

Perspectives and Strategies for the Asian Livestock Sector in the next three decades: Sub-regional Report, China

by

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1. Introduction

1.1 Background

This study is prepared for the Food and Agriculture Organization as a sub-regional report of the project “Perspectives and strategies for the Asian livestock sector in the next three decades” in early 2001. The purpose of the study is to equip decision-makers at the national and international level with baseline information and strategic assessment on the Asian livestock sector. The livestock sector encompasses livestock production, processing and distribution. It includes production on the traditional farms as well as production in industrial livestock facilities that are characterized by high capital labor ratios. The time frame of the study is to 2030. Hence, the discussion and material presented should be presented in terms of short to medium term developments (five to ten years) and the long term (up to 30 years).

As the largest livestock products producer and consumer, the situation of the sector in China has great significance on the world livestock sector at large, and on Asian market in particular. Much of the information contained in this study has been collected through field visits to farms, officials from ministries, especially the Ministry of Agriculture, and from the State Statistic Bureau, the government body officially responsible for statistics in China. A large volume of internal reports and documents of various governmental agencies are used, which are not listed in the references.

1.2 Significance of Livestock Sector in China.

Livestock plays a very important role in China due to its multi-functions. For many part of China (other than the pastoral regions and suburbs of big cities), large animals are important primarily not for their meat and milk products, but for the draught force they provide for crop production and local transportation.

Swine raising has been highly valued, especially in the 1960s and 1970s as a major source of fertilizer. In the period of grain surplus such as in mid-1980s, early and late 1990s, pig and poultry raising was encouraged and regarded as a mean to solve the grain surplus problems. However, the livestock sector as a major source for food has never been attached the same importance as the crop sector. The share of animal production value in the overall agriculture has increased over the past two decades, from 15% in 1978 up to nearly 29% in 1999(MoA, 2000).

Livestock production in China has been characterized by its small-scaled structure. China has not only the largest swine inventory and pork production, but also by far the largest number of swine holders in the world. According to the results of the first national agricultural census, 70% of the rural households, or 135 million farmers, have swine inventory. Pig

inventory averages only 2-3 heads per household (SSB, 1998). Changes have taken place in the past decade, but not very significantly.

The small-scaled production system is cost-efficient. A considerable part of nutrients need for the livestock of the small farmers are provided by residues and byproducts of crop production, which are otherwise of no value. For example, pig raising in the South is heavily dependent on green feeder and roughage including leaves and vines of sweet potato and rice bran (Xu et al, 1994). This has not lowered the production cost, but also significantly reduced the feed grain/meat ratio, or the amount of feed grain for each kg of meat gain, to a level much lower compared with the industrialized production system. According to a survey on 6000 pig farms, the average feed grain/meat ratio is estimated at 1.8: 1 for pork in Sichuan province, the most important pig producer in China (Lu, 1997).

For many small farmers, livestock raising is an important source for cash income. Surveys organized by the Ministry of Agriculture indicated that, on the average of all kinds of farmers, pig's sales alone accounted 6-12% of farmers' cash income (MoA, 1992). The central part of the country and the group with medium-level income has the highest shares. The pig's share in cash income for almost all groups has risen by 1-2 % over the observed period of 1986-1990. In the major producing areas of pigs such as in Sichuan Province, pig sales consist up to 20% of farmers cash income, as estimated by local agricultural administrators and farmers interviewed by the author and CAU students.

For the major pig producing regions, often the poor and less developed inland areas, tax from pig marketing and slaughtering accounts for the major share of the township or even the county revenues.

In the process of transformation, the co-existence of traditional and modern production system is a new feature. In contrast to the vastly scattered traditional small holders, there is a growing number of large scale pig and milk farms in the suburbs of large cities, mostly state farms in the past, but also increasingly by individual farmers or private investors. The production method and productivity of these large operations are comparable with that in the developed countries. The large-scale pig and milk farms in the proximity of large cities are assumed an important role to secure the provision of livestock products to the urban population and hence the social stability.

