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**Cross-Sector Comparisons of Poultry Production in The  
Philippines**

by

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No. 2004-12

**Working Paper Series in**

**Agricultural and Resource Economics**

ISSN 1442 1909

<http://www.une.edu.au/febl/EconStud/wps.htm>

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## **Cross-Sector Comparisons of Poultry Production in The Philippines\***

Hui-Shung (Christie) Chang\*\*

### **Abstract**

The Philippine poultry industry is diverse. It comprises broiler chicken, layer chicken, native chicken and duck. The production of broiler and layer chickens are characterised by large-scale, intensive, commercial production systems with modern technology and imported hybrids. Native chicken and duck production, on the other hand, is characterised by low-input, backyard production by smallholders. The objectives of the paper are to provide an overview of the Philippine poultry industry, make cross-sector comparisons and derive policy implications based on the issues identified. The main conclusion is that although demand outlook is optimistic for the Philippine poultry industry as a whole because of anticipated income and population growth, it faces increasing threats from poultry imports due to higher input costs and less efficient production and marketing systems.

**Key Words:** The Philippines; backyard production; smallholder production; poultry marketing; trade liberalisation.

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\* The author wishes to thank the Australian Centre for International Agricultural Research (ACIAR) for providing the funding for the research project entitled “Future prospects for smallholder Philippine poultry producers: ducks and native chickens”, of which this paper is a part.

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## **Introduction**

Research on meat production worldwide has indicated that poultry is the fastest growing livestock sector. The Philippines is no exception. The outlook for the Philippine poultry industry appears optimistic because the demand for poultry products is expected to increase along with population and income growth (DA and NAFC, 2002a,b). Productivity improvements and developments in marketing infrastructure, such as expansion of food processing, modernising retail sector (such as growth in super and hyper markets), and increasing refrigeration ownership, are additional drivers for future demand growth (Livestock Development Council, 2002; DA and NAFC, 2002a,b). However, there are increasing concerns about the threats from imports (Gonzales, 1995; Mangabat, 1998; Mateo, 2001; Arboleda, 2001).

Like in most countries, and for many years, the Philippine poultry industry has been protected from foreign competition through tariffs and other non-tariff measures. However, since the signing of both global (eg World Trade Organisation) and regional (eg Asia Pacific Economic Cooperation and ASEAN Free Trade Area) trade agreements in the mid-1990s, imports of poultry meats (mainly frozen chickens and ducks) have increased substantially. These agreements have resulted in the lowering of tariffs and removal of quantitative restrictions on agricultural products, including poultry. It is envisaged that as trade liberalisation continues and trade barriers are reduced further, the Philippine poultry industry will face increasing competition, especially from overseas. Continuing survival, and growth, of the Philippine poultry industry depends on its ability to compete in the global market, which, in turn, depends largely on the efficiency in its production and marketing systems.

A number of studies have looked at the impact of trade liberalisation on the commercial poultry sector. In most cases the commercial poultry sector was found uncompetitive with imports in a more liberalised trade environment (e.g. SEARCA, 1999; SIKAP/STRIVE, 2001). However, to date little attention has been given to the backyard poultry sector and little is known about how it will be affected by trade liberalisation. The backyard poultry sector deserves more attention because it comprises the majority of the poultry production in the Philippines. For example, backyard ducks and native chickens

still accounted for more than 60% and 75%, respectively, of the total duck and chicken inventories in 2002 (BAS, 2004a,b). It is also worth a separate investigation because it differs from the commercial sector not only in terms of the scale of operation but, more importantly, the respective production and marketing issues. Therefore, distinction is made between the commercial and backyard operations in this paper, with the discussion being focused on the recent developments in sectoral growth and industry structure.

The objectives of the research are to identify the issues and opportunities facing the Philippine poultry industry and to suggest policy responses. The paper is organised as follows. First, an overview of the poultry sector is provided on production, consumption, price and trade of major poultry products. Problems and opportunities facing the poultry industry and its sub-sectors are then identified, followed by policy recommendations and concluding remarks.

### **Value of poultry production**

The Philippine poultry industry, despite some ups and downs over the years, is a fast growing sector in the Philippine agricultural sector. In 2002, the Philippine poultry industry generated 40.3 billion Philippine pesos (BAS, 2003a), which is equivalent to \$A1.61 billion (based on the exchange rate of 25 Philippine pesos in an Australian dollar in 2002). As can be seen from Table 1, this represented a 14.5% increase from 2001 (with a value of 35.2 billion Philippine pesos). The value share of the poultry production, as a percentage of the value of total agricultural production, also increased from 12.81% in 2001 to 13.7% in 2002. By comparison, the crops, livestock and fishery sectors all showed some decline in their value shares during the same period. The increase in the value share of the poultry sector indicates that it is growing at a faster rate than all other agricultural sectors. Further, the growth in the poultry sector appears to have come from chicken meat and duck egg production, where similar increases were observed.

Also can be seen from Table 1, values of production for chicken meat, chicken eggs, duck meat, and duck eggs in 2002 were 29.7, 7.9, 1.4 and 1.3 billion Philippine pesos, respectively. The corresponding value shares were 10.10, 2.69, 0.48 and 0.43%. Clearly, the chicken sector is substantially larger than the duck sector. It is also evident that for

chickens, the meat sector is four times as large as the egg sector while duck meat and duck egg sectors are more similar in value terms.

Table 1. Values and shares of agricultural production by sector, 2000-2002

Sub-sectors	2000		2001		2002	
	In million pesos	%	In million pesos	%	In million pesos	%
Poultry Total	32,876.65	11.90	35,196.92	12.81	40,287.84	13.70
Chicken Meat	23,510.38	8.51	25,773.99	9.38	29,717.05	10.10
Duck Meat	1,348.29	0.49	1,473.65	0.54	1,402.91	0.48
Chicken Eggs	6,872.71	2.49	6,794.36	2.47	7,896.94	2.69
Duck Eggs	1,145.27	0.41	1,154.92	0.42	1,270.95	0.43
Crops	125,961.27	53.28	137,077.89	49.90	146,399.25	49.78
Livestock	48,606.05	17.60	50,441.07	18.36	52,287.96	17.78
Fishery	47,547.34	17.22	52,011.47	18.93	55,131.62	18.75
Total	276,185.49	100	274,727.35	100	294,106.68	100

Source: BAS 2003a.

### Volume of poultry production

Over the observation period 1991-2002, major poultry products in the Philippines exhibited some forms of growth in volume terms. Specifically, chicken meat showed the highest growth rate at 6.73% per annum, followed by duck meat (4.51%), duck egg (4.03%) and chicken egg (3.59%) (see bottom of Table 2).<sup>1</sup> Overall, the poultry sector as a whole had grown at 5.56% per annum over the period between 1991 and 2002.

