



**UNIVERSITI PUTRA MALAYSIA**

**PRICING EFFICIENCY IN MAJOR CATTLE AUCTION CENTRES  
IN THE PHILIPPINES**

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PRICING EFFICIENCY IN MAJOR CATTLE AUCTION CENTRES  
IN THE PHILIPPINES

By

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## LIST OF ABBREVIATIONS

BAC	- Batangas City Auction Centre
BAS	- Bureau of Agricultural Statistics
BAT	- Padre Garcia Auction Centre in Batangas, Southern Tagalog
CEB	- Barili Auction Centre in Cebu, Eastern Visayas
ILO	- San Joaquin Auction Centre in Iloilo, Western Visayas
LEM	- Lemery Auction Centre
PAD	- Padre Garcia Auction Centre
PAN	- Urdaneta Auction Centre in Pangasinan, Central Luzon
PCARR	- Philippine Council for Agriculture and Resources Research
PCARRD	- Philippine Council for Agriculture and Resources Research and Development
TAN	- Tanauan Auction Centre



Abstract of the thesis presented to the Senate of Universiti Pertanian Malaysia in partial fulfillment of the requirements for the degree of Master of Science.

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The problem of low productivity is the major constraint to the development of the Philippine livestock sector. Contribution from the industry particularly cattle production is considered below potential despite conditions favoring cattle raising in the Philippines.

Apart from the technical innovations to encourage cattle raising, an improvement in the marketing system is needed to sustain production. The establishment of livestock auction markets to minimize the defects of the traditional marketing



system is believed to be the most feasible short-run modification to effect an efficient marketing of cattle.

This study evaluates the pricing efficiency in major cattle auction centres in the Philippines. The univariate residual cross-correlation approach by Haugh (1972, 1976) and Pierce (1977), and the Sims' (1972) distributed-lag regression were used to ascertain whether the auction centres are integrated in terms of price formation. This was done through the assessment of the nature of causality between prices in the various cattle auctions within and among regions. Time series data on prices consisting of 84 monthly observations were utilized for the purpose.

Results showed an inter-dependence among markets, thus, rejecting the null hypothesis of no market integration. The study concludes that government policies geared towards an effective dissemination and monitoring of market information, establishment of more auction markets will enhance the output of the livestock sector.



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Masalah daya pengeluaran yang rendah menjadi batasan utama kepada pembangunan sektor ternakan di Filipina. Sumbangan dari sektor ini terutamanya pengeluaran lembu belum mencapai potensinya walaupun terdapat keadaan yang menggalakkan kepada usaha pemeliharaan lembu di Filipina.

Selain dari pembaharuan teknikal untuk menggalakkan pemeliharaan lembu, pembaikan sistem pemasaran adalah diperlukan untuk meneruskan pengeluaran. Penubuhan beberapa pusat lelong ternakan untuk meminimumkan kelemahan sistem pemasaran tradisi telah diterima sebagai satu perubahan jangka pendek yang dapat dilaksanakan untuk mempercepatkan pemasaran lembu.



Kajian ini menilai kecekapan harga di beberapa pusat lelong lembu terbesar di Filipina. Kaedah "univariate residual cross-correlation" yang diperkenalkan oleh Haugh (1972 dan 1976) dan Pierce (1977) serta "distributed-lag regression" oleh Sims (1972) telah digunakan untuk memastikan samada terdapat integrasi dari segi pembentukan harga di pusat-pusat lelong. Analisis integrasi dilihat melalui penelitian ke atas keadaan sebab-musabab (nature of causality) di antara harga di beberapa pusat lelong dan di kalangan kawasan-kawasan itu sendiri. Data siri masa harga selama 84 bulan telah digunakan untuk tujuan tersebut.

Penemuan kajian menunjukkan saling-pergantungan antara pasaran; bermakna hipotesis null mengenai ketiadaan integrasi pasaran ditolak. Kajian merumuskan bahawa polisi kerajaan yang disalurkan ke arah disseminasi dan kawalan maklumat pasaran yang lebih berkesan dan penubuhan beberapa pasaran lelong akan menggalakkan pertumbuhan output dalam sektor ini.

## CHAPTER I

### INTRODUCTION

#### Importance of the Livestock Sector

In a developing country like the Philippines, agriculture plays a critical role in its socio-economic development. The government's policy of lifting the price control on agricultural commodities is clear evidence of its intention to harness the much needed resources from the various sectors of the economy for agricultural development projects. This is envisaged to enhance the export potential of the agricultural crops and through its expected impact on massive food production contribute to the desired level of self-sufficiency which will eventually lead the country to the road of economic recovery.

The livestock industry assumes an important task in the development of the Philippine agriculture. Firstly, apart from its nutritional role in bridging the protein gap problem, the livestock industry is a vital source of revenue for the country. Its contribution to the national economy in 1986 accounted for 14 percent of the gross value added by agriculture to the Gross National Product. Secondly, the livestock sector provides employment to about one percent of



the total labor force, most of them come from the rural population. Thirdly, for a country where intensive mechanization is not yet within reach, the livestock sector (cattle and carabao in particular) provides a cheap source of farm power. However, the economic value of these services is usually not accounted for. Finally, since self-sufficiency has yet to be achieved in the livestock sector, imports are necessary which cause a big drain on the country's valuable foreign exchange. This, therefore, suggests that production should be expanded.

