Future scenarios for pig sector development in Vietnam: Results from a policy simulation model

Key points

- The modern large-scale pig sector is growing rapidly, due to rising income, urbanization and the proliferation of supermarkets.
- However, it remains small; about 5% of pig production comes from growers with more than 100 pigs.
- Simulations suggest that, under plausible assumptions, the market share of the modern pig sector will grow from 5% to 7% over the next 10 years. Under extreme assumptions, it may reach 12%.
- Under all scenarios considered, the traditional small-scale pig sector continues to grow over the next decade and beyond.
- Improved technology for small-scale farmers would contribute to higher growth for the sector and lower prices for consumers.
- It is likely that growing feed demand will lead to significant maize imports in the future, but improved maize technology will delay and reduce the need to import.

Introduction

There is concern that rising income, urbanization, and the proliferation of supermarkets will shift the composition of pork demand toward higher-quality, chilled and processed pork. This, in turn, may result in large numbers of small-scale pig producers being squeezed out of growing lucrative markets for modern pork products. The research questions addressed in this study are the following:

- How will rising income and urbanization affect total pork demand and the composition of pork demand?
- How will shifts in pork demand influence pig producers, particularly small-scale producers, i.e. will small-scale pig producers be squeezed out of the market?
- How will growth of pig production affect maize markets? Will imports grow?
- How would alternative policies, institutions and technologies influence evolution of the pig sector?
Results

Results from the base scenario

The base scenario reflects the combination of assumptions which appear most likely. In the base scenario, we assume that per capita income growth will be 7% per year (the average over the last decade), population growth will be 1% per year (based on current estimates), maize technology will improve at 5% per year (based on yield growth over the last decade), and pig production technology will grow at a similar rate. Furthermore, we assume that the income elasticity of modern pork products will be 1.8, twice as high as the elasticity estimate for fresh pork (0.9) and higher than estimates derived from the ILRI consumer survey. The main results are described in the table below.

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<th>Results</th>
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<td>Consumption</td>
<td>Traditional pork consumption grows 6% (80% increase over 10 years)</td>
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<td></td>
<td>Modern pork consumption grows 12% (triples over 10 years)</td>
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<td>Maize for human consumption grows slowly (2%)</td>
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<td>Maize for feed grows 6%</td>
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<td>Production</td>
<td>Modern and traditional pig sectors grow 5-6%</td>
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<td>Prices</td>
<td>Traditional pork prices rise slightly as demand outpaces technology. Other prices stable.</td>
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<td>Slowly declining modern pork exports.</td>
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<td>Maize imports begin after four years, grows to 129,000 tons as demand outpaces technology</td>
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<td>Share of traditional pig sector</td>
<td>Remains constant at 5%. Modern pork demand rising faster, but offset by declining exports.</td>
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Results of alternative scenarios

In scenario #2, we assume that per capita income growth is higher, 10% instead of 7% in the base scenario. The demand for both types of pork grows more quickly, squeezing out exports of modern pork products and increasing the growth in maize imports. However, the share of the modern sector in pork production falls from 5% to 4% because of the loss of the export market.

In scenario #3, we adopt a higher rate of technological growth in the modern pig sector, 10% per year instead of 5%. This causes the growth rate in modern pork production to double, but has little effect on pork consumption because the additional quantities are exported. Over 10 years, the share of the modern pig sector rises from 5% to 7% of the total.

Scenario #4 considers the effect of stagnant technology in the traditional pig sector, reducing the growth rate from 5% per year to 0%. This results in a lower annual growth rate in the traditional pig sector (4.5% instead of 6%) and 83% higher prices over the 10 years. Over the 10 years, the share of the modern pig sector rises slightly, from 5.1% to 5.4%.

In scenario #5, we simulate stagnant technology in the maize sector, from lowering the growth rate from 5% per year to 0%. Maize prices rise somewhat, but are capped by the maize import price. Maize imports rise to 2.2 million tons within 10 years, 17 times greater than in the base scenario. The share of the modern pig sector remains at about 5% over the 10 years.

Scenario #6 examines the effect of a higher income elasticity of modern pork products, 2.7 instead of 1.8. Modern pork consumption rises more quickly, but this squeezes out modern pork exports, with little effect on modern pig production. The share of the modern pig sector remains at about 5% over the 10 years.

In scenario #7, we combine the higher income elasticity for modern pork and the higher growth in technology in modern pig production. In the modern sector, consumption growth is quite high (18%) and production growth almost as high (10%), but the share of the modern sector in pig production rises only modestly, from 5% to 7% of the total.

In the last scenario, we simulate a worst-case scenario for the traditional pig sector, with higher income growth, lower income elasticity for traditional pork products (0.5), higher income elasticity for modern pork products (2.7), stagnant technology in the traditional sector, and faster technological change in the modern sector. The result is that the growth rates of traditional pork production and consumption slow significantly, modern pork consumption grows at 27% per year (ten-fold over the decade), and modern pig output rises 14% per year (four-fold over the decade). As a result of these dramatic changes, the share of the modern sector in pig production rises from 5% to 12%. The traditional pig sector continues to grow, albeit at a lower growth rate of 4% per year.
Conclusions

The following conclusions can be drawn from this study:

• The modern pig sector is very small. Large-scale commercial pig growers account for about 5% of production, while chilled, frozen and processed pork products represent just 2% of pork consumption.

• The modern pig sector is likely to remain small over the next decade and beyond. The worst-case scenario for the traditional pig sector is the only one in which the modern sector surpasses a market share of 10% after 10 years.

• Growth in the modern sector depends more on technology than on demand. In the short to medium term, any changes in demand are absorbed by offsetting changes in exports. On the other hand, changes in technology affect the growth of the modern pig sector regardless of whether modern pork products are exported or not.

• Pork product exports phase out within 10 years in most scenarios because of the rapid growth in domestic demand. The only exception is when there is a high rate of technological change within the sector.

• Maize imports expand to 100,000–500,000 tons within 10 years in most scenarios because of the rise in meat demand and livestock production.

Implications for policy and interventions

These findings have several implications for policy and public investment:

1. It not necessary to introduce policies to protect small-scale pig farmers. The small-scale pig sector may grow more slowly than the large-scale sector but will not decline. The modern large-scale sector is too small to threaten the traditional small-scale sector for at least 10 years.

2. The regulation of modern large-scale pig production should focus on environmental and food safety issues, but should not be used to favour small-scale growers.

3. The government should not ‘impose’ modernization of small-scale growers for its own sake. Food safety and animal disease regulation of the traditional sector must take into account feasibility and cost-benefit ratio.

4. Technological improvement in feeds and in pig production plays an important role in the development of the sector. In the modern sector, technology can help maintain exports in the face of growing domestic demand. In the traditional sector, technology will reduce price, maintain market share and have pro-poor impact. In the maize sector, technology will reduce and delay maize imports in response to growing pig and poultry sectors.