A PRELIMINARY ASSESSMENT OF THE BEEF SUBSECTOR IN THE PHILIPPINES

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DEDICATION

This is dedicated to my family who set high goals for me when I still couldn't and willingly provided sacrificial support when I learned many.

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Thanks are also due to all my fellow Filipino students at MSU and my co-graduate students in the department for their support and encouragement. And finally, to my father, mother, brothers and sisters, thank you very much for your prayers and sacrifices.

I assume sole and full responsibility for all the opinions expressed in the paper and errors that might have been uncorrected.

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CHAPTER I

INTRODUCTION

A. Importance of the Study

The average per capita protein consumption in the Philippines is very low, only 44.1 grams annually (53). This is primarily due both to the limited income of consumers, and the inadequate supply of protein source products such as fish, pork, chicken, eggs, beef and vegetable.

The supply of protein source products from local sources has long been lagging behind the demand for domestic consumption. The reason for this is that expansion of the more traditional animal protein sources such as pork and chicken is severely constrained by the shortage of feed-grains and the strong competition for the use of the grains for direct human consumption. The short-run alternative adopted to solve the problem was to supplement local supply by importing meat and meat products. But this has a possible dampening effect on the set of incentives faced by the local producers and might even trap the country into a costly and unstable supply arrangement.

One feasible alternative to increase meat supply is to increase cattle production. This has great potential because the country is endowed with abundant indigenous resources which are not yet fully utilized, such as farm by-products, pasture land naturally covered with native grasses, under- and unemployed labor, and the most salient factor--climatic conditions suited for a year-long forage production. The University of the Philippines has estimated the potential productive capacity of these resources to be around 16 million head of cattle and carabao (48).

It was only recently that the government recognized and started exploiting the potential to expand cattle production. As an initial move, the Livestock Development Council was established as a policy-making body to be responsible for developing the livestock sector.

The responsibility of the Livestock Development Council is very extensive. Its current decisions and actions will surely affect the organization, structure and performance of the livestock sector in the future. A host of questions need to be raised and answers need to be provided if the Council is to make sound decisions and take effective actions. A few of these questions are:

-- How is the subsector currently organized and structured?

-- Who are the relevant participants?

-- What are their behavioral motivations, opportunities and constraints?

-- Who controls the strategic positions within the subsector?
-- What coordinating mechanisms are used?
-- Are the coordinating mechanisms accurate and prompt in sending the right signals to the right participants?
-- What alternative mechanisms can be employed to improve subsector coordination?
-- What performance impacts will they have?
-- Who is responsible for searching for appropriate technological frontiers?
-- What performance dimensions are desired?
-- Are they reasonably attainable?
-- What institutions are needed to help facilitate attaining the desired performance?
-- How should institutions be designed to be effective given the peculiar