<sup>1</sup> Growth rate is calculated based on the following formula:  $r = [(y/x)^{1/n}] - 1$ , where r is the annual compound growth rate; x and y are volumes of production in the first and the last year of the observation period, respectively, and n is the number of years being considered.

Table 2. Volumes of poultry production by product type (in tonnes), 1991-2002

Year	Dressed Chicken	Chicken eggs	Dressed duck	Duck eggs	Total
1991	286,874	170,810	6,513	33,400	497,597
1992	356,398	180,520	7,537	36,750	581,205
1993	364,481	202,100	8,531	39,200	614,312
1994	376,607	196,040	9,009	41,570	623,226
1995	399,651	199,910	9,701	47,690	656,952
1996	455,097	205,590	10,433	54,460	725,580
1997	496,686	222,870	10,394	52,960	782,910
1998	491,227	227,000	10,481	53,100	781,808
1999	496,429	229,880	10,472	52,650	789,431
2000	533,118	243,380	10,520	53,470	840,488
2001	587,067	246,200	10,940	53,920	898,127
2002	627,105	260,820	11,057	53,630	952,612
Growth rate	6.73%	3.59%	4.51%	4.03%	5.56%

Source: BAS, 2003b.

The volume share of each of the poultry products is shown in Table 3. As can be seen, during the period 1991-2002 chicken meat accounted for around 62.17% of total poultry production, followed by chicken egg (29.91%), duck egg (6.59%) and duck meat (1.33%). Notice that the volume share of chicken meat has shown a positive growth, while the other three poultry products all showed a decline. Specifically, the chicken meat share has increased at a rate of 1.11% per annum while shares of chicken egg, duck meat and duck egg have decreased at 1.87%, 1% and 1.45%, respectively. This means although all poultry products have shown growth in volume terms in the past decade, as shown in Table 2, the chicken meat sector has been growing at a higher rate than the rest.

Table 3. Volume shares of poultry production by product type (in %), 1991-2002

Year	Dressed Chicken	Chicken eggs	Dressed duck	Duck eggs
1991	57.65	34.33	1.31	6.71
1992	61.32	31.06	1.30	6.32
1993	59.33	32.90	1.39	6.38
1994	60.43	31.46	1.45	6.67
1995	60.83	30.43	1.48	7.26
1996	62.72	28.33	1.44	7.51
1997	63.44	28.47	1.33	6.76
1998	62.83	29.04	1.34	6.79
1999	62.88	29.12	1.33	6.67
2000	63.43	28.96	1.25	6.36
2001	65.37	27.41	1.22	6.00
2002	65.83	27.38	1.16	5.63
Average	62.17	29.91	1.33	6.59
Growth rate	1.11	-1.87	-1.00	-1.45

Total poultry production and the leading producing regions for the poultry sub-sectors in 2002 are summarised in Table 4. It can be seen that poultry production in the Philippines is geographically concentrated in a few regions. For chickens, Regions III, IV and XI accounted for 63% of total chicken meat production and Regions IV, III and VII accounted for 55% of total chicken egg production (BAS, 2004b). For ducks, the top three producers are Regions III, VI and XII. Together, they had a combined market share of around 45% for both duck meat and duck egg (BAS, 2004a). Region III, being the overall leader in poultry production in the Philippines, accounted for 30%, 15%, 23% and 23% of the total production of chicken meat, chicken eggs, duck meats and duck eggs, respectively.

Table 4. Geographic distribution of poultry production (in tonnes, live weight),<sup>2</sup> 2002

Region	Chicken Meat	Chicken Eggs	Duck Meat	Duck Eggs
Car	7,176	2,291	985	891
Region I	51,194	7,573	2,300	2,152
Region II	45,717	9,041	5,909	5,745
Region III	352,686	38,821	12,671	12,273
Region IV	297,890	78,421	3,957	4,065
Region V	26,333	17,082	1,826	1,337
Region VI	69,501	21,472	5,724	6,978
Region VII	76,096	25,767	1,158	1,146
Region VIII	37,047	5,974	2,288	1,782
Region IX	26,012	7,412	1,309	1,488
Region X	42,642	17,493	3,618	3,727
Region XI	85,535	18,370	3,663	3,142
Region XII	33,372	5,885	5,168	4,796
Caraga	13,866	2,788	1,428	1,452
Armm	8,671	2,440	2,103	2,659
Total	1,173,738	260,830	54,107	53,633

Source: Poultry Statistics, BAS, 2003, [www.bas.gov.ph/stats/lpsd/05p02.html](http://www.bas.gov.ph/stats/lpsd/05p02.html) (also from 06p02.html to 08p02.html)

The domination by few leading producing regions reflects the competitive advantage they all share in terms of access to major inputs and markets. Although such a high degree of geographical concentration has its advantage in marketing and sourcing of inputs, it presents significant challenges to on-farm disease control and waste management. A disease outbreak, such as the bird flu which has plagued a number of poultry producing countries worldwide in recent years,<sup>3</sup> can be disastrous with the potential to wipe out the entire industry in a very short time.

<sup>2</sup> Live weight is estimated by simply converting the inventory number into weight. It is not to be confused with the volume of production presented in Table 2, which represents the actual quantity supplied.

<sup>3</sup> Unlike its neighbours, the Philippine is lucky enough to escape the bird flu.



## **Commercial versus backyard production**

Poultry inventory in the Philippines is classified into “commercial” and “backyard”. A poultry farm is classified as “commercial” if it has more than 100 birds (BAS, 1987). Otherwise, it is “backyard”. Commercial poultry farms can be further classified into small, medium and large to suit different purposes.<sup>4</sup> In addition to the classification on the basis of the size of the operation, the chicken inventory is also classified into three sub-categories – native, broiler and layer chickens. Native chickens are defined as those that are NOT of the recent imported hybrid chickens with foreign strains and include chickens that are crosses of local chickens with foreign strains (so called “improved breeds”). Layers and broilers, on the other hand, are imported hybrids. Layer and broiler chickens were referred to as “commercial” chickens in BAS statistics until 1998.<sup>5</sup> Likewise, native chickens were referred to as “backyard” because they were more commonly raised in the backyard by smallholders.<sup>6</sup> Chicken inventory numbers for the three sub-categories during 1990-2002 are shown in Table 5.

