Key points

- Smallholder pig producers in Vietnam are competitive in producing pork that meets the demand requirements of the fresh meat market.
- Smallholder pig producers still use a large proportion of own-produced feeds such as crop by-products and forages. This provides them cost-effective feeding options, thereby enhancing their ability to compete with other suppliers in the same market for fresh pork.
- The availability of household labour also provides a cost advantage to smallholder pig producers; at the same time this generates employment to household labour that would otherwise not be gainfully employed elsewhere, especially women who are limited in their mobility to work outside the home due to child-care and other household responsibilities.
- Smallholder pig producers can potentially exploit their comparative advantage in supplying the market for replacement gilts for local breeding sows, given the existing gap in market requirements especially in upland areas.
- With smallholders largely dependent on publicly provided extension and veterinary services, investments to improve efficiency of public-sector delivery, or incentives to engender more cost-effective private-sector provision, will be necessary to sustain the viability of smallholders to remain competitive.
- There appears to be economies of scale in piglet production among smallholders, suggesting that significant gains in cost efficiency are likely to be experienced by increasing the number of sows from one to at least two or three among households engaged in piglet production.
- There are no apparent economies of scale in other pig production systems, with no significant efficiency gains likely to be obtained by increasing the size of pig herds among households engaged in full-cycle pig raising or in short-cycle pig fattening.

Introduction

High and increasing demand for pork and strong preference for fresh, unchilled meat supplied by traditional market outlets present market opportunities for smallholder pig producers. This strong preference for fresh pork also provides natural trade protection from imports. These demand drivers could underpin the competitiveness of smallholders in the fresh pork market in Vietnam, given the increasing concern about pig meat quality and food safety, particularly among increasingly urbanized and high-income consumers.

On the other hand, sustaining and enhancing this competitiveness in the fresh meat market, be it traditional or modern, still remains a challenge among smallholder pig producers. Compared to large producers, they face constraints arising from their limited resources and capacities and also from prevailing policies and institutions that unduly favour the development of large, industrial farms. Poor genetic stock, low quality feed and animal health problems are major production constraints faced by the majority of smallholder pig producers. Small producers are also disadvantaged by lack of access to timely and reliable market information, and the supporting services in extension, credit and animal health necessary to address the production and marketing constraints.

If smallholder pig producers can produce at lower per unit cost than large producers in the fresh pig meat market, then they will have a chance to remain competitive in that market. This is feasible when smallholders are more efficient users of farm resources such as own-produced feed and household labour, thus giving them a market advantage over large producers that will be difficult to overcome. Identifying viable options for technology, policy and institutions that will enhance smallholder production efficiency will help ensure that smallholders will sustain their comparative advantage and be competitive in supplying the fresh pork market in Vietnam.

1 See related ILRI Research Brief on Demand for pork by Vietnamese consumers: implications for pro-poor livestock policy and development agenda.
3 Relative competitiveness can be defined as being able to produce a product with the required attributes demanded by the market at a lower cost per unit than one's competitors.
Box 1: Background on pig production in Vietnam

Considering the fundamental characteristics of climate and labour, Vietnam has a comparative advantage in the pig sector. This is reflected in the historical dominance of the pig sector in livestock production, accounting for about two-thirds of the total volume of livestock output, on average, over the last two decades. This trend is expected to remain, with continued absolute increases in pig numbers and liveweight. During the last decade, yield (in terms of kilograms liveweight per head) has increased from about 70 kg/head to about 100 kg/head.

Pig production in Vietnam is mainly characterized by small-scale, widely scattered farms. The size distribution of pig farms is dominated by the very small-scale household-based producers with one to five sows, accounting for 84% of all households raising pigs in 2006. This share is slightly lower than the 92% share in 2001, suggesting that household-based pig production is scaling up; this trend is consistent with economic growth (about 7–8% annually) that Vietnam has achieved during the last decade after Doi Moi reforms.

Still, smallholders remain the dominant contributors to supply, accounting for about 80% of total pig output annually. Pig raising households also account for 65% of all agricultural households according to the 2006 survey of agriculture by Vietnam's General Statistics Office.