1.3 Discussion Over Production and Consumption Statistics

In most developed countries, livestock statistics are based on the veterinary quarantine before slaughtering and are very reliable. In China, the veterinary quarantine control system is rather weak. Over 80% of the pigs in China are slaughtered and marketed by a great number of small traders, usually villagers. There are hardly any communal slaughtering facilities available and these small traders slaughter one or two pigs in their backyard each time (usually each day). They do not have much incentive to go through the quarantine process, which involves fees and transportation costs. In almost every province, pig slaughtering is subject to a slaughtering tax and various fees, which often accounts for up to 5% of the pig value. As a result, a large portion of the slaughtering evades the quarantine process and thus makes the quarantine statistics incomplete.

As an alternative, China has long adopted a reporting-based system to get livestock production statistics. It is a pyramid reporting system: village leaders make an accounting of livestock numbers and production in the village and report them to the township administration. Township administrators in turn compile the data from the villages and report them to the county authority. The county heads compile the data from the townships and

report them to the province government. During the collective time before 1980s, this system was technically rather reliable, for the collectives had booking records. However, with the dismantling of collectives and the introduction of individual household-based production system, the reporting system lost its basic ground. Although village leaders still make reports, these reports do not result from book keeping records or surveys, and are rather estimated. In addition, there is a tendency to exaggerate the production figures for officers at various levels as production growth is often regarded as an important indicator for the performance of local government officers. In recognition of this bias, the central government and sometimes also provincial governments make downward adjustments to the compiled reporting-based figures according to experts' views, market balance (price change) situation, etc.

It is generally assumed that the real situation falls somewhere between the above-mentioned reporting-based statistical data and the figures derived from slaughter tax, with the former as the upper limit and the latter as the lower limit. Example figures from survey by CAU students in a county in Guizhou province indicated that taxed slaughtered hogs was only 35-40% of that of official statistics for the recent years. The gap can not be completely attributed to tax evasion. At least part of the disparity is due to over-reporting. The problem of the over-report of meat production becomes more serious in the 1990s.

This over-reporting was confirmed by the results of the National Agricultural Census in January 1997. The census results are more than 20% lower than the previously reported figures (more details in the following sections). Downward adjustments have been made for the years since then.

As for consumption, the State Statistical Bureau implements annual sample rural and urban household surveys on income, expenditure and consumption. These surveys cover about 35 000 urban households and 67 000 rural households. Survey data are aggregated by these two consumer groups, for there are substantial differences in income and consumption patterns between the urban households and rural ones.

Officials from SSB believe with high confidence that the results of the surveys, both for the rural and urban households, are reliable, for the surveys have conducted through a very representative sampling and in a consistent way.

Based on the per capita consumption data from the household surveys and population statistics, total meat consumption for the whole country can be derived. Two approaches can be used to get the total consumption data: One based on the survey and the other one by the balance sheet, which is highly determined by production data.

A striking divergence exists between the figures from those two approaches, as show bellow in the table.

Table 1-1 Divergence in Livestock Consumption Data, in million tons

	1980	1985	1990	1995	1999
	Meat Total				
Data from Balance Sheet	12.58	18.75	27.95	51.87	58.90
Data from Household Surveys	10.53	15.35	18.20	19.59	23.95
Difference	2.05	3.40	9.75	32.28	34.95
in % of survey data	19	22	54	165	146
	Eggs				
Data from Balance Sheet	2.51	5.28	7.91	16.75	21.32
Data from Household Surveys	1.93	3.37	4.22	6.19	7.98
Difference	0.58	1.91	3.69	10.56	13.34
in % of survey data	30	57	94	171	167

Sources: SYC, and Custom Statistics of China.

There are several explaining reasons for the divergence. First, eating-out is an important factor. Eating-out for urban residents is about one third of meat consumption in term of expenditure in the 1995 surveys. Take the national as a whole, the meat consumption in restaurants and canteens should not exceed 10% of the total meat consumption in quantitative term.