- *Chicken inventory*

In 2002, the inventory shares were 60.29%, 26.37% and 13.34% for native chickens, broiler and layer chickens, respectively (Table 5). Therefore, the commercial chickens (broiler and layer chickens) make up about one third of the total chicken population while native or village chickens from smallholders make up about two thirds. Although there is no public information about the market share of commercial broilers in chicken meat production, commercial table egg production was reported to account for 68% of the total chicken eggs produced in the Philippines (the remaining 32% comes from native/improved chickens) (DA and NAFC, 2002b). This means native chickens are used

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<sup>4</sup> For example, commercial duck farms were classified as small commercial (100 - 500 heads), medium commercial (501 – 1,000 heads) and large commercial (more than 1,000 heads) while commercial chicken farms were classified into small commercial (100 - 900 heads), medium commercial (1,000 – 10,000 heads) and large commercial (more than 11,000 heads) (SEARCA, 1999). Note that such classifications are basically ad hoc applicable only to a particular data set and analysis. It appears that the current classification systems may need to be revised to reflect more clearly the key characteristics of the production systems.

<sup>5</sup> Not until 1998 were data for layers and broilers separated. Prior to that, they were combined and referred to as “commercial” chickens in BAS statistics.

<sup>6</sup> Because of the loose definition and the diversity of the poultry production systems, it is conceivable that commercial chickens can be raised in the backyard while some native chicken farms have more than 100 birds.

both for meat and egg production and therefore their contribution to the poultry sector, and productivity, should be assessed taking into account both meat and egg production. More also needs to be known about their share of poultry meat production.

Table 5. Population of chicken by type (in '000 head), 1990-2002

Year	Broiler	Layer	Native	Total
1990	26,565	9,814	45,924	81,303
1991	24,529	9,330	45,391	78,240
1992	27,356	7,406	46,763	81,525
1993	31,173	8,602	47,384	87,159
1994	34,771	8,342	50,087	93,200
1995	27,885	9,364	58,996	96,215
1996	39,312	10,796	65,675	115,783
1997	46,558	11,466	76,939	134,963
1998	43,087	12,272	78,965	134,324
1999	34,770	13,366	67,703	115,839
2000	30,230	16,178	71,250	117,658
2001	28,960	14,870	71,780	115,610
2002	33,150	16,775	75,805	125,730
Growth rate	1.72%	4.21%	3.93%	3.41%

Source: BAS, 2004b.

Also indicated at the bottom of Table 5 is the fact that the chicken sector has experienced an overall growth at 3.41% per annum during 1990-2002, with broiler, layer and native sub-sectors growing at 1.72, 4.21 and 3.93%, respectively.

- *Duck inventory*

Like the chicken sector, the duck industry is also dominated by smallholders (Table 6). In 2002 more than three quarters of ducks were still being raised in small-scale, backyard operations, with less than 100 heads per household. However, there is a change in the industry structure where the percentage share of ducks raised under commercial scale increased from about 12% in 1990 to about 23% in 2002 (Table 6). The growth in the

inventory share of the commercial sector has been attributed to the introduction of commercial duck feeds. Traditionally, ducks were raised on naturally occurring feeds in and around rivers and lakes and rice paddy fields. However, the advent of commercial feeds has allowed duck raisers to increase the scale of production, as well as raising ducks in traditionally non-duck areas. The latter also has resulted in changes in the geographical distribution of ducks in the Philippines. More detailed information on the industry structure of the Philippine duck industry can be found in Chang and Dagaas (2004).

Table 6. Philippine duck inventory (in head), 1990-2002

Year	Total	Backyard		Commercial	
		Head	%	Head	%
1990	7,356,270	6,494,480	88.28	861,790	11.72
1991	8,267,690	7,417,520	89.72	850,170	10.28
1992	8,348,291	7,660,895	91.77	687,396	8.23
1993	8,706,783	8,175,475	93.90	531,308	6.10
1994	8,186,877	7,585,108	92.65	601,769	7.35
1995	9,072,203	6,855,460	75.57	2,216,743	24.43
1996	9,469,693	7,335,159	77.46	2,134,534	22.54
1997	8,923,496	6,762,241	75.78	2,161,255	24.22
1998	8,823,566	6,953,335	78.80	1,870,231	21.20
1999	8,613,651	6,589,101	76.50	2,024,550	23.50
2000	9,242,711	7,074,944	76.55	2,167,767	23.45
2001	9,986,803	7,810,034	78.20	2,176,769	21.80
2002	9,911,269	7,650,162	77.19	2,261,107	22.81
Growth rate (%)	2.32	1.27	-1.03	7.70	5.26

Source: BAS, 2004a.

In 2002, the top five duck producing regions were Regions III, VI, II, IV and VI, accounting for 65% of total duck inventory. Sixty-four percent of total backyard production concentrated in five regions, including Cagayan (Region II) (12%), Central

Luzon (Region III) (15%), Western Visayas (Region VI) (17%), Southern Mindanao (Region XI) (11%) and Central Mindanao (Region XII) (9%) (BAS, 2002). Commercial duck farms, on the other hand, were located in two regions, Central Luzon (52%) and Southern Tagalog (Region IV) (27%), which accounted for 79% of total commercial duck production.

These statistics indicate that commercial operations are much more concentrated than the backyard operations. In addition, the commercial sector is growing faster than the backyard sector (5.26% versus 1.27%) (bottom of Table 6), accounting for a growing share of total duck inventory. As the commercial sector expands further, the geographical concentration of the commercial sector can be expected to increase. Such a development will result in more efficient marketing and production systems similar to what has been observed in the commercial chicken sector. However, it is likely to be at the expense of the backyard sector in terms of market access and sale prices.

### **Poultry consumption**

Chicken meat is the second most popular meat in the Philippines, following pork. It can be seen in Table 7 that in 2002 annual per capita pork consumption was 13.85kg, followed by chicken (8.04kg) and beef (2.16kg). The growth rates in per capita consumption for pork and beef over the period 1991-2002 were 1.92% for pork, 2.92% for beef and 4.84% for chicken. The demand for chicken is increasing faster, as observed elsewhere in the world, because of its many advantages, such as lower price, lower fat contents and more convenient, over other meats.

In 2002, annual per capita consumption for chicken egg, duck egg and duck meat were 3.02 kg, 0.63 kg and 0.14kg, respectively (Table 7). All have shown little growth in the past ten years. Poultry meat consumption in the Philippines is relatively low compared to neighbouring Asian countries. For example, annual per capita chicken meat consumption in Thailand and Malaysia were 11.5 kg and 27 kg, respectively (DA and NAFC, 2002a). Low household incomes and high retail prices were cited as the main reasons behind the low demand (DA and NAFC, 2002a,b).

