

Peasants and Pork: The Changing Contribution of Pig Farming to Rural Livelihoods

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Abstract

Drawing on data from the National Agricultural Censuses (1996-2016) and the National Rural Fixed Observation Point Survey (1986-2018), this article provides a holistic review of China's pig breeding development during the last three decades. Pig farming had developed from extremely small-scale rearing in the mid-1980s to large scale husbandry in the mid-1990s, yet a majority of pigs were still reared by individual agricultural households. From the mid-1990s, individual pig breeders began to withdraw because of the growing opportunity cost of labor and the falling need for organic manure in agricultural activities. Small-scale pig farming has been replaced by highly commercialized and specialized companies who have further collaborated with expert large-scale pig farming households to form a whole pig breeding and sales chain. But even now, pig rearing is still important to the livelihoods of poor rural households. Policies and subsidies should be in place to protect the interests of individual breeders.

Keywords

Review of Pig Breeding in China, Small-Scale Pig Farming

1. Introduction

Pigs were a crucial link in the integrated horticulture and livestock livelihood model of traditional smallholder agriculture in China. For traditional Chinese, work and daily life were inextricably bound up with pigs. In fact, the Chinese character for a home is a pig under a roof (豕) in the ancient oracle bone script) which shows that from ancient times people raised pigs in their homes. The song

children learn in order to recognize the character for “home” is even more evocative.

*The roof radical becomes a little house,
And under it you raise a fat little pig,
Food and drink and a quilt for the night,
You can live there warm and cozy.*

In old China, almost every family raised pigs. The population was large, and land was scarce, at an average of only 1.3 mu per person. Before there were chemical fertilizers and high-yield seeds, the only way to make land more productive was to use pig manure to raise the fertility. Pigs were also an important source of protein and edible fat, and even their bristles were used to the full for making brushes; in the 1930s bristle from China accounted for about 75% of the global market. For poor families who lacked non-agricultural employment opportunities, pigs were a way of storing cash - a veritable piggy bank. All the members of the family would work hard to fatten them with wild grasses and slops from the kitchen, slowly turning waste into treasure.

China is the biggest pork producer in the world, with annual production of 53.40 million tons and sales of 6.89 million head. According to the Chinese National Bureau of Statistics, 671.28 million pigs were consumed in 2021, an increase of 27.4% compared to last year, and a stock of 449.22 million head by the end of the year. Eating pork is no longer a luxury. In fact, China’s average per capita pork consumption has already exceeded the recommended amount in nutritional guidelines (Liu et al., 2021; Li & Shi, 2021). And while the rapid development of the pig-rearing sector has improved people’s lives, it has also led to serious environmental pollution and health problems, including food safety (additives in feed) pollution from breeding operations (waste products and dead pigs) veterinary drug residues, and zoonotic diseases (Tian et al., 2021; Scialabba, 2022). Tensions between the goals of policies relating to pig-breeding, to the nutrition and health of consumers, to environmental protection, and to rural livelihoods, are increasingly apparent. In many debates, small scale breeding by rural households has become a focus of attention. On the one hand, promoting pig farming has been central to many policies geared to increasing rural incomes and poverty alleviation; this was one of the main reasons why it was encouraged. But on the other hand, many policies are quick to attribute the source of many “pig” problems and difficulty in implementing policies to peasant smallholders, saying that their operations are too small, the quality is low, they are hard to regulate, etc. and so many policies now promote large scale operations, and restrict or even prohibit small-scale pig farming.

In the context of these tensions, this article seeks to answer the following questions. How important are pigs to Chinese farmers now? How many small farmer households are still raising pigs and how many are small-scale backyard operations? What is the main model and how do farmers participate? What change has there been in the proportion of farmers’ income that comes from raising pigs? How important is pig-rearing for poor rural households? And once poor

rural households no longer raise their own pigs, is their consumption of pork affected?

The data for this article come from five sources. The first is two national agricultural censuses, the first of which was conducted in 1996 and the third in 2016. The second is the National Rural Fixed Observation Point Survey. This survey was set up in 1986 and has continued up to the present day. It covers a total of 23,000 households in 360 administrative villages in 31 provinces (districts and municipalities). We draw on two parts of the survey, including a sub-sample for 1986-2000 of about 3000 cases each year, and a sample of 20,010 cases from 2012. The third data source is the China Animal Husbandry Yearbook. The fourth is the Yearbook of Agricultural Products Costs and Benefits, which includes information on the costs and benefits of backyard pig-rearing and large-scale pig-rearing from 1981 to the present. The fifth is a case study by the authors of the “enterprise + farmer” model of pig-rearing.

The rest of the paper proceeds as follows. Section 2 describes the withdrawal of small-scale pig farmers in China. Section 3 analyzes the reasons of why households left pig farming. Section 4 introduces a mainstream model of pig breeding: company + specialized farmer. Section 5 explains why pig rearing is still important to the livelihoods of poor rural households. Section 6 concludes.

