The Genesis Of The Capitalist Farmer

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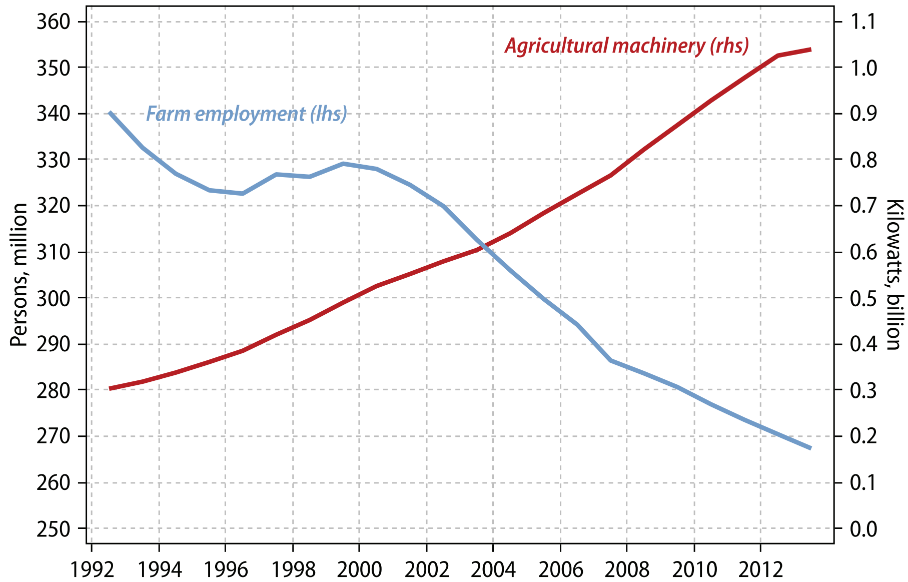
The world's biggest farm is running out of farmers. China produces one-third of global agricultural output, more than any other single country, and is the largest producer of most crops you can think of. But fewer of China's people are willing to work as farmers these days, as they migrate from rural to urban areas to seek higher incomes. We estimate that China's farm workforce has declined by about 45mn people over the past decade. So to continue its impressive record of boosting agricultural production, China needs to change how it raises crops—shifting from techniques that rely on lots of labor to ones that use more capital and technology. Since 2008, for instance, the government has encouraged the formation of larger farms, where agricultural machinery can be more easily deployed. If this structural transformation is going to happen, China will need a sustained boom in agricultural capital spending. Such investment should help strengthen gains in domestic food output, and also buoy producers of capital goods like agricultural machinery.

The rural population is shrinking and aging, boosting demand for labor-saving technology and equipment

As China's farms lose people, they will need more machines



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Agriculture's share of total investment has risen to 2.7% from 1% over a decade

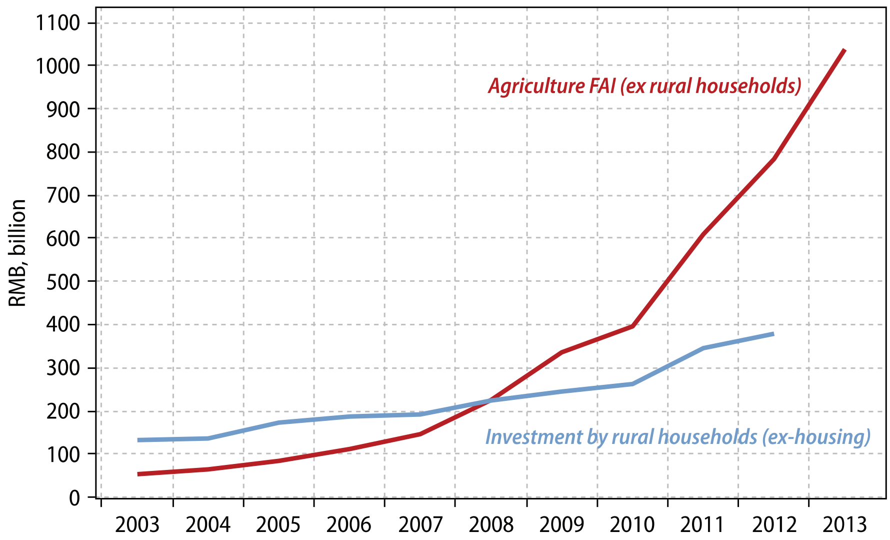
The beginnings of a surge in agriculture investment are clear: the share of agriculture in nationwide fixed-asset investment has more than doubled over the past decade, to 2.7% in 2013 from 1.1% in 2004. But this is still a relatively small figure, and part of the reason is that the increase in agricultural investment is narrowly based. As the chart below shows, the surge in agriculture investment is coming almost entirely from corporations and the government rather than farmers themselves. The