Table 7. Per capita consumption of meat products (in kg), Philippines, 1991-2002

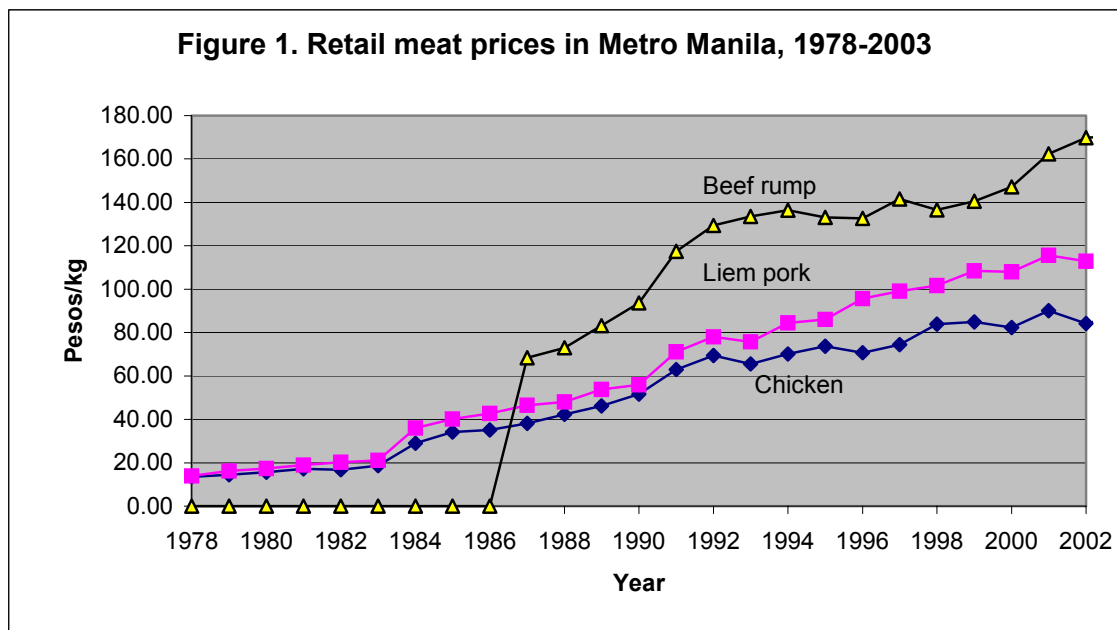
Year	Chicken egg	Chicken meat	Duck egg	Duck meat	Pork	Beef
1991	2.50	4.56	0.50	0.10	11.03	1.53
1992	2.59	5.55	0.54	0.12	10.79	1.6
1993	2.84	5.57	0.57	0.13	11.04	1.74
1994	2.63	5.49	0.57	0.13	11.02	1.9
1995	2.69	5.85	0.66	0.14	11.65	2.03
1996	2.70	6.51	0.73	0.15	12.21	2.22
1997	2.87	6.96	0.70	0.15	12.54	2.43
1998	2.86	6.75	0.68	0.15	12.69	2.32
1999	2.83	7.03	0.66	0.14	13.1	2.43
2000	2.93	7.20	0.66	0.14	13.35	2.47
2001	2.91	7.68	0.65	0.14	13.51	2.17
2002	3.02	8.04	0.63	0.14	13.85	2.16
Growth rate	1.59%	4.84%	1.94%	2.84%	1.92%	2.92%

Source: BAS, 2003b.

In contrast to the chicken meat sector, the Philippine egg industry has suffered setbacks because of the negative publicity associated with the level of cholesterol in eggs for the past two decades. However, more recent studies have shown that the cholesterol and other trace elements contained in poultry eggs are actually “good for you”. Based on the new findings, the Philippine egg industry through its “Egg Board” has embarked on activities to promote the goodness of eggs and to change consumer perceptions (Philippine Egg Board, 2002).

Basic demand theory suggests that the demand for a product depends on its own price, the prices of substitutes and complements, income, demographics and consumer preference, as well as occasional demand shocks to the system such as a FMD outbreak (Deaton and Muellbauer, 1980). A number of meat demand studies have found that the demand for chicken has been increasing because it has become cheaper relative to other meats. Some suggest that it is a result of income growth (eg DA and NAFC, 2002a).

Others have argued that the increased demand for chicken is a result of changing consumer preference, which is in favour of chicken. To learn more about whether and why the demand for meats has changed over time in the Philippines would require a demand systems analysis to determine consumer responses to changes in prices and income, as well as changing demographics and eating habits, as suggested in (Deaton and Muellbauer, 1980). Nevertheless, based on experiences overseas it is reasonable to predict, first of all, that the demand for chicken, pork and beef will increase as income grows, but with poultry meat experiencing faster growth (Taha, 2003). Secondly, the demand for chicken meat may increase significantly in the near future at the expense of pork as chicken price becomes even cheaper relative to pork. The retail prices of three most popular meats in the Philippines, pork, chicken, and beef, in the past two decades (1978-2002) are shown in Figure 1.<sup>7</sup> It is evident that beef is the most expensive, followed by pork and chicken. In addition, chicken meat has become more price competitive than beef or pork.



Source: Market Development Division, Bureau of Animal Industry, 2004.

<sup>7</sup> Note that beef prices are not available prior to 1987.

Thirdly, some of the increased demand may be filled by imports that are cheaper to produce overseas. This is particularly true for beef for which the Philippines does not have a comparative advantage in production and border protection is relatively weak.

### Poultry prices

Farmgate prices for poultry products in the Philippines are presented in Table 8. Note that eggs are a cheaper alternative to meats.<sup>8</sup> Note also that there are price premiums associated with native chickens compared to their commercial counterpart. Price premiums reflect the strong consumer preference for the unique taste of native chickens, which are more flavourable and juicier than broilers. These favourable traits are recognised elsewhere, eg Japan, Taiwan, Thailand, China, Africa and Egypt, and have been scientifically proven in several studies (eg Fujimura et al., 1994; Gueye et al., 1997; World Poultry, 2004).

Table 8. Farmgate prices of poultry products (in Philippine pesos/kg), 1990-2002

YEAR	Broiler	Native chicken	Duck	Chicken egg	Duck egg
	live weight				
1990	34.47	38.01	-- <sup>a</sup>	37.38	32.85
1991	45.88	42.96	--	44.10	34.95
1992	53.61	50.10	--	48.09	34.50
1993	50.57	49.90	--	46.20	35.85
1994	55.11	53.64	--	47.46	36.00
1995	47.78	56.54	--	45.36	38.40
1996	47.89	63.29	--	47.46	39.60
1997	48.12	66.65	--	48.72	40.35
1998	54.91	65.94	--	55.86	45.75
1999	52.55	68.25	--	59.64	48.00
2000	57.96	--	53.10	56.91	43.20
2001	65.96	--	58.47	56.28	44.25
2002	56.84	--	55.73	63.80	45.60

-- Not recorded or not available. Source: BAS, 2003a.