2. The Dramatic Decline in Small-Scale Backyard Pig Farming

For a long time, pig farming in China was done on an extremely small scale of one pig per household, known as “scattered rearing” (*sanyang*) in Chinese. This model had a number of merits: it could make full and timely use of non-standard types of feed, like agricultural byproducts, reducing the need to use precious grain for feed, and preserving it for human use. Furthermore, it provided manure that was used to improve the structure of the soil, and increase its fertility, reducing the costs of horticulture and at the same time reducing environmental pollution from animal waste. This created a virtuous cycle of integrated agricultural production. Scattered pig farming also made full use of cheap agricultural labor and reduced pressure on employment, while increasing rural incomes. This kind of household pig rearing followed diverse models of operation and was extremely small scale. It also required very little investment, and so people did not do a commercial cost-benefit analysis the way you would for an enterprise. However, because of the flexibility it offered in terms of labor and other inputs, and the lack of reliance on commercial feed, it was easier for households to withstand fluctuations in the market price of pork. There were few security incidents because most pork production was small-scale and for self-consumption.

But since reform and opening up, pig farming has undergone a steady decline. The data shows that in terms of pigs produced, the percentage reared on small farms fell from 94.6% in 1985 to 80.7% in 1996, while over the same period the proportion reared by specialist households increased from 2.9% in 1985 to 14.6%

in 1996. The remaining pigs were raised by enterprises or large farms, which accounted for 2.5% in 1985 and 4.7% in 1996 (Zhang, 1998).

Yet until the mid-1990s, the vast majority of pigs were still raised by individual agricultural households. According to the first agricultural census, at the end of 1996, end of year pig stocks were 335 million, of which only 17 million were raised by agricultural enterprises and 95% by agricultural households. At that time, 130 million rural households raised pigs (Table 1, column 2), or 67.5% of the nation's 190 million. The average number of pigs per household was 2.4 and farmers not only fattened pigs, they also raised sows, with 200 million sows on hand at the end of the year. 18 million rural households reared sows, or 10% of rural households, with an average of one sow each.

However, over the last 20 years, there has been a fundamental change in the situation regarding small-scale scattered pig farming. A huge number of agricultural households have left the business, and large-scale operations have increased multifold. According to the third agricultural census, of the 442 million head on hand at the end of 2016, less than 80% were raised by individual farming households. The number of rural households engaged in pig-rearing had fallen dramatically to 34.26 million (Table 1, column 4), a drop of 75% from 1996 (Table 1, column 2 and column 4) and the proportion of pig farming households among all those engaged in agricultural production had fallen to 16.5%.

As showed in Table 1, the number of households raising fewer than 30 pigs fell dramatically, and the number of households with 1 - 5 pigs on hand fell from 104.58 million to 26.45 million; a drop of 74.7%. The number of households with 6 - 10 pigs fell even more steeply, from 22.29 million to 3.72 million (a fall of 83.3%). There were also sharp drops of 63.5% and 55.2% among households with 11 - 20 and 21 - 30 pigs. Only households with 31 - 50 pigs remained stable; those with 51 - 200 saw an increase; those with 151 - 200 increased three-fold and those with 201 or more increased five-fold. Although there are currently only 207,000 households with more than 201 pigs, they hold a total of 127 million head, or 36.4% of the total on hand.

However, overall, over the last forty years, and especially over the last 20 years, the proportion of pigs raised by scattered households has fallen continuously. There are now only 19 million households raising 50 pigs or fewer at the end of 2020 (Figure 1).

3. Why Have Rural Households Left Pig Farming?

There are many reasons why rural households have stopped rearing pigs, but the most important one is the increase in the opportunity cost of labor. According to Fang Jing's empirical work in Yunnan, the traditional model of backyard pig-rearing was labor-intensive (see the Yunnan case discussed by Fang Jing in this collection). One had to go out and collect "pig grass", and cook it up; one also had to muck out the excrement and compost it. This work was not just time-consuming, more importantly, it tied one down. If the family had pigs, you

Table 1. Scale of pig-rearing operations and change over time.

	1996		2016		Rate of increase	2016	
	Number of households (thousands)	proportion (%)	Number of households (thousands)	proportion (%)		Pigs on hand (millions)	proportion (%)
Total head	135,155	100	34,259	100	-74.7	348.50	100
1 - 5	104,575	77.37	26,453	77.21	-74.7	59.64	17.1
6 - 10	22,290	16.49	3722	10.87	-83.3	28.74	8.2
11 - 20	6138	4.54	2127	6.21	-65.3	31.85	9.1
21 - 30	1346	1.00	602	1.76	-55.2	16.32	4.7
31 - 50	503	0.37	515	1.50	2.4	22.06	6.3
51 - 70	128	0.09	192	0.56	50.0	11.75	3.4
71 - 100 head	72	0.05	265	0.77	268.0	24.10	6.9
101 - 150 head	49	0.04	97	0.28	98.5	12.39	3.6
151 - 200 head	20	0.01	78	0.23	290.0	14.69	4.2
201 or more	35	0.03	207	0.60	490.4	126.95	36.4

Source: 1st and 3rd Agricultural census.

