks, and Postal Savings Banks among others required a form of group guarantee in which a farmer-borrower is required to enlist

support from friends and relatives who would jointly guarantee the loan against default. The guarantee was a substitute for non-existent collateral since neither land nor house could be mortgaged. The Group Guarantee was costly in the sense that the lender had to perform due diligence on all group members and was disliked by many farmers who stated in at least in one study that the guarantee model actually discouraged them from borrowing, see Cao Y, Turvey C, Ma J, Kong R, He G, Yan J. , "Incentive Mechanisms, Loan Decisions and Policy Rationing: A Framed Field Experiment on Rural Credit," *Agricultural Finance Review*. 76(3):326-47. In addition, the responsibility system often extended liability to lenders themselves who could at times lose income to repay loans that went into default. These penalties caused some lenders to proceed conservatively with granting loans and to reject loans that might otherwise have been deemed respectable.

<sup>16</sup> Khantachavana, S. V., Turvey, C. G., Kong, R., Xia, X., "On the Transaction Values of Land Use Rights in Rural China," *Journal of Comparative Economics*, 41(3), 863–878.

<sup>17</sup> In some regions uptake was swift. Between 2008 and 2015 the LURs registration program exceeded 33,000,000 Mu (4,925,373 acres), expanded to more than 1,988 counties including 130,000 towns (accounting for 40% of all the towns in China), 195,000 villages (about/approximate 1/3rd of all villages in China) had completed the issuing of land-use certificates (see "LURs Pilots in 1988 Counties," Guangxi News, Feb. 27, 2015, accessed at <http://news.xinmin.cn/domestic/2015/02/27/26913706.html>) with the registration program to be completed by 2018.

<sup>18</sup> "Rural Land Transfer Shall Not Be Forced: Minister", *Xinhua News*, [http://english.agri.gov.cn/news/dqnf/201403/t20140307\\_21350.html](http://english.agri.gov.cn/news/dqnf/201403/t20140307_21350.html).

<sup>19</sup> Khantachavana, S. V., Turvey, C. G., Kong, R., Xia, X., "On the Transaction Values of Land Use Rights in Rural China," *Journal of Comparative Economics*, 41(3), 863–878.

<sup>20</sup> The official name is Rural Land Transfer Center or *NongCunTu Di Jiao Yi Zhong Xin*. The department within the center that actually facilitates the trade is often referred to as *Chan Quan Jiao Yi Qu*. In both Henan and Shaanxi managers also used the term 'Land Bank' (*Tu Di Yin Hang*) although this is not an official term. It was explained that use of term land banks, (which are not banks at all in the traditional or American and European context), take their name from farmers 'lending' their LURs to the banks, with the counterparty 'borrowing' the land.

<sup>21</sup> The managers of this particular Land Transfer Center have asked that we not use their legal name in case we use information in this report that may seem confidential after the fact.

<sup>22</sup> Our interest is primarily confined to rural areas. For urban effects, see Chau and Zhang (2011) who report that in Shaanxi net revenues for government leases yield on average about 4,962 yuan/mu per year from government land leases. This is equivalent to about \$4,725/acre and if discounted as a perpetuity using a lending rate of 6.5% puts a value of the LURs on the urban fringe at about \$72,704/acre. Chau, N. H.,

Zhang, W., “Harnessing the Forces of Urban Expansion: The Public Economics of Farmland Development Allowances,” *Land Economics*, 87(3), 488–507.

<sup>23</sup> In considering these number we need to keep in mind that both wheat and corn (and not soybeans which is likely why so little soybeans is grown in this region) has a reservation price of 150 yuan/50kg. For wheat the equivalent in USA dollars (in 2015 @6.3 yuan/\$) is about \$12.90/bu. and for corn \$12.04/bu. These are among the highest reservation prices in the world and offers substantial subsidies which is why \$447/acre (double cropped wheat and corn) is not unreasonable. (Corn as at 11/20 was \$3.63/bu. and wheat was at \$4.87/bu).