<sup>8</sup> Farmgate prices are presented here since wholesale and retail prices for native chickens and ducks are either not available or not reported consistently.

However, price premium alone does not necessarily imply higher profitability because of lower productivity. Productivity between the commercial and backyard sectors appears to differ substantially. For example, annual chicken egg production is around 300 per hen for imported hybrid layers but only 40 for native chickens. Also, it takes broiler chickens 7 weeks to reach a body weight of 1.8-1.9 kg, while it takes about 18-20 weeks for native chickens to reach about 1.2-1.5 kg. On the surface, native chickens may appear to be unproductive. However, it should be remembered that native chickens are dual-purpose and are raised with minimum inputs.

Another issue facing the Philippine poultry industry is seasonal variation in demand and supply, and hence the resulting fluctuating prices. Table 8 illustrates monthly price variations at different marketing levels. Broiler data in 2003 are used for demonstration since no comparable price data are available for other poultry products. In Table 9, it is shown that the fully dressed chicken price at the retail level varies from a low of 80.50 Philippine pesos/kg in March to a high of 107.2 Philippine pesos/kg in December, with an average of 87.91 Pesos/kg over the 12-month period. Likewise, wholesale and farmgate prices have fluctuated in the similar manner.

Table 9. Monthly average prices of broiler (in Philippine pesos/kg), 2003

Month	Dressed	Wholesale	Farmgate	R-W	W-F	Farm/Retail
January	82.25	64.97	42.49	17.28	22.48	0.52
February	80.67	62.84	41.88	17.83	20.96	0.52
March	80.50	63.36	39.61	17.14	23.75	0.49
April	83.17	69.52	53.12	13.65	16.40	0.64
May	84.83	71.49	54.01	13.34	17.48	0.64
June	89.16	74.88	57.40	14.28	17.48	0.64
July	89.01	74.09	55.02	14.92	19.07	0.62
August	87.39	72.28	50.78	15.11	21.50	0.58
September	85.80	69.92	46.14	15.88	23.78	0.54
October	89.43	76.53	55.54	12.90	20.99	0.62
November	95.48	81.00	62.00	14.48	19.00	0.65
December	107.20	83.84	64.62	23.36	19.22	0.60
Average	87.91	72.06	51.88	15.85	20.18	0.59

Source: Market Development Division, Bureau of Animal Industry, 2004.



Also shown in Table 9 are marketing margins or price spreads for broilers. It is evident that the largest price spread between the retail and wholesale prices occurred in December when both prices were at their highest. The price spreads between wholesale and farmgate prices were highest in March and September when the farm prices were the lowest. Note also that the price spread between wholesale and farmgate prices was generally bigger than that between retail and wholesale prices (20.18 Philippine pesos/kg versus 15.85 Philippine pesos/kg) (see bottom of Table 9).<sup>9</sup> The farm share (ie the ratio of farm price to retail price) ranged from 49% to 65%, averaging at 59%. This means that for every consumer dollar (or 100 Pesos) spent on broiler meat, the broiler producers receive, on average, 59 cents (59 Pesos).

In principle, price spread in a competitive market reflects the costs of providing marketing services (Rhodes and Dauve, 1998, pp. 162-169). Therefore, the more marketing services (including risk-taking) and the more middlemen are involved in moving the product down the marketing chain, the larger the price spread. However, it is not always straightforward to assess whether the price spread is reasonable and whether the producer has received a fair share. First of all, collecting information on the services being provided and the associated costs is difficult because of the proprietary nature of such information. Secondly, even if data are available, it may not be representative or of reliable quality. Thirdly, it is difficult to define what a reasonable or fair return should be for all parties concerned. Therefore, cautions should be exercised in interpreting the information presented in Table 9. Generally speaking, marketing margins have increased and farm shares have decreased over time for agricultural products because more and more marketing services are required to meet consumers' demand for more convenient and higher quality products (Rhodes and Dauve, 1998, pp. 168-169).

### **Poultry trade**

Government intervention in poultry trade in the forms of tariff and quantitative restrictions has always been an important part of the Philippine agricultural policies because of the desire to be self-sufficient. However, quantitative restrictions have largely been abolished (except for rice) and tariffs reduced since the mid-1980s as a result of

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<sup>9</sup> No test was employed to test the statistical significance of the differences because of small sample size.

tariff reforms and the accession to WTO in 1995 (Cororaton and Suenca, 2000). Table 10 shows the change in tariffs over time for chicken and duck meats as a consequence of trade liberalisation. Note the substantial tariff reductions under the new trading regimes. More specifically, the tariffs were 50 to 70% for the period 1993 to 1994, but these were reduced to 40% by 2003.

Table 10. Tariff rates for chicken and duck meat (in %), 2002-2004

HS CODE (Commodity)	2002		2003		2004	
	In quota	Out quota	In quota	Out quota	In quota	Out quota
0207 (Poultry)						
Frozen Chicken (Whole)	40	60	40	40	40	40
Frozen Chicken (Liver)	40	60	40	40	40	40
Frozen Chicken (Cuts/Other Offals)	40	50	40	40	40	40
Frozen Ducks (Whole)	40	50	40	40	40	40
Frozen Ducks (Cuts/Other Offals)	40	60	40	40	40	40

Source: Department of Agriculture, 2003b.

It is evident from Table 11 that, during the past decade (1991-2001), imports of poultry products have increased, but with high degrees of fluctuations. For example, chicken meat imports increased from 71.00 tonnes in 1991 to a peak of 29,392 in 1999. Chicken egg imports also showed great fluctuations despite less complete data. For duck products, egg imports increased four-fold from 56.12 tonnes in 1991 to 218.62 tonnes in 1994, which was gradually being reduced to 22.88 tonnes in 2001. Imports of duck meat have likewise fluctuated between a low of 6.3 tonnes in 1991 and a peak of 421.84 tonnes in 1997. These fluctuations can be attributed to the more liberal trade regimes since the mid-1990s, changes in domestic supply, the devaluation of Philippine pesos, and instability and uncertainty in the economy, particularly following the Asian financial crisis in the late 1997.