Pig farms with more than 100 pigs at any given time are officially registered; only 548 such pig farms were recorded in 2003, mostly in the Southeast region (76%) and some in the deltas (13% in the Red River delta and 5% in the Mekong River delta) where large urban centres are located. These pig farms collectively account for about 20% of total annual pig production.

Box 2: Data sources and methods

A structured survey of 1051 households randomly selected from six provinces in Vietnam was conducted in March–May 2008. Of the households surveyed, 700 were pig producers and 351 non-pig producers. The six provinces surveyed were representative of the six agro-ecological regions of the country, namely, Ha Tay in the Red River Delta, Phu Tho in the Northern Uplands, Nghe An in the Northern Central Coast, Dak Lak in the Central Highlands, Dong Nai in the Southeast Coast and Tien Giang in the Mekong River Delta. The sampling design used to select household respondents was based on the Vietnam Household Living Standard Survey 2006 sampling frame.

Descriptive statistical analyses were done on survey data to compare and contrast household pig producers and pig production systems characteristics, use of and access to different types of feed and breed, use of and access to services, access to output markets, and employment generation. Indicators of technical performance such as feed conversion ratio (FCR), and economic performance such as cost per unit output and gross margins were also estimated and compared across scale and production systems. Econometric analyses of feed and breed choice were also done using survey data.

Results

Use of own-produced feed reduces feed cost, enhances cost efficiency

- Feed cost accounts for 64-96% of production cost in smallholder pig production.
- Most smallholder pig producers use a combination of purchased feed, e.g. complete, concentrate and raw feed, and own-produced feed of which forages and crop by-products are the main types.
- The proportion of own-produced feed in total feed use decreases with the number of pigs raised, suggesting that as production intensifies, there will be more pressure to use externally procured feed inputs given limitations in land and household labour for on-farm feed production.
- On the other hand, use of own-produced feed reduces total feed cost, so that appropriate integration of low-cost, nutritionally rich feed options in feeding strategies can enhance the efficiency of feed use. Smallholder pig producers currently are able to exploit this cost advantage by utilizing locally available, low-cost feed options from their own farms.
Crossbreeds are widely adopted and present market opportunities for smallholders to supply breeding stock

- Crossbreed pigs, usually a cross between a local and exotic breed (e.g. Mong cai sow and an exotic boar) are dominant among smallholder pig herds, accounting for 59% of household pig herds, on average.

- Pure local breeds account for about 36% of household pig herds, on average. Small and medium household pig producers have relatively higher proportions of local breeds compared to relatively larger household operations.

- There is relatively low incidence of use of exotic breeds, mainly in large farrow-to-finish systems. This is consistent with the sector trend, where only about 10% of household pig producers keep pure exotics, and mostly those with larger pig herds.

- Currently there is a gap in supply versus demand of replacement gilts for breeding sows, particularly in rural and upland areas, of which Mong cai breed is the most preferred. To fill this gap, piglets are imported from lowland/coastal areas to upland areas; this also increases incidence of disease transmission.

- Breeding piglets for replacement gilts on site will be an effective disease control strategy, while helping smallholders generate better livelihoods as suppliers of breeding stock that is suitable to smallholder production requirements and resources.

Smallholder pig production gainfully employs household labour

- Household labour constitutes the main labour input in household-based pig production; hired labour was only found in a few relatively large-scale household pig fattening operations of more than 40 pigs and not at all in small-scale operations.

- Women labour accounts for 54-71% of total labour days in household pig production, across different production systems.

- Thus, smallholder pig production provides employment to household labour that would otherwise not be gainfully employed elsewhere, particularly women who have less mobility to work away from home due to child-care and other household responsibilities.

Cost efficiency may not necessarily be gained from increasing pig numbers in certain production systems

- There appears to be economies of scale in piglet production (or farrow-to-wean production system) but among smallholder households; that is, the cost of producing one kilogram of liveweight pigs decreases as the number of pigs increases. The majority (95%) of households engaged in this production system have less than three sows, on average, and only 5% have more than four sows.