Recognizing the industry's social and economic roles, efforts from the government and private sectors have been made to achieve technical efficiency in livestock production towards attaining self-sufficiency. In this context, prices of livestock products can be made affordable to as many people as possible and at the same time make the livestock sector a bigger source of revenue.

Although growth in the output of ruminants (cattle and carabao) has been achieved, these have mainly served more as beasts of burden rather than meat sources. This is in contrast with the contribution of the non-ruminants (poultry and swine), which constitutes the bulk of meat production, with swine and poultry accounting for 60 and 15 percent of the total meat production (Cabanilla, 1985). The fact that meat production is considered the main source of value added in the livestock

industry, prompted the government to institute important programs to encourage cattle production other than draft purposes.

Under the present production schemes, backyard cattle raising provides the main source of beef sold in the market. Despite low price incentives, the predominantly backyard system managed to post a perceptible growth through the utilization of feedstuff with low opportunity cost. Such is a popular venture in Batangas, but the technology has not spread to other areas. This could be explained by a deficient extension program or inadequacy of credit facilities.

To encourage expansion of backyard feedlot fattening, the "Bakahang Barangay", a special credit program of the Ministry of Agriculture and Food was launched in 1977. Under the program, a farmer secures supervised credit loans from accredited rural banks. The rural bank then finances the procurement and raising of a maximum of ten head per borrower based on current market prices at ten percent annual interest and two percent service fee or about one percent per month. The program has been known to be quite successful. Official reports on repayment rates had been encouraging and interviews with borrowers in Pangasinan and Iloilo revealed willingness to grow beef cattle as long as the initial capital is provided through credit (Cabanilla, 1985).



The establishment of market infrastructures is another manifestation of the government's unending support to boost the livestock industry. Livestock auction markets in strategic locations of the country are believed to be serving as vital conduits between backyard feedlot fatteners and breeders on one hand and wholesalers/retailers on the other. With livestock auction markets, backyard producers are provided with market information. The participation of middlemen in the distribution system is minimized resulting in reduced marketing margins. The overall contribution of these market infrastructures in terms of increasing the output in ruminants may be more significant than the massive storage and processing facilities (e.g. Food Terminal Inc.) which the government has established.

Corollary to these efforts aimed at enhancing the production of the livestock sector, researches in the field of socio-economics, extension, management practices and breeding are undertaken. Improvement in animal breeds is done through the tax-free importation of superior breeds from the United States and Europe. However, while this scheme has proven to be successful in poultry and hogs, the same cannot be said in the case of the ruminants (Arboleda *et al.*, 1985).

Although the introduction of these programs/policies may have succeeded in some aspects and failed in other areas, such



can be regarded as major stepping stones towards the attainment of self-reliance in the livestock industry.

### General Situation of the Cattle Industry

#### Cattle Inventory

Cattle population estimates for 1987 were placed at 1.69 million head, about 6.6 percent lower than the 1986 figure of 1.81 million (Table 1). This was attributed to the increase in the number of cattle slaughtered in 1986. Cattle population registered an annual negative growth of 1.5 percent from 1980 to 1987.

For the first semester of 1987, cattle were utilized for the following purposes: 232 thousand head or 11.9 percent for meat production, 423 thousand head or 21.6 percent as work animals and 16 thousand head or 0.8 percent for milk production [Bureau of Agricultural Statistics (BAS), 1987].

#### Production

Tables 2 and 3 show the liveweight and value of beef production in comparison with other livestock. Liveweight beef production in 1987 totalled 144 metric tons higher than the 1986 value. Although liveweight production decreased from 1980 to 1983, the value of production exhibited an increasing trend. This can be explained by the general increase in the price

Table 1  
Cattle Inventory by Region, 1980 - 1986  
(Per Thousand Head)

Region / Year	1980	1981	1982	1983	1984	1985	1986	1987
Philippines	1883	1940	1942	1938	1849	1786	1814	1694
Ilocos	272	280	275	276	279	292	278	---
Cagayan Valley	161	186	189	176	140	135	133	---
Central Luzon	86	99	98	99	100	103	110	---
Southern Tagalog	294	296	295	295	296	292	299	---
Bicol	132	116	117	116	122	118	130	---
Western Visayas	146	148	146	159	153	144	150	---
Central Visayas	232	251	247	243	221	205	222	---

Table 1 (Continued)

Region / Year	1980	1981	1982	1983	1984	1985	1986	1987
Eastern Visayas	28	25	24	30	24	24	29	---
Western Mindanao	91	97	103	108	87	82	73	---
Northern Mindanao	235	205	204	190	177	159	164	---
Southern Mindanao	77	117	123	124	125	114	102	---
Central Mindanao	129	120	119	121	124	118	124	---

Source: Bureau of Agricultural Statistics (1987).

Note: Regional figures for 1987 are not available.

Table 2  
Livestock Production, 1980-1987  
(Liveweight, '000 MT)

Item	1980	1981	1982	1983	1984	1985	1986	1987
Total Production	655.90	757.57	739.59	768.39	807.47	745.15	849.15	906.55
Carabeef	55.05	50.74	54.96	50.58	55.59	57.39	61.72	70.00
Beef	114.65	114.55	111.19	99.15	107.10	121.30	135.70	144.00
Pork	464.40	567.99	542.16	583.97	610.87	526.85	610.65	650.00
Chevon	19.30	21.59	28.54	32.09	31.41	37.11	38.58	40.00
Dairy	2.50	2.60	2.60	2.60	2.50	2.50	2.50	2.55

Source: Bureau of Agricultural Statistics (1987).