Table 11. Importation of poultry products (in tonnes), 1991-2002

YEAR	Chicken meat <sup>a</sup>	Chicken egg <sup>b</sup>	Duck meat	Duck egg
1991	71.00	218.48	6.30	56.12
1992	42.00	238.16	8.60	103.80
1993	113.38	10.90	60.95	212.04
1994	198.36	5.91	150.74	218.62
1995	219.00	8.34	189.03	157.87
1996	213.00	Not available	260.79	175.74
1997	973.00	Not available	421.84	156.49
1998	2,477.00	Not available	329.80	167.71
1999	29,392.00	11.11	302.21	171.92
2000	12,564.00	15.72	189.75	161.22
2001	11,154.00	25.95	118.28	106.32
2002	12,176.00	7.41	490.34	22.88

<sup>a</sup> Chicken meats include fresh, chilled/frozen, dried/salted, prepared/preserved and processed meat. These data are taken from Livestock Development Council, "Chicken importation, 1991-2002", [www.lfc.gov.ph/import-chicken.html](http://www.lfc.gov.ph/import-chicken.html).

<sup>b</sup> Chicken egg are hens' eggs in shell, fresh, preserved/cooked.

Source: "Supply and Utilisation Accounts", BAS, 2003b.

Poultry exports have been quite limited. In 2000 and 2001, 11.07 tonnes and 10.41 tonnes of duck eggs were exported, respectively, mostly in the form of hatching eggs (ie partly incubated eggs which contain embryos that are about 20 days old). No poultry meat exportation was recorded during the observation period. However, there are reports that exportation of broiler meat is being contemplated by some integrators.

- *Chicken meat imports*

Despite the substantial increases in chicken meat importation since 1997, the volume of imports was far below the Minimum Access Volume (MAV) commitments of 3% of domestic consumption. For example, the in-quota MAV for fresh/chilled/frozen poultry were set at 22,525 tonnes in 1995/96, 16,160 tonnes in 1997, 16,701 tonnes in 1998, 17,746 tonnes in 1999, 18,790 tonnes in 2000, 19,834 tonnes in 2001, 20,879 tonnes in 2002, and 21,923 tonnes in 2003 (Department of Agriculture, 2003a). Note that imports

have not reached the allocated MAVs under the new regimes, particularly in the earlier years. One reason for the low utilisation rates is that consumers prefer fresh local poultry products to frozen imports (SEARCA, 1999). Therefore, consumer preference may have served as a natural import barrier (SEARCA, 1999). Nevertheless, the utilization rate has increased in more recent years, reaching 94.7% in 2003. A large proportion of the imported frozen chicken meat is used by the processing sector while some is sold in the wet markets as fresh or chilled. In either case, increased imports pose an increasing threat to the domestic broiler industry, as well as the sector egg and other meat sectors because of potential substitution effects.

- *Duck meat imports*

Traditionally, the Philippine duck industry focuses mainly on the egg-type Philippine Mallard ducks for the production of “Balut” (embryonated eggs of 14-18 days old).<sup>10</sup> As a result, duck meat is derived mainly from the culled or excess male ducks which is used in traditional dishes such as “kinulob na itik” (Lambio, 2001).<sup>11</sup> Production of the specialty meat-type ducks has been quite limited. To meet demand for high quality duck meat from the food service sector, frozen duck meat has increasingly been imported from China, Australia, USA, Taiwan, Hong Kong and Canada (University of Asia and the Pacific, 1999). As income grows and urbanisation continues, the demand for high quality duck meat can be expected to increase as urban and more affluent consumers demand greater variety and higher quality. Given the massive amount of culled or excess male ducks that are being produced as by-products from balut making, it appears that better utilisation of these by-products has the potential to substantially improve the returns to duck raisers and downstream processors.

### **Major issues**

The demand outlook appears positive for the Philippine poultry industry given its current low level of per capita consumption and anticipated growth in population and household incomes. However, like many other poultry sectors in the world, it faces increasing

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<sup>10</sup> More detailed discussion of the Philippine poultry industry is provided by Chang and Dagaas (2004).

<sup>11</sup> Taha (2003) pointed out that deriving meat from culled birds and males is typical of backyard poultry production. Such a production system can be expected to become obsolete over time as commercialisation and specialisation become the norm.

consumer demand for food safety and product quality, public concerns over animal welfare and the environmental impact associated with intensive poultry production, and increasing global competition. In addition, the commercial sector appears to be relatively uncompetitive because of higher input costs, below-par on-farm productivity, and an inefficient marketing system (DA and NAFC, 2002a,b; SEARCA, 1999; SIKAP/STRIVE Foundation, 2001). The backyard sector, on the other hand, is characterized by low productivity and high degree of diversity, which contribute to variable product quality and inconsistent supply. Issues facing the Philippine commercial and backyard poultry sectors are discussed in more detail below.

- *The commercial sector*

The commercial chicken sector in the Philippines has shown continuing growth since the introduction of modern technologies in the 1960s. The sector is characterised by (SEARCA, 1999; SIKAP/STRIVE Foundation, 2001):

1. modern foreign breeds from the western countries;
2. the use of vaccines and drugs to control diseases;
3. the use of advanced technology to raise chickens; and
4. vertically integrated production system.

While growth has become more significant in the past decade, there are major issues facing the commercial sector, including market instability, high input costs, inefficient marketing systems and threats of imports.

**Market instability.** Although some of the issues are relatively complex to sort out, SEARCA (1999) offered some explanations. Firstly, fluctuations in demand reflect the instability in economic activities, such as the devaluation of Philippine pesos and the financial meltdown in 1997. Secondly, fluctuations in supply are a result of relatively shorter poultry production cycles, as well as a lack of planning on the part of the industry as a whole. While the short production cycles enable the poultry sector to respond more quickly to changing market conditions, it can also exacerbate the imbalance of demand and supply, especially when the market is judged wrongly. For example, the highly cyclical local markets or an unexpected shock to the market may be misinterpreted as a

permanent change in demand and responded as such.<sup>12</sup> Over-expansion in some years has resulted in low prices and financial losses and have forced out less efficient, and often less capitalised, operations. As the industry consolidates, it has become highly concentrated.<sup>13</sup> Thirdly, the accession to GATT-WTO in 1995 also contributed to the less than stable industry growth because of the entry of cheaper (and sometimes illegal) imports.

It appears that market stability can be improved through better planning with more reliable and time industry data and forecasts and more cooperation in information sharing between industry participants and between the industry and the government.

**Input costs.** Although modern technology has increased productivity significantly compared with more traditional production methods, the disadvantage is that it depends heavily on imported inputs, including breeding stock, veterinary supplies and feedstuffs. Since feed costs make up close to 70% and Day-Old Chicks (DOC) make up about 25% of the total cost of intensive poultry production, lowering input costs has been cited as the most important factor for improving global competitiveness (Arbolada, 2001; Mateo, 2001; DA and NAFC, 2002a,b). High input costs have been exacerbated by the continuing devaluation of the Philippine pesos in recent years because a weakened peso makes imported goods more expensive.