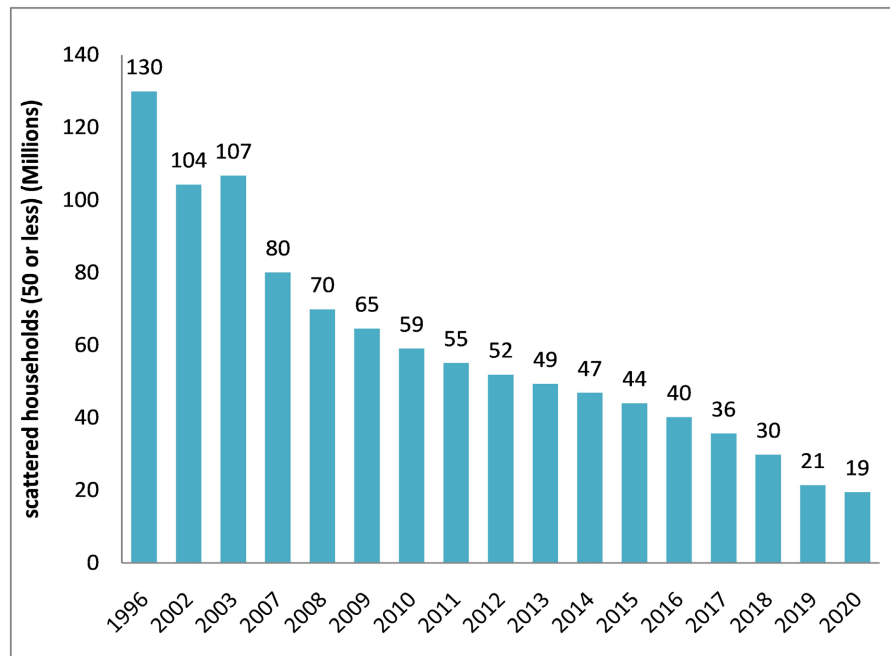


Figure 1. Changes in the number and proportion of scattered households (50 or less). Source: China animal husbandry yearbook (2002-2020).

weren't free to leave home. As opportunities to work elsewhere or engage in non-agricultural labour increased, the opportunity cost of raising pigs rose, and particularly after 2008, it went up rapidly. According to the *Yearbook of Costs and Benefits of China's Agricultural Products*, the labor cost of raising pigs has

seen a steady increase. As showed in **Figure 2**, in 1981 the labor cost per head was the equivalent of 29 yuan. In 1983 it went down to 26 yuan, but after that it rose, reaching 197 yuan in 2009. And in the brief five years to 2014, it rose another 301 yuan to reach 498 yuan. This increase in the labor cost was mostly due to the general rise in wages. In fact, the number of days of labor needed to raise a pig was fluctuating but decreasing overall, from almost a month (29.5 days) in 1981 to a week (7 days) in 2014. This drop was related to the shortening of the rearing period (from almost a year to six months) and it was also related to the increased commercialization of farming.

The increase in the cost of labour is further supported by evidence from cross-regional comparison. Using data from the Ministry of Agriculture Survey of Fixed Observation Sites, we conducted double logarithmic matching of the relationship between the proportion of pigs for sale that were raised in small-scale household farms with fewer than 100 head per capita and the per capita net income of rural residents for 30 provinces, autonomous regions and directly governed municipalities. We found that rural disposable income explains 70% of the difference. For every 1% increase in rural net income, the proportion of small-scale pig-farming decreased by 1.5% (**Figure 3**). As income increases, small farmers leave the sector more rapidly. The case studies in this collection of Shanxi and Yunnan in this special issue give a more detailed and vivid description of these differences in the scale of pig farming across provinces.

Another important factor that cannot be overlooked is the replacement of organic manure by chemical fertilizers. When farmers did not have chemical fertilizer, or lacked the cash to buy it, raising pigs enabled them not only to “eat meat” but also to produce manure, and this was how they maintained the traditional integrated model of horticulture and animal husbandry. Mao made a famous comment about this (**Zhou, 2015**). In 1956, in his written instruction “they are raising many pigs here,” he remarked:

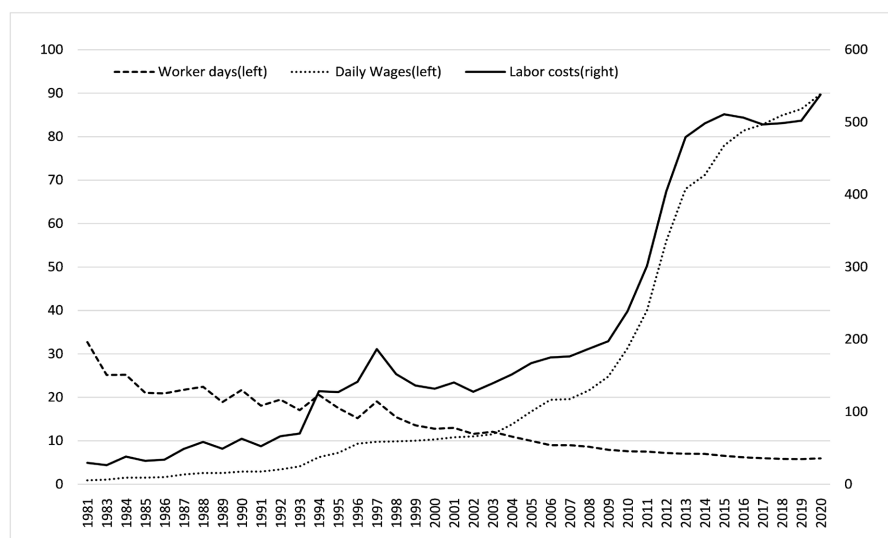


Figure 2. Days of work, price of labor and labor costs per pig.

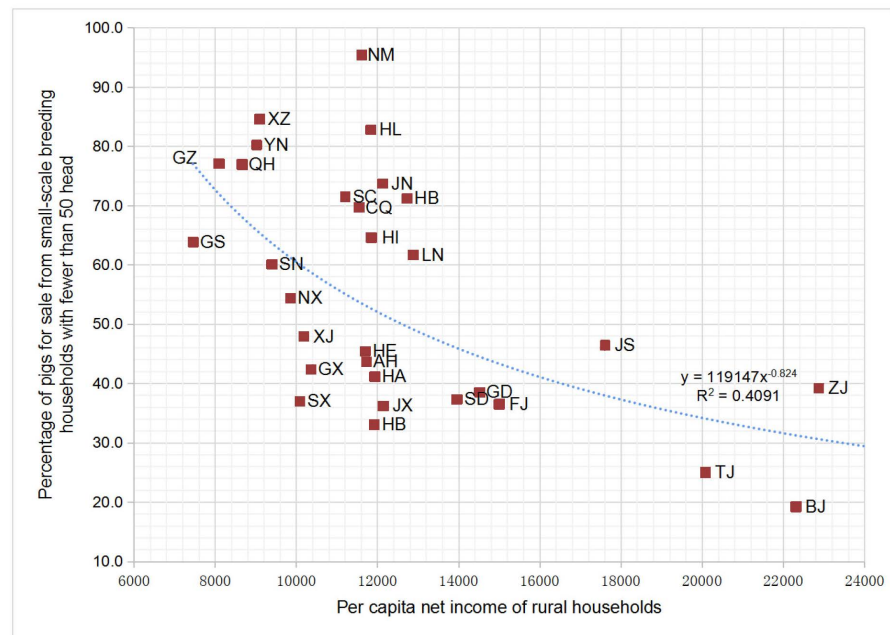


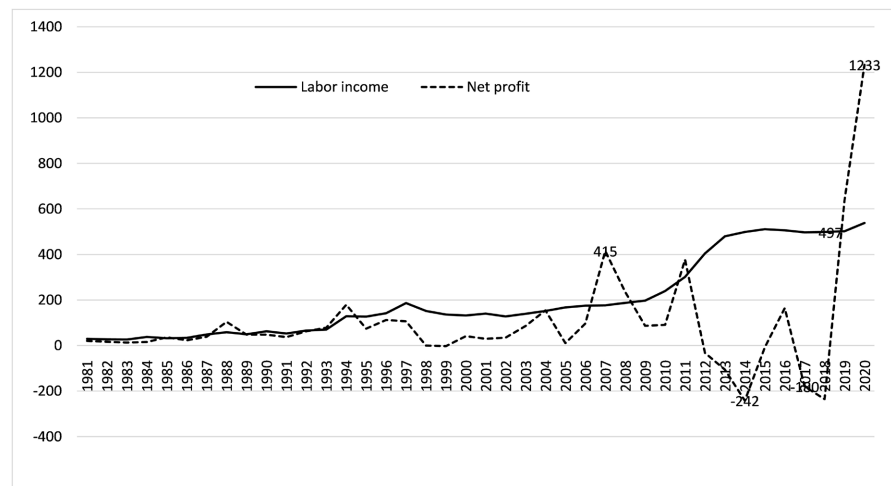
Figure 3. The relationship between the proportion of households producing fewer than 50 pigs and net rural income.

“The provincial party committee and the local party committee should seriously consider the pig-rearing sector, and research it... and put a lot of effort into producing feed. Agriculture, forestry and animal husbandry all rely on each other. You cannot do without any of them... The main source of our nation’s fertilizer is from rearing pigs. A pig is a small organic fertilizer plant... raising pigs involves the big issues of fertilizer, eating meat, and exports to earn foreign exchange. All cooperatives should put raising pigs into their plans and there should be a set of incentives for raising pigs... One pig per person and one pig per mu... Pigs should rank first among the six animals.”

