Promoting Rural Livelihoods and Public Health through Poultry Contracting: Evidence from Thailand

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Highly Pathogenic Avian Influenza (HPAI) first emerged in Southeast Asia in 2003-2004. While initial containment measures were applied with varied success, it has become clear that a new generation of policies is necessary to address the infrequent, but continued, outbreaks of an apparently endemic disease. The nature of these circumstances require that the new generation of policies focus on long term adjustment and take into account acceptable risk levels, farmer livelihoods, and financial sustainability. It is within this context that we look at geographical potential for medium scale contract farming in the informal poultry sector in Thailand.

The strategy considered here offers an important opportunity for more inclusive national economic growth. Most poultry sectors in lower and middle income economies are at different stages of an inevitable transition from backyard production to more modern systems. In this study, we examine the potential for contracting to smooth this transition, facilitating local rural poverty reduction while improving nutritional values and other public health outcomes. Drawing on multiple sources of survey data, we attempt to identify specific areas in Thailand where contracting schemes are most likely to be viable in the informal sector. Integrating data from small-sample, highly detailed poultry producer surveys, with data from the national Socio-Economic Survey (SES), we identify regions with characteristics similar to areas where we have observed successful contracting programs.

We approach the problem of identifying these areas in three steps:

1. Identify farmers in the small sample survey that are most likely to succeed as contract-farms
2. Establish criteria for successful contract farming based on characteristics of this subgroup
3. Use the relevant attributes identified in the small sample survey to identify households in the large sample survey where contracting is most likely to be viable.

The following research brief identifies specific shortcomings seen in the informal poultry sector, identifies criteria for viable mid-sized contracting to help overcome these problems, and presents our findings highlighting regions where contracting is most likely to be viable.

Identifying problems in the poultry market chain

Given the existing marketing structure, there is significant room to improve the terms of trade among the most vulnerable actors and to extend the system to include currently omitted actors. Transactions costs are a primary determinant of economic behaviour, and they exert important influence on market participation decisions. For the rural poor, who can be isolated and constrained in transport choices, logistical costs limit both supply and demand interactions with larger markets. Moreover, perishability means that they can only realize revenue on a fraction of their product, and the market value of what is sold can also be undermined as its quality degrades with transport, exposure, and waiting for sale. For these reasons, logistical support can significantly enhance the realized value of farm produce and increase incentives for market participation. In the case of livestock, the logistic issue is complicated by special characteristics of animals. Poultry have their own motility, which trades off perishability against convenience of shipping inanimate carcasses or processed animal products. The complexity of this decision, with many contingent factors like processing and vehicle technology, often induce smallholders to relinquish their animals to intermediaries at the farm gate. This limits their bargaining power, value added capture, and incentives to improve quality.

Given their geographic, social, and economic isolation, it is hardly surprising that rural smallholders have limited information about downstream market conditions. The intermediary relationships they encounter do little to improve this, as aggregators and other middlemen bargain with them individually in the countryside and offer little insight regarding downstream market conditions, including accurate information on prices, product variety, and consumer taste. The intermediary problem limits smallholder progress down the food value chain and is thus another barrier to market access. It can have other serious consequences, however, particularly for product quality.

The product quality problem has two parts, market power and moral hazard. Intermediaries use their proprietary information and market access to increase market power. This means monopsony power for buying intermediaries and monopoly power for resellers. Moreover, removing smallholders from consumer relationships destroys a primary incentive to invest in product quality, the commensurate premium that would accrue to the producer could they be identified. Simply put, direct producer-consumer links foster a virtuous cycle of quality and revenue improvement, but this is wiped out when intermediaries interpose themselves and mask the identities of producers and consumers. Secondly, intermediary activities increase moral hazard in rural-urban market systems. Because they aggregate outputs from many producers, usually destroying origin information in the process, intermediaries reduce buyer's capacity to assess product quality/risk and thereby contribute to adverse selection. Markets with identifiable origin information, by contrast, provide strong reputation incentives for producers to improve product quality/safety, and consumers can appropriately reward this.