200mn or so rural households who manage 70% of China's farmland still have little ability or incentive to invest in agriculture. The reorganization of these small farms into larger operations that can better use agricultural technology is happening, but so far mainly in the big northern provinces. China's agricultural investment will continue to rise as the pressure to modernize builds, but big future gains will require more radical changes to the nation's small family farms.

Capital spending in agriculture has surged in recent years, but little of that is coming from farm households

Household farms are lagging in China's agricultural investment boom

Fixed-asset investment, by type (adjusted for statistical breaks)



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Government policy has increasingly favored rural investment and the formation of larger farms

Government policy changes have played a key role in catalyzing the surge in agricultural investment. An early push came in 2005, when then-President Hu Jintao launched a program dubbed "building the new socialist countryside." This was primarily about government spending to improve infrastructure in rural areas. By 2012, more than 4,000 new reservoirs had been built, which helped increase the share of irrigated cropland to 38.6% from 35.4% in 2005. But a broader rethink of rural policy was also underway. In 2008, the Communist Party marked the 30th anniversary of the reform era with a landmark decision on rural policy, endorsing the creation of markets for rural land. Farmland in China is owned by village collectives (the local arms of the Party) but farmers have long-term leases. The 2008 decision did not privatize this land but encouraged the sublet and transfer of these rights among farmers.

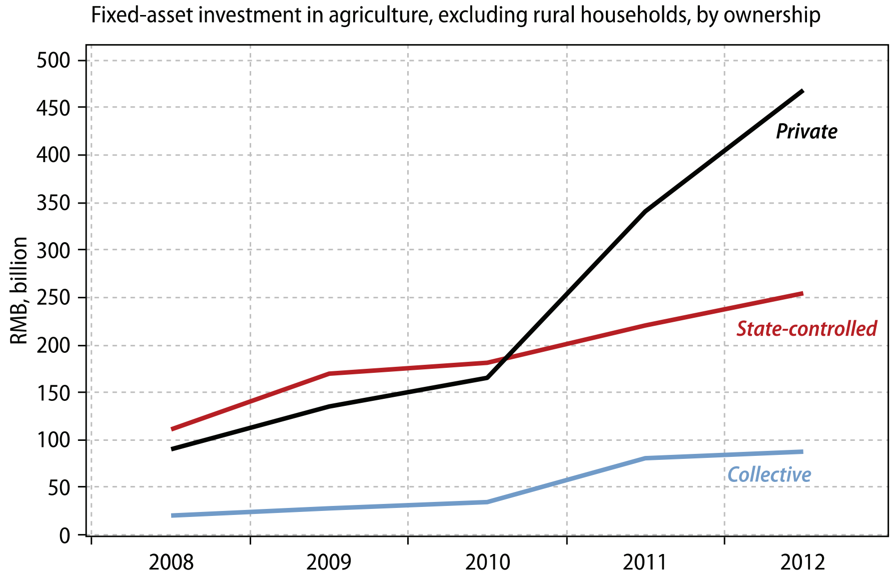
The goal was to find a way to manage the shrinking and aging of the rural population: younger villagers decamping for urban jobs could rent out their land to more-committed managers, as could their elderly parents staying behind. Those dedicated farmers could in turn amass larger land holdings that would be more suitable for mechanization and other labor-saving techniques. Other policy documents also directed tax breaks and other benefits to "dragon's head" companies that contract with large numbers of farmers; encouraged the formation of farm cooperatives; ended the taboo on urban companies investing in agriculture; and set targets for increasing the use of agricultural machinery. And indeed, since 2008, fixed-asset investment in agriculture by corporations and the government has been larger than investment by rural households (see first chart).