According to these cost-benefit calculations, if manure is not factored in, then rural households lose money on small-scale pig farming. According to the survey for 1980 to 1984 (Table 2), they were losing 5 - 10 yuan per pig. It is important to understand that at that time, average net per capita income was only 191 yuan per year, and cash income was even less. But there was money to be made from manure, which could be worth as much as 21 - 27 per pig. Then the income from each pig would be 10 - 20 yuan, so it was worthwhile from a cost-benefit perspective and that is why every family raised a pig. But as opportunities to migrate for work increased, and rural households had remittances to buy chemical fertilizer, this gradually displaced natural fertilizer. Furthermore, once pig-farming was scaled up and commercialized, there were often massive fluctuations in the purchase price and costs. It was hard for small scale operators to absorb the risks and potential losses of a fluctuating market and they gradually left the business. The National Survey of Costs and Benefits for Agricultural Products reported the costs and benefits for each pig raised by small-scale households (fewer than 30 pigs) from 1981 to 2020 (Figure 4), and found the loss for every pig was

Table 2. Costs and benefits of small-scale pig-farming, 1980-1984.

Item	1980	1981	1983	1984
Number of days to raise a pig	302	297	266	274
Average gross weight (jin)	196	213	206	222
Average purchase price per 100 (jin)	65	68	67	75
Average sale price per head	127	144	137	167
a) Costs				
Average cost of material inputs per head	112	122	121	134
Price of piglets	20	25	26	28
Price of refined feed	43	48	53	59
Amount of feed (jin)	401	443	473	526
Price of Green and coarse fodder	31	30	24	29
Quantity of green and coarse fodder (jin)	2003	1681	1347	1325
Processing feed and fuel costs	10	11	10	10
b) Labor costs				
Average wage per worker	21	29	26	38
Number of workers	34	33	25	25
c) Total costs	133	151	148	172
Average net income per head	-5	-7	-10	-5
Average manure price per head	25	27	23	21
Net income per head	19	20	13	16

**Figure 4.** Net profit from small-scale pig rearing and wage income.

242 yuan in 2014 and 180 in 2017, while in 2020 the net profit had been 1233 yuan. This fluctuation in the net profit was mostly due to the impact of market prices.

4. The Current Mainstream Model: Company + Specialized Farmer

As small household pig farmers withdrew, they were replaced by rapid commer-

cialization, marketization and specialization of the pig sector. A production cycle that was originally completed within the confines of a household, has now been built into a commercial chain with a division of labor. The up and downstream stages have gradually been taken over by enterprises, and even the production stage has been divided into four steps: gestation, producing piglets, suckling, and fattening, with professionalized production for each.

Farmers are mostly concentrated in the fattening stage and the standard model for this stage is “company + farmer”. More accurately, it is in fact “company + expert” large-scale pig farming household. The company is responsible for sales, and it sets up a system and standards for every stage of the production process, providing piglets, feed, drugs, and vaccines, and taking responsibility for their delivery to the farm. The farmer provides the space, the facilities, the labor, and water and electricity, and is responsible for managing production. The company divides the area into a number of production zones and allocates a manager to each to follow up with farmers and provide technical support.

This model is one that only farmers who have a sound financial base can enter because the company has a minimum scale requirement. Our study of Wen’s Breeding Cooperative in the Jiangyong area of Yongzhou, Hunan, found that the smallest number of pigs for entry was 700, and it cost 600,000 yuan to construct and equip a 1000-head pig farm. In addition, farmers had to pay a 280,000 yuan guarantee to the company. The way the system works is that farmers do not have to pay for the piglets when they are delivered, but they have to pay 100 yuan per piglet when they open an account with the company, and another 300 yuan is deducted when accounts are settled for the first batch of pigs, for a total deposit of 400 per head. Although this deposit would be refunded if the contract was terminated, the contract also stipulated that once a farmer withdrew from the contract Wen would not re-enter into it, so most farmers would not withdraw lightly. This kind of one-time investment is a high threshold for most ordinary farmers.

The company implements a fixed price purchase policy. If the market price is higher than this agreed price, then it gives the farmer a cut of the difference, which is referred to as “a subsidy”. The farmer’s compensation for rearing the pig is what is left of the sale price minus the cost of the piglets, the fee, veterinary drugs and other deductions. The subsidy fluctuates. To take a farmer who cooperates with Wen as an example, his contract promised a subsidy of about 10%, but in 2016 the market price reached 22 yuan per kilo, and the company’s purchase price was set at 14 yuan. So a pig that weighed 128 kg would exceed the agreed price by 1024 yuan, but the subsidy Wen gave the farmers was about 60 yuan, or only 5.9% of the price difference. The subsidy companies give the farmers is often based on an oral agreement, or a vague clause in the contract that gives the company a lot of leeway. Moreover, farmers have a limited understanding of the law, and it is hard for them to organize, so the distribution of profits is more or less entirely in the hands of the companies.

In terms of who bears the risk, farmers are in an even weaker position. The first issue is that the costs associated with the continual increase in environmental requirements have been transferred to the farmers. For example, Wen has set higher environmental requirements for the farmers they cooperate with, and if they cannot reach the standards then Wen will not cooperate with them. This has meant the farmers have no choice but to use the income from the previous year to invest in purchasing environmental protection equipment.