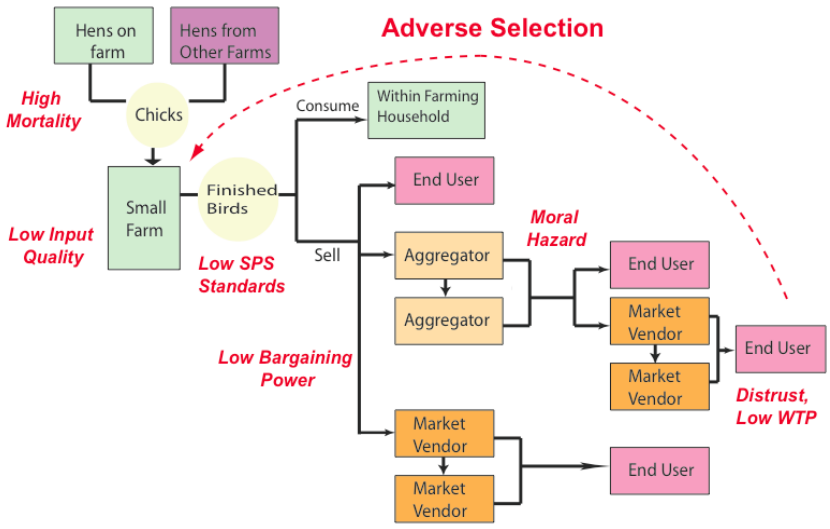
Contracting as a means for overcoming information failures

Contracts are an effective primary means of transferring property rights or resource services, permanently or temporarily, and thus have the ability to extend the process of income

creation across complex networks. When contracts are transparent and enforceable, they contribute to extensive multiplier linkages, across diverse constituencies, promoting growth and economic participation, interdependence and risk reduction. All these factors improve the likelihood of sustainable and inclusive economic activity.

When designed effectively, contracting provides a direct link between producers and retailers. Along the supply chain, this relationship can provide producers with the benefits of continuous market access and the opportunity to establish a reputation for quality. Along the value chain, retailers gain the ability to impose quality standards on producers and may be in the position to provide credit in order to facilitate producers' adoption of these standards. These factors increase producer incentives to invest in product quality thereby increasing consumer safety and raising producer and retailer profit potential.

Figure 1: Market Failures in the poultry market chain



Identifying eligible farmers

Utilizing data from our small sample survey of independent farmers, we identify the medium-scale farmers that have similar characteristic to farmers that currently operate with contracts. Having identified potentially eligible farmers for contracting, we look at identification criteria such as income from poultry, total income, land size, flock size, and credit availability. Subsequently, we identify regions where large number of observations in the SES survey meet the identification criteria in order to predict which regions are the most eligible for contract extension activities.

Using these criteria we first select the *most eligible* households. These households are the most likely to be viable contract farmers without additional assistance. Subsequently we relax the income requirements to select households that would be eligible with additional financial assistance, most likely in the form of credit. Finally, we relax the flock size (land) requirement in order to highlight households that have many of the same traits as the most eligible households, but would need to pool resources with others in order to meet

minimum scale requirements for contracting. Using these selections, we evaluate the eligibility of regions by the number of households that meet the criteria within a given PSU.

Results

Applying these criteria to the SES data, we find 654 `most eligible' households out of the nearly 45,000 total observations. These households would be the most suitable to enter contracts without any additional assistance. After relaxing the minimum income requirement, an additional 271 households become eligible, raising the total number of viable households to 925 if financial assistance is provided. Finally, we relax the minimum farm size criteria in order to include households that would be eligible if resources were pooled in order to meet minimum scale requirements for viable contracting. In total, we identify 2,330 SES observations that would be eligible with some form of assistance. In order to make these results more interpretable, we incorporate the SES sampling weights and calculate the total population living in eligible households. Table 1 lists the number of eligible households that would require the least assistance (currently eligible) for the ten provinces with the highest number of eligible households.