Industry consolidation and shifting consumer demand have also created investment opportunities

But the more recent acceleration of agricultural investment has also been driven by market forces, and an increasingly widespread interest in the sector's opportunities. Since 2011, fixed-asset investment in agriculture by private-sector firms has been larger than that by state firms (see chart below). Much of this seems to reflect a search for economies of scale in a fragmented industry. Pig farms, once mainly small backyard operations, have been consolidating particularly rapidly, a process that can produce big gains for investors: official data show large pig farms have profit margins 5-10 pp higher than family operations.

Capital spending in agriculture was once dominated by big state farms, but many new private firms are entering

The private sector led the latest surge in China's agricultural investment



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Technology and real-estate firms are even diversifying into agriculture

The huge public concern over food quality and safety, on the rise after a series of scandals beginning in 2008, has also catalyzed a search for new ways of producing and distributing food (see **The Search For Safe Food**). Food companies are increasingly pursuing vertical integration—buying their suppliers in order to exercise more direct control. And the drive to meet consumer expectations of consistent quality is also pushing the sector toward more capital-intensive and standardized production processes. It is now even fashionable for technology and private-equity companies to invest in "modern agribusiness"—even real-estate developer Evergrande is now jumping on the bandwagon by investing RMB7bn in agriculture.

Largely left behind in this new enthusiasm for a very old industry are the small family farms. While their investments have grown modestly in recent years, the increase is nothing like the surge from corporations. In a sense this is not a new pattern: even after the 1978 reforms that returned

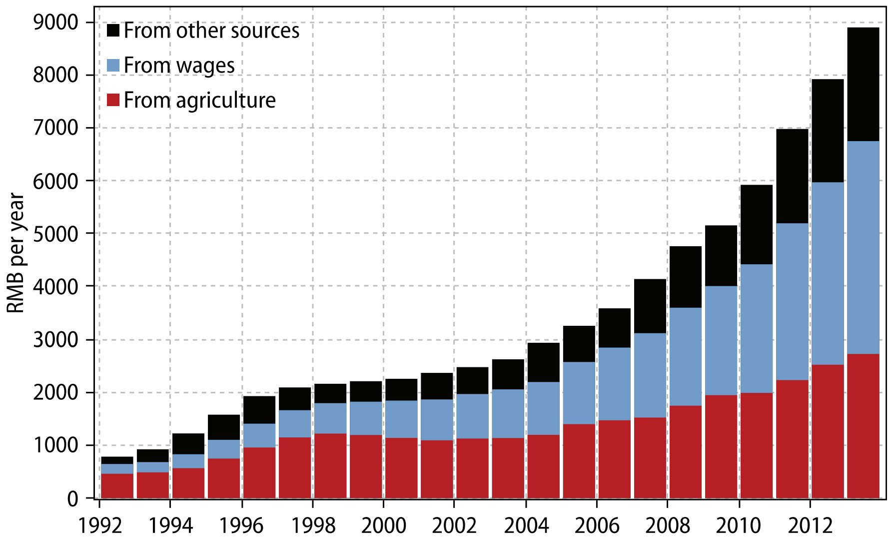
Chinese farmers have traditionally viewed capital investment as a government responsibility

farmland to the control of individual households, farmers often viewed capital investments as the responsibility of the government. Farm households have been much more willing to invest in working capital that boosted productivity, like fertilizers and pesticides. It is even more of a challenge now to break this pattern, since many rural families are no longer mainly farmers. Over the past decade, rural per-capita net income from agriculture has doubled to RMB2,722 a year from RMB1,196; but over the same period, per-capita income from wages has roughly quadrupled to RMB4,025 from RMB1,196. The main source of income for rural families is now off-farm work. And the returns to investing in higher wages—for instance, from education, training or relocating to an urban area—are much higher than the likely return on more investment in farming.