Second, the farmer bears the risk of pigs dying or being substandard (usually by failing to meet the weight requirement). Wen has the right to unconditionally reject pigs because of disease, and only compensates the farmer 300 yuan (in fact this is paid by the insurance company). For substandard pigs that weigh between 55 kg and 85 kg, the purchase price is lowered, and Wen completely refuses to accept pigs that weigh less than 55 kg. If pigs show symptoms of anal fistula or leaky gut, Wen requires farmers to request an epidemic prevention certificate from the Animal Husbandry Bureau themselves, and if the bureau will not issue one, Wen will not allow the pigs to be sold. Losses of this kind are therefore also born by the farmer.

Third, the farmer does not have the right to negotiate the contract. For example, a lot of farmers were dissatisfied with an “unequal clause” in Wen’s contract, which stipulated that farmers could not feed pigs 6 hours before sale. The company sent people to monitor this to ensure compliance. Assuming that each pig eats 1 kg of feed per meal, if this is directly translated into body weight, then on 1000 pigs, the farmer is losing 14,000 yuan.

Fourth, there are conflicts over the length of time pigsties are left empty. The farmers want this period to be as short as possible, but Wen wants to maximize its profit by controlling the number of pigs for sale from the district as a whole at any given time. This has meant that instead of raising two batches of pigs a year, farmers can only raise three batches over two years.

In the pig sector, apart from earning income by entering into a “company + farmer” contract, the other way that farmers can make money is by going to work in a pig farm. But in highly automated pig farms, just as the number of pigs produced has multiplied several times, the number of people involved in this work has decreased. According to data from the second agricultural census, the number of people engaged in animal husbandry as their major occupation fell from 14.84 million in 1996 to 10.98 million in 2016—a decrease of three million people. Now, in some of China’s largest farms, one worker can manage 1000 pigs. However, China is still far behind developed countries in this respect. For example, in Denmark, 1000 pigs require only 0.3 workers, and in the United States, in pig farms with over 5000 head, every 50 kg increase in weight requires only 0.19 hours of labor.

5. Pig rearing Is Still Important to the Livelihoods of Poor Rural Households

When rural households raise pigs they mostly rely on their own labor, and be-

cause of this there are two kinds of earnings; net profit, and labor income. The 2012 survey of National Rural Fixed Observation Points reported on the income and expenditures of rural households who raised pigs. We defined the net income from raising pigs as net profit and labor income and we divided the family's total income from all household businesses by this amount in order to obtain the proportion of income coming from pig rearing. We found that sometimes, if pigs fall ill or a major fluctuation in market prices causes serious losses, families may find it hard even to recoup their labour input. As showed in **Figure 5**, in 2012, as many as 14.7% of families made a loss, and for another 59.5% of households, even though they made a profit, the percentage of their household income that came from pig rearing was less than 10%. For as many as three quarters of pig rearing households, the net income was negligible, and for only 2.9% of households did the income account for more than half of their net income. If one in seven rural households raises pigs, we can calculate that pig farming contributes over half of net income for only 0.2% of rural households.

In the 2012 sample, farmers for whom pig farming was the major source of income accounted for only 2.6% of breeding households. Overall, 16% of all rural households had pigs for sale, and 12% had pigs on hand at the end of 2012. We looked at differences in the rate of pig-farming across different types of rural household and found that the frequency is higher among ethnic minorities. Thirty-two percent of ethnic minority households sold pigs, more than twice as many as Han households. Although the rate of pig rearing among households below the poverty threshold was only 14%, which was 2% lower than those above the threshold, net income from pig rearing was a larger proportion of the poor families' income. For example, for more than 44% of them it accounted for 10% of their income, compared with only 24% of non-poor households (**Figure 6**).

Although most poor households can achieve self-sufficiency by relying on their land, cash is always tight. Pigs offer a way to accumulate small change into

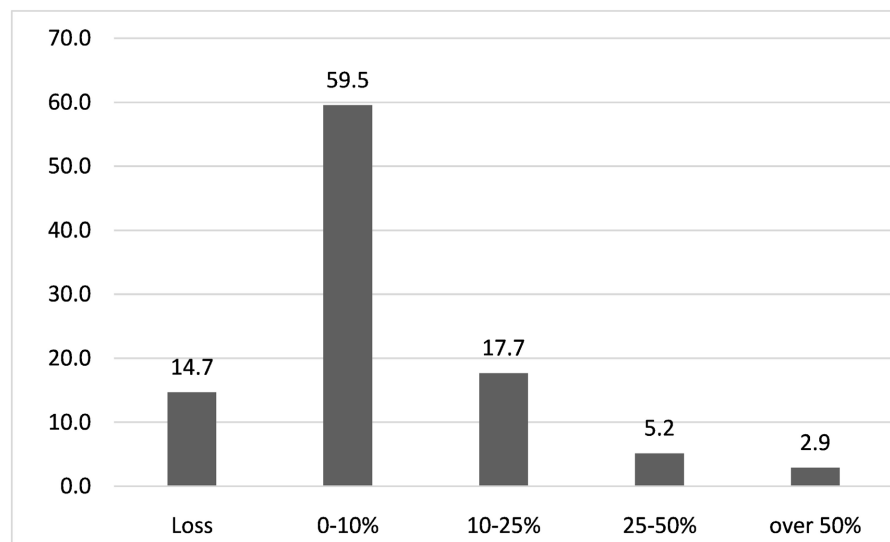


Figure 5. Distribution of profit from pig-farming in relation to net household income.