Secondly, the actual urban share of the population should be larger than the statistical figures. The so-called “floating population”, rural migrants working in the cities and town, is estimated as over 90 million in 1999. Their meat consumption level should be somehow close to that of representative urban households.

Thirdly, the difference in meat weight definition may be an important source for the imbalance. Meat production is in principle measured by carcass weight, while the consumption figures are the actually purchased weight, mostly without bones.

Fourthly, consumed by foreign tourists. Consumption of foreign visitors registered at 40-50 million a year, or less than 4% of the domestic population, should not be significant. Given an average stay period of four weeks a visit and a doubled daily meat consumption level compared with ordinary Chinese, the total meat consumption by foreigners is less than 1% of the total meat consumption in the country.

Finally, there might be bias in the sampling of the households. The sampled households may have a lower meat consumption level than the actual national average, if assumed that the numbers of households with high meat consumption levels have not been adequately included in the surveys. Such households include herdsman population, urban and rural consumers in less-fish consuming regions, and in the major meat production areas.

Put all the above-mentioned factors together, it can be estimated that the actual meat consumption may be 40-50% higher than that derived from the household surveys. This estimation is largely consistent with the estimation made by SSB officials, in that they indicated that the actual consumption in 1995 was about 30 million tons.

This is also agreeable with the general opinion that until the second half of 1980s, the over-reporting of livestock production was not very significant. Since late 1980s, especially since the early 1990s, the over-reporting has become increasingly serious.

In the official statistics, the production data since 1996/1997 have been adjusted. However, the figures for the years prior to 1996 remained unchanged. The author of this report is not in

the position to make adjustments. Therefore, the attention should be given to this fact that the time series figures in this report is not completely comparable across years.

2. Production Systems

2.1 Meat, Milk and Eggs Production Development

Table 2-1 Livestock Production development in China, in million tons

Year	Meat Total	Pork	Beef	Mutton	Poultry	Other meat	Eggs	Milk
1980	13.08	11.34	0.27	0.44	1.0	0.03	2.57	1.37
1985	19.27	16.55	0.47	0.59	1.6	0.06	5.35	2.89
1990	28.57	22.81	1.26	1.07	3.23	0.10	7.95	4.75
1995	52.60	36.48	4.15	2.02	9.35	0.27	16.77	6.73
1999	59.49	40.06	5.05	2.51	11.15	0.72	21.34	7.18
1990/80	2.18	2.01	4.68	2.41	3.23	3.33	3.09	3.47
1999/90	2.08	1.76	4.01	2.35	3.45	7.20	2.68	1.51

Sources: MoA

As indicated in Table 2-1, livestock production in China has developed very rapidly in the last two decades. Though the exact figures might be to some extent over-reported, it is beyond any doubt on the strong growth trend.

There are a number of reasons for this rapid growth in livestock production, including institutional renovation, introduction and development of feed industry, technical progress in animal breeding, nutrition, disease control. The institutional renovations changed the collective operations into private operations and such improved greatly the incentives of individual farmers to produce more and in a more efficient way. The technical progress in breeding, nutrition and feed industry have not only enabled the establishments of large scale intensive livestock farms, increased their technical and economical efficiency, but also changed the feeding structure and raising methods in the small traditional farms. The improvements in parameters of technical efficiency will be discussed in further details in the following sections.

Due to the uneven development paces among meat categories, the composition of meat production has changed. Share of pork continuously fell, from 87% in 1980 to 67% in 1999, while that of all other meat categories has risen. Poultry's share registered the largest increase from 8% to 19%, followed by beef from 2% to 8%, and mutton from 3% to 4%.

The changes in the meat production structure reflect changes on the technical side and on the economic environment. Given its efficient feed-meat conversion ratio, commercialized chicken industry has developed fastest. Cattle raising, under the prevailing raising systems in