Rural households' income from agriculture has been stagnant, giving them little incentive to invest

China's rural households are no longer mainly farmers

Rural household net income per capita, by source



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Most Chinese farms are too small for mechanized agriculture

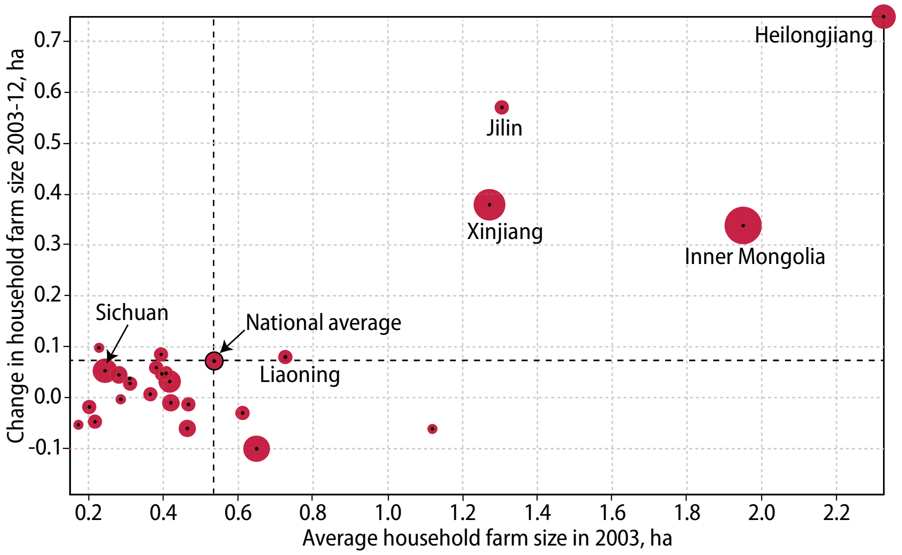
Another important reason for weak capital investment is that most rural households manage plots that are too small to achieve economies of scale, or to easily make use of agricultural machinery. The average "small family farm" in the US was about 120 hectares in size in 2007; while the size of the land managed by the average rural household in China has risen 13% in the past decade, it was just 0.6 hectares in 2012. The government has been trying to address this issue by encouraging the transfer of land-use rights and the formation of farm cooperatives, techniques that allow farmers to pool their land and form larger operations. An increasingly large proportion of farmers are indeed leasing or trading their land-use rights: a total of 23mn hectares of arable land had been transferred in some way by 2013. This is equivalent to 26% of the total land under the household responsibility system, a big increase from the 8.9% in 2008. Similarly, there are now more than 1mn farmer professional cooperatives in existence, and according to the Ministry of Agriculture almost half of rural households are members of such cooperatives.

But when we looked into the pattern of this consolidation of small family farms, we found that most of the change is occurring in just one part of the country. Almost all of the nationwide increase in average farm size comes from northern provinces like Heilongjiang and Inner Mongolia, where farm sizes were already quite large. In more southerly agricultural provinces like Sichuan, where small farms dominate, there has been almost no increase in average farm size in a decade (see chart below).

Farms are starting to get bigger, but mostly in the northern breadbaskets where farms are larger than average

China's farm consolidation is happening where farms were already large

Increase in household farm size, by province (bubble scaled by share of national farmland)



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In other words, it seems the policy of promoting consolidation of land has mainly allowed farms that were already relatively large and mechanized to become larger and more mechanized. It has not yet led to a fundamental shift in smaller farms in the rest of the country. This uneven pattern may be a consequence of the government's decision to "focus on the main producing areas" in the initial steps of agricultural reform. But there is a clear connection between farm consolidation and investment: the five provinces in the upper-right corner of our chart accounted for 24% of all agricultural investment in 2012. And those provinces with larger farms also tend to show larger capital spending from farm households.

If farm consolidation spreads to more of the country, then agricultural investment will benefit

So a bigger boost in investment in agricultural machinery and technology will depend on the rest of China's farmers moving more rapidly to consolidate their land into larger operations. While concerns about dispossessing the rural peasantry have kept officials relatively cautious, in principle the government seems to embrace this idea. The initial reforms to allow rural land transfers were introduced under Hu Jintao, but new President Xi Jinping's reform agenda has embraced large-scale farms and called for going even further with land transfers. The restructuring of Chinese agriculture may only be beginning.