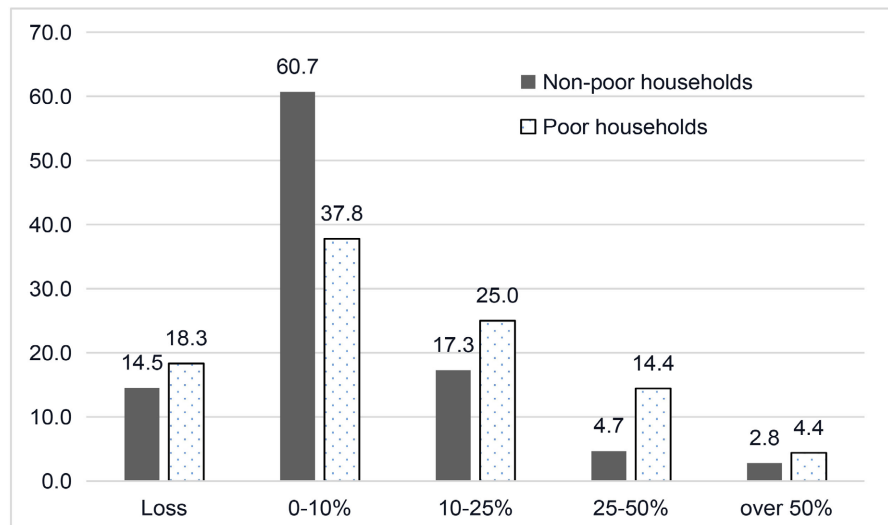


Figure 6. The proportion of income from pig-rearing in poor and non-poor families' income.

larger amounts, and in emergencies they can be sold for cash. When we calculated the proportion of rural household cash income attributable to pigs (Figure 7), we found that for non-poor households, it was a very small proportion, with a distribution concentrated at 25% or less. But for poor households, the proportion was more evenly distributed, and for 60% of poor households, income from raising pigs accounted for more than 50% of their cash income.

Another question that interested us was whether raising pigs affects the consumption choices of poor households and in particular their consumption of meat. We found that households that raise pigs have an annual average pork consumption of 100 kg, compared with 63 kg for households that do not raise pigs, whose animal fat consumption is also 7 kg less (Figure 8). Pork and animal fat are partly replaced by poultry and vegetable oil, but because Chinese eat far less poultry than pork, consumption of poor families has still been suppressed when they leave the sector.

6. Conclusion and Discussion

Traditional animal husbandry in China developed within the sphere of individual households and families. Horticulture and animal husbandry were closely integrated, and in this model, raising pigs played an important role in the livelihoods of farming households. But pig rearing in China is now being rapidly scaled up. During this transitional period, an important question is how to balance the development of large-scale pig farming with concern for farmers' livelihoods.

For the last 30 years, small-scale pig farming has seen a steady decline, and now only one in seven rural households raises pigs. For three quarters of those families who do raise pigs, the income, from labor and net profit, is less than ten percent of their total net income, and only for 3% of them does it constitute more than half their income. The proportion of farmers' income that comes from raising pigs is therefore relatively low.

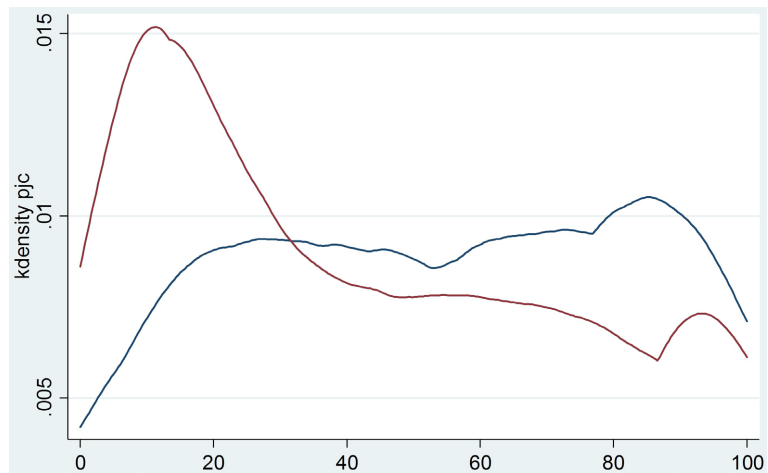


Figure 7. Contribution of income from pig farming to net cash income.