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<sup>12</sup> From 1990 to 2000, the Philippines imported almost eight million Grand Parent Stocks (GPS) and Parent Stocks (PS) from Thailand and the United States (Livestock Development Council, 2002). In 1995, 2 million birds were imported in response to the FMD outbreak in 1994 and 1995 (SIKAP/STRIVE Foundation, 2001). However, the anticipated demand increase did not materialise. The over-expansion resulted in overproduction in 1996 and 1997. In 2000, the volume of imports was 1.7 million birds (Livestock Development Council, 2002).

<sup>13</sup> The broiler industry in the Philippines is dominated by seven vertically integrated companies. They are: Swift Foods, San Miguel Foods, Pure Foods, Vitarich Corporation, Tysons Agro-Ventures, General Milling Corporation and Universal Robina Corporation (DA-AMAS 2001). These integrators are involved in both production and marketing of broiler chickens, importation of grandparent and parent stocks, and manufacture and sales of commercially mixed feeds. Together, they account for about 80% of the broiler supply in the country (DA and NDFC, 2002a). The balance comes from other independent commercial farms and backyard raisers. The integrators are organised through the Philippine Association of Broiler Integrators. The small and medium-scale commercial broiler and poultry producers, particularly from Rizal, Bulacan, Cavite, Laguna, Pampanga and Tarlac, are organised through the United Broilers' Association (DA-AMAS 2001).

Moreover, the input markets are often subject to government intervention. Take corn for example. Although corn is the Philippines's third largest crop, following rice and coconut, the sector is inefficient and corn is expensive because of existing price support and import licensing policies (Mendoza and Rosegrant, 1995). Since the early 1970s, the National Food Authority (NFA) has been responsible for regulating the local supply of corn by purchasing directly in the open market and managing the disbursement of buffer stock. It likewise monitors the importation of corn through the control of import licences. Under the import licensing scheme, the NFA determines the volume and the timing of corn imports and allocated among qualified, licensed local corn processors and livestock and poultry raisers. In many instances, importers have complained about the misuse of authority by NFA in severely limiting corn imports and raising local prices above competitive levels (Panuayon, 1985). Nominal rate of protection for corn in the early 1990s were as high as 40-50% (Rosegrant et al., 1992). Supply and cost of corn are seen as a major issue for the commercial poultry industry because of its impact on feed costs and hence cost competitiveness.

Cost competitiveness is especially important for intensive poultry production because most producers use basically the same technology and there is little room for product differentiation. As a result, production cost becomes the basis for competitiveness and profitability. The reliance on imported inputs means that strong Philippine peso and access to cheap inputs are crucial for improving global competitiveness, particularly when world's major broiler producers and exporters such as USA, Brazil and Thailand have ready access to feeds and breeding stocks.

**Inefficient production.** According to industry sources, the integrators have only attained 70% of the international efficiency standards. Therefore, there is a need for modernisation, which would include adopting the latest technology in poultry raising, particularly in the areas of environmental control and automation in feeding, drinking and other management practices (DA-AMAS, 2001). In Table 12, the on-farm performance of the Philippine broiler industry is assessed against USA, China, Thailand and Brazil, all of which are major broiler producers in the world market. As can be seen, the Philippine broiler industry is on par with the world's best practices in terms of livability and is slightly below par in terms of FCR (feed conversion rate). Production inefficiency, along

with the reliance on high cost, imported inputs, has resulted in higher production cost of live birds, which is 10 pesos per bird higher than USA and Brazil.

Another reason for the higher production cost may be because of consumer preference for smaller carcass (around 1.0-1.2 kg dressed weight for a whole chicken, compared to 1.5 kg in other countries) (DA and NAFC, 2002a, pp. 26). The demand for smaller carcass means that broiler growth is not allowed to reach its peak feed efficiency (normally at around 1.9 kg live weight), resulting in small average weight per bird and hence higher cost per kilogram of meat.

Table 12. Cross-country comparisons of broiler production

Country	On-farm productivity		Production cost (in Philippine pesos/kg)	
	% livability	FCR	Live weight	Dressed weight
Philippines	95	1.90	34	51
USA	95	1.85	24	33
China	93	2.00	--	--
Thailand	95	1.85	26	33
Brazil	95	1.85	24	33

Source: PABI (cited in SIKAP/STRIVE Foundation, 2001).

As shown in Table 12, dressed birds at the wholesale/retail level are also more expensive, compared with USA, Brazil and Thailand. The higher wholesale and retail prices are due to the inefficiency existing in the marketing chain, especially processing and distribution (for details, see DA and NAFC, 2002a,b).

**Inefficient marketing systems.** Despite the highly concentrated and vertically integrated production structure of the commercial broiler sector, a large proportion of broilers are sold as live birds through the wet markets because of consumer preference for fresh meat. The three major market segments that are serviced by the integrators are: wet market (50%), HRI (hotels, restaurants and institutions) (40%) and supermarket (10%) (DA and NAFC, 2002a). Details on distribution to these three market segments are provided in DA-AMAS (2001). By contrast, the small and medium-scale independent broiler producers sell directly to the live chicken traders or viajeros/traders who pass on the chickens either live or dressed to retailers in the wet markets and restaurants.



The diversity of the marketing channels and the involvement of many small traders and retailers mean that the broiler marketing system does not benefit from the economies of scale that exists in the production system. The leakage may have resulted in higher broiler prices and hindered demand growth. However, the current marketing system is likely to change in the foreseeable future for two reasons. For one thing, the preference for live bird has a few disadvantages. First, it increases the risk of the spread of diseases. Secondly, it increases possibilities of bruising on the carcass, weight loss and death during shipping and handling. Thirdly, it increases food safety risks because of lack of hygienic facilities and practices in wet markets. Lastly, it increases costs because of fragmented, small-scale operations. Furthermore, it has been shown that although consumers may prefer fresh meats and shopping at wet markets, over time, they, especially city dwellers, are more likely to shop at supermarkets and own refrigerators for preserving perishable commodities such as meat and poultry (Taha, 2003). Nevertheless, improving both production and marketing efficiency is necessary for improving international competitiveness (SEARCA, 1999).

- *The backyard sector*

Little is known about the production potential of the backyard poultry sector in the Philippines. However, based on research done elsewhere (eg FAO, 2000; Devendra, 1993), it is reasonable to say that the Philippine backyard sector is also characterised by low productivity, high degree of farm diversity, and limited access to marketing services.