Table 1: Eligible households by province

Province	Region	Households	Native Chicken[1]	Broilers[1]
Roi Et	Northeast	37,235	1.9	0.5
Amnat Charoen	Northeast	32,234	0.5	0.4
Ratchaburi	Central	31,117	0.4	5.8
Kanchanaburi	Central	24,474	0.8	5.9
Sakon Nakhon	Northeast	23,635	2.3	0.2
Nakon Si Thammarat	South	22,171	1.9	1.9
Ubon Ratchathani	Northeast	20,278	2.4	3.7
Chaiyaphum	Northeast	19,896	1.4	3.4
Kalasin	Northeast	19,469	1.1	0.1
Maha Sarakam	Northeast	17,675	1.1	0.3

[1] Million chicken raised in province (DLD 2009)

Most of the provinces with the greatest number of eligible households are in the northeastern and northern regions of Thailand. In fact, the criteria select only two provinces each from the central and southern regions, respectively. These results are not surprising. Households in the north and northeastern regions tend to rely more heavily on agricultural production for their livelihoods, including livestock. Consequently, supporting rural enterprise development in these regions is a valuable use of resources.

Figure 2:
Viable provinces without assistance

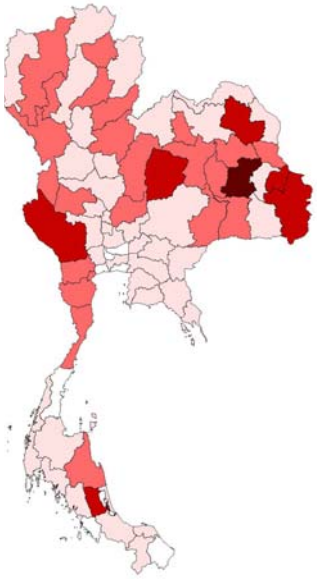


Figure 3:
Viable provinces with financial assistance

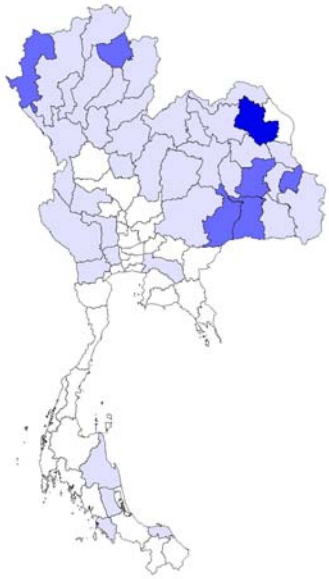
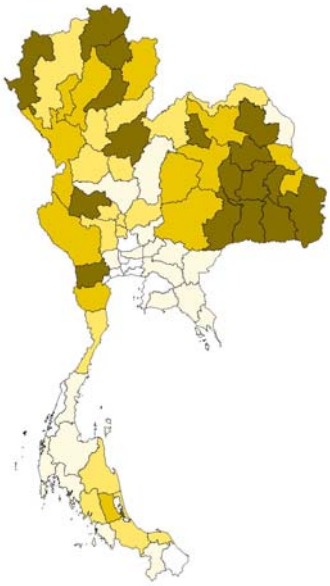


Figure 4:
Viable provinces with resource pooling



Conclusions

In the long term, publicly funded HPAI risk reduction measures are not sustainable. Privately financed approaches to quality improvement have potential to reduce outbreak risks while increasing rural incomes. Moreover, these programmes can be targeted to high-risk farms to maximize their risk reduction potential.

Thailand's history of successful contracting agreements in the formal sector has set a precedent for contracting. Contracting has potential to facilitate market access for poor farmers, increase product quality, and promote more inclusive national economic growth. Detailed surveys of farmers in the informal sector suggest that this approach may be viable for a certain subsection of the informal sector as well.

Using detailed small sample survey data, production characteristics of contracted farms in the formal sector were compared to characteristics of farms in the informal sector and geographical regions where contracting is most viable in the informal sector were identified. Using this approach, we concluded that contracting in the informal sector is likely most viable in the northeastern region of Thailand.