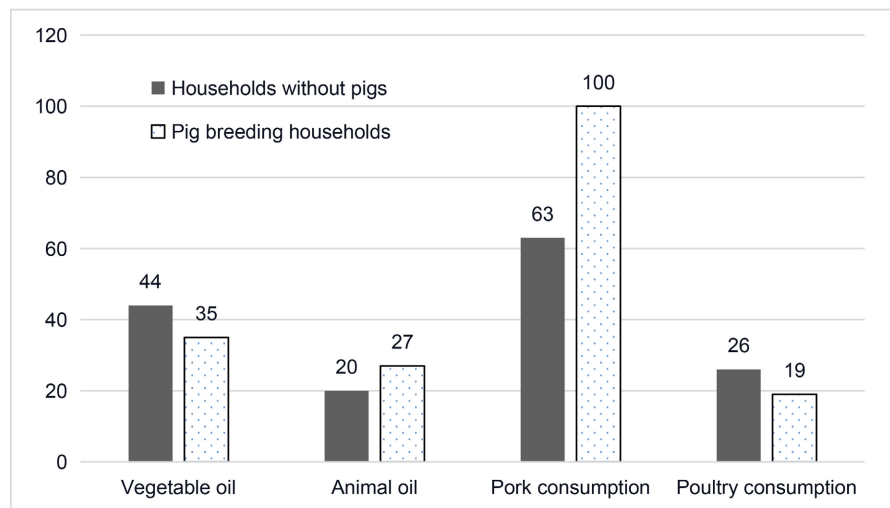


Figure 8. Difference in average household consumption of poor households that do and do not raise pigs.

At the same time, although the amount of labor time that has to be invested in small-scale pig farming has fallen, it still ties people down, and therefore as soon as there are other non-agricultural employment opportunities, it is likely that farmers will withdraw. As the opportunity cost increases, it is likely that farmers will withdraw from pig rearing even more rapidly. Young people will no longer raise pigs and only farmers who have never worked outside the home (whose labour has never been valued according to non-agricultural prices, and for whom the opportunity cost is low) will do so. This group will become steadily smaller over time.

However, raising pigs is still very important for poor rural households who lack labor power. It is their major source of cash income. In the central and western regions, and especially in the west, small scale pig farms are still very common, and the lower the region’s annual per capita income, the more common they are. If they are prevented from raising pigs, these farmers’ incomes

will suffer. Their consumption of pork will also be reduced and this will affect their levels of nutrition.

The conclusions of this article have three implications for policy. First, for most rural households, raising pigs is already no longer a major source of livelihood. There is therefore no need to set up subsidies in the name of protecting the interests of farmers. In fact, existing subsidies are being monopolized by big enterprises and a small number of people with the capital to invest in large farms. We consider that government support should be given not to large investors but to poor farmers, for example to help them develop small-scale eco-friendly pig farming and sell high quality branded products online at competitive prices.

Second, we feel it is time to reflect on the “company + farmer” model to which the government has given so much support. This model has been developing rapidly, but it has done this by capping farmer’s profits. It also transfers most of the risks and the costs to the farmers. Over the long term, this is not necessarily sustainable.

Third, we have to consider the importance of extremely small-scale pig rearing to the livelihoods of poor families who lack labor power, and protect them from being harmed by “one size fits all” policies designed to restrict breeding. While implementing policies to restrict or prohibit pig breeding, we also have to think about the access of poor households to pork meat, and provide them with subsidies based on the consumer price of pork. This model of pig-rearing, which continues to be integrated with crop farming, uses feed from diverse sources, producing tastier meat. The government can provide support to these households to sell high-quality pork at higher prices through E-commerce market certification and promotion, as well as providing financial subsidies, discounted loans, insurance schemes, etc.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Li, M., & Shi, Z. (2021). Ultra-Processed Food Consumption Associated with Overweight/Obesity among Chinese Adults—Results from China Health and Nutrition Survey 1997-2011. *Nutrients*, *13*, 2796. <https://doi.org/10.3390/nu13082796>
- Liu, A., Han, A., & Chai, L. (2021). Assessing the Nutrient Adequacy in China’s Food Supply from 1965 to 2018. *Nutrients*, *13*, 2734. <https://doi.org/10.3390/nu13082734>
- Scialabba, N. E. H. (2022). Livestock Xenobiotics and Zoonoses. In *Managing Health Livestock Production and Consumption* (pp. 45-59). Academic Press. <https://doi.org/10.1016/B978-0-12-823019-0.00013-1>
- Tian, M., He, X., Feng, Y., Wang, W., Chen, H., Gong, M., Liu, D., Clarke, J. L., & van Eerde, A. (2021). Pollution by Antibiotics and Antimicrobial Resistance in Livestock and Poultry Manure in China, and Countermeasures. *Antibiotics*, *10*, 539. <https://doi.org/10.3390/antibiotics10050539>
- Zhou, Y. (2015). Animal Husbandry Ideology Review of Mao Zedong. *Yan’an University*

Journal (Social Sciences Edition), 37, 22-27. (In Chinese)

Zhang, X. (1998). Pig Production Status and Benefit Analysis of Chinese Farmers. *China Rural Survey*, No. 1, 55-63.