<sup>24</sup> The year 2028 is significant to this discussion. Some history will explain. The current structure of land use rights in China emerged as a first step in the decollectivization of Chinese agriculture in the early years of economic reform. Between 1979 and 1983, China implemented the “household responsibility system” (baogandaohu), which separated land contractual management rights from land ownership. By giving individual farmers decision-making rights while also introducing market incentives, the intent of these early reforms was to replace administrative fiat with greater scope for independent decision-making by farmers and negotiations between farmers and the state.

A second stage of reform followed in 1984. In a major policy shift, Beijing fixed at 15 years the term for land contracting management between farmers and agricultural collectives. In 1984, China also enlarged the scope for private activities, including in procurement, marketing, and the transport of agricultural products. And Beijing encouraged (mostly joint) investment in capital goods, such as trucks and tractors.

After 1993, Beijing undertook more changes. The so-called “Document No. 11,” a new Land Law adopted in 1998, and a Land Contracting Law adopted in 2003 extended these reforms with re-evaluation pushed out as far as the year 2028. In 2008 the government stipulated that the current contracting relationship would remain stable and unchanged for a long period, although it did not clarify the specifics. China’s 2007 property law did stipulate that land contractual management rights would remain as traditional usufruct rights.

Still, the 2007 law did make one significant break from customary practice by formalizing the separation of land contracting rights and land user rights, on the one hand, from ownership, on the other. The aim was to meet farmers’ enormous need for land transfers. Prior to 2007, the land use rights granted to farmers were not separable from land ownership (by the state) and transactions of land use rights were prohibited by law. Although informal transactions and transfers were not uncommon in China, these were undertaken either secretly or with approval from village leaders and councils on an ad hoc basis.

On a side note, a farmer in Yangling who had rented out his land in a long-term contract expressed to us in 2015 no concern with the 2028 revision date. Most farmers and managers believe that the current rules will be extended for somewhere between 30 and 70 years.

<sup>25</sup> Until recently the Peoples Bank of China fixed interest rates over a range for farm households. Typically loans under the group guarantee would have been about 6.5% to 6.8%. When restrictions were lifted the rates rose to a current maximum of 14.85%. The manager at the Village Bank said that all other things being equal a farmer substituting a group guarantee micro-loan (or any other unsecured financial product) for a LTC certificate would receive the lower mortgage rate. This information, in line with other research, suggests that many farmers might not want to risk collateral loss. This form of risk rationing may prevent many farmers from taking out collateralized Rural Land Mortgage Loans, see Verteramo-Chiu L. J. V., Khantachavana V. S., Turvey G. C., "Risk Rationing and the Demand for Agricultural Credit: A Comparative Investigation of Mexico and China," *Agricultural Finance Review* 74(2), 248–270.

<sup>26</sup> The valuation is determined by  $V = PV + Attachments + House$  where the present value per mu is

determined using the annuity formula  $PV = A \left[ \frac{1 - (1+i)^{-T}}{i} \right]$  over 13 years, or

$$PV = 1,250 \left[ \frac{1 - (1 + 0.10)^{-13}}{0.10} \right] = 8,879. \text{ Assuming 60 mu the value of the assets is}$$

$V = 8,879 * 60 + 10,000 + 150,000 = 692,752$ , and with 50% allowed to collateralize the loan, the maximum mortgage is  $Loan = 0.50 * 692,752 = 346,376$ .

<sup>27</sup> The 30% top-up was instituted in 2014 and since then only 5000 mu has been rented out. Prior to 2014 the land bank rented out at the same rate it paid farmers. We do not know at this time whether the (seemingly) lower turnover since 2014 is due to the price increase, but if so this would indicate that the LUR rental market is quite elastic.

<sup>28</sup> The present value in perpetuity with 2% growth is  $PV = \frac{A(1+g)}{i-g} = \frac{770(1.02)}{.10-.02} = 9,818 \text{ CNY} / \text{mu}$ .

There are about 6 mu for 1 acre and the exchange rate (11/06/2016) is 6.78 RMB/\$USA. So

$$\$/ \text{acre} = \frac{9,818 * 6}{6.78} = \$8,688 / \text{acre}.$$



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# Paulson Policy Memorandum

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5711 South Woodlawn Avenue  
Chicago, IL 60637  
[paulsoninstitute.org](http://paulsoninstitute.org)