- Among households that engage in full cycle pig production, or breeding and then raising pigs to full slaughter weight (farrow-to-finish production system), per unit cost does not significantly differ with the number of pigs raised. About 87% of households engaged in this production system have less than three sows; the rest have more than four sows.

- This is also true among households doing pig fattening (grow-to-finish production system). About 89% of households doing pig fattening have less than 40 pigs.

8 Farrow-to-wean production system is piglet production and requires a breeding sow; Farrow to finish production system is raising pigs full cycle and requires a sow to produce the piglets that are raised to become slaughter hogs; Grow-to-finish production system is pig fattening and does not require a sow and piglets are procured externally and fattened for a specific period of time until they reach marketable weight.

9 Small scale refers to households with 1 sow if engaged in farrow-to-wean or farrow-to-finish, or less than 16 heads of pigs if engaged in grow-to-finish; Medium scale includes households with 2-3 sows in farrow-to-wean or farrow-to-finish, or 16-40 heads in grow-to-finish; Large scale refers to households with 4 or more sows in farrow-to-wean or farrow-to-finish, or more than 40 heads in grow-to-finish.

10 Gilts are young female piglets that replace mature sows for breeding.

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- Household-based pig production can generate gross margins ranging from 4000 to 15,000 VND per kilogram liveweight of pig produced (or approximately US$ 0.21–0.78). These figures are good indicators of returns to household labour; current minimum daily wage rate is about 22,000 VND (or US$ 1.15).

- Piglet production and raising pigs in full cycle from breeding to full slaughter weight exhibit the highest gross margins in smallholder pig production, on average.

- Increasing the size of the pig herd from one to at least two or three sows is likely to generate higher returns in piglet production among household pig producers.

- Household-based pig producers are unlikely to achieve significant gains by increasing the size of pig herds in fattening or full-cycle production systems.

Conclusions

- Smallholders are competitive in the current markets being supplied.

- They will be able to remain competitive for as long as they can exploit cost advantages in utilizing low-cost feeding strategies in combination with appropriate breeds to maintain a cost-efficient production system.

- Limitations in land for own-produced feed and available household labour for labour requirements will be constraints to scaling up in some systems that could potentially enhance their efficiency.

- Smallholder pig production provides important income opportunities that compensate household labour that would otherwise not be gainfully employed elsewhere, especially for women and those living in rural areas where employment opportunities may be far and few between.

Implications for pig sector development policy

- Effective provision of credit, veterinary and extension services to improve capacity to deal with production and market risks will further enhance the ability of smallholder pig producers to remain competitive. This suggests the need to improve access to cost-effective feed options, more research for development investment in feed technology development and testing in smallholder contexts, and access to low-cost financing to ameliorate household cash flow constraints in general and increase capacity to adopt productivity-enhancing technologies and supporting services in particular.

- Improved regulatory framework for feed quality standards and enforcement to ensure value for money will also be a necessary policy support to provide an enabling environment for enhancing feed cost efficiency.

- Improvement in delivery of veterinary services, particularly by increasing both quality and quantity of veterinary officers, will also be necessary to sustain the viability of smallholder pig producers. To this end, alternative mechanisms for cost-effective service delivery such as linked transactions or cost-sharing arrangements may be worthwhile exploring.

- Emerging food safety concerns that could impose additional cost (in terms of actual cost incurred or transaction cost in selling safe pork) could compromise the viability of smallholder pig producers without adequate public sector investment to upgrade slaughter and market facilities accessible to these smallholders.

- Due to the lack of economies of scale in household-based pig production (with the exception of piglet production), efforts to promote large-scale pig production may not necessarily improve overall efficiency of the industry. Large-scale operations may likely have difficulty surviving and competing if current policies in their favour were directed elsewhere, for example at interventions that will facilitate the transformation of household-based pig producers into highly efficient production units linked with safe and efficient pork supply chains.

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