**Low productivity.** Rural households in the Philippines, like their counterparts in other developing countries, often keep a small number of chickens and ducks in their backyards as a means to supplement their household incomes and nutritional needs. Therefore, its purpose is more for subsistence than for commercial purposes. Backyard poultry utilises very little resources. They are often raised with primitive or no housing and scavenging on naturally occurring feeds, fallen grains or household refuse. There is also no systematic breeding or management regime that is practiced by the commercial sector. Therefore, backyard poultry production system is extensive and low-input, as opposed to the intensive, high-input commercial production. Output and productivity are generally low as a result.

However, productivity improvement is usually not high on the minds of rural households. There are several reasons. Studies on rural poultry development have found that rural households are often not interested in extension service or new technology that aims to improve their production. Firstly, there is little incentive for them to actively seek improvement because there is little to gain from a very small base. The other reason for being seemingly indifferent is that poultry raising is only a part of a very diversified farming system for smallholders. Therefore, occasional loss or poor production has little impact on the overall performance. Thirdly, they may not have the resources to invest on any improvement even if they want to. Although the issue of not adopting new technology can be quite complex, the lack of resources to act upon the advice is often cited as a main reason for not adopting new technology. Illiteracy and low education are additional barriers to adoption (de Castro et al., 2002). Inadequate management is therefore the key factor contributing to low productivity.

Generally speaking, poultry productivity is a function of genetics and management. Backyard duck raisers in the Philippines were found not to attach any importance to breeds or the quality of stocks when it comes to finding replacement (BAS-SRTC, 1998; Lambio, 2001). The main reasons are: (1) unavailability of good quality stock, particularly for farmers in remote, isolated areas; (2) higher costs associated with sourcing better quality stocks; and (3) lack of the technique/know-how to identify good quality stocks. As a result, replacement stocks are often obtained from own flock or cheaper sources with unknown origins or genetics (Lambio, 2001). Poor genetics is therefore another main contributing factor to low productivity (Coligado, 1986; Arboleda, et al., 1995).

There appears to be two policy options for genetic improvements for backyard poultry. One is based on the importation of breeding animals from overseas. This particular strategy had been tried both in the Philippines and overseas before but failed (Kitalyi, 1996). The reasons for failures were that (1) the imported stocks were inappropriate either for smallholder production or for Philippine conditions; (2) they were input-intensive and possibly import-dependent; and (3) they were too expensive for smallholders (Department of Agriculture, 2001). The other option is to select and upgrade the existing and native breeds. This strategy has gained support from the Philippine

government and academics in recent years with the advantage of being less expensive and more suitable for local conditions, as well as better utilisation of local resources and conservation of local germplasm (Department of Agriculture, 2001). However, more research is needed to review existing policies and develop strategies that improve the productivity of the local breeds and the skill base of backyard poultry producers.

**Farm diversity.** The most significant difference between the backyard and the commercial poultry sectors may be the diversity of the backyard sector. As discussed earlier, the commercial poultry sector is supported basically by the same technology (including breeds and standardised management practices) that is available worldwide with a sole focus on production efficiency. The backyard production systems, on the other hand, vary greatly from region to region depending to a large extent on local conditions and grower preference. This diversity means that there are many different breeds, utilising a variety of feed sources and management practices. This diversity inevitably results in variable product quality and inconsistent supply. Both of that are serious issues for contemporary marketing in terms of meeting market demand for consistent supply and product quality.

**Access to market and services.** Although a majority of backyard poultry producers do not produce for the market alone, when they do they face some obstacles. They include access to market and market information. In addition, because of small trading volumes and distance from the market, they often incur higher transaction costs and are subject to exploitation by unscrupulous traders. Extension services and other government programs also are often not available, or not known, to the more isolated and less-informed backyard producers.

Although it is generally true that the local breeds employed by the backyard sector have relatively low productivity in terms of weight gain, size, body weight and time to maturity. However, it does have some advantages. One is the low-input requirement which keeps cost down. The slow growth rate, although in itself may be a drawback, has the benefits of producing carcass that has unique flavour, texture and taste that are appreciated by a significant segment of the market. This is particularly true for native chickens in Asia and Africa where native chickens commend premium prices and are

often in short supply. Finally, because most backyard poultry production does not use veterinary medicines or other substances, there is a potential to convert into organic production which has gained recognition and support from consumers worldwide in recent years.

On the other hand, backyard poultry production has also been modernized and commercialised around the world. Take native chicken for example. Due to high market demand, native chickens are no longer limited to backyard production by rural households but have been produced in eg Taiwan, China and Thailand on a large commercial scale that is similar to the broiler sector. Exportation of native chickens is also being contemplated by commercial native chicken producers such as Thailand and China. In the past, it might be the case that unique Filipino products such as native chickens and balut have somehow been immune from foreign competition. However, modern technology and marketing strategy are such that almost any product can be supplied from anywhere in the world as long as demand and profits are there.

## **Conclusion**

Poultry production is the fastest growing meat sector worldwide. The increasing demand for poultry products is attributable to its relatively low cost and healthiness. It appears that the Philippine poultry industry stands to benefit from the demand trends. The outlook is especially positive for the Philippine poultry industry given its current low level of per capita consumption and anticipated growth in population and household incomes. However, like many other poultry sectors in the world, it faces increasing consumer demand for food safety and product quality, public concerns over animal welfare and the environmental impact associated with intensive poultry production, and increasing global competition.

In addition, the Philippine commercial poultry sector is relatively uncompetitive because of higher input costs, below-par on-farm productivity, and an inefficient marketing system. Future competitiveness will depend largely on a strong Philippine peso, the availability of cheap feed sources, and improvements in technical and marketing efficiency. The backyard poultry sector, on the other hand, is characterized by low

productivity and high degree of farm diversity, which contribute to variable product quality and inconsistent supply.

Finally, the threat of foreign competition can be expected to intensify as trade liberalisation continues and it will impact on the commercial and the backyard sectors alike. It can be expected that some of the future increase in poultry consumption is likely to be met by cheaper imports. To survive, the Philippine poultry industry must pursue production and marketing efficiency and the government must provide an environment that is conducive to investment and productivity improvements. More direct government involvement appears to be desirable, especially in areas such as product grading and standard setting, collection and dissemination of market information, and improving roads and other marketing infrastructure.

It appears that there is also a need to change consumer perception of, and preference for, poultry products. This will include influencing consumers' preference for small carcass and the dislike for frozen meat products. Obviously, some of these problems can be overcome with promotion and, more importantly, with innovative processing and packaging technologies that can meet consumer demand for convenient cuts and freshness without sacrificing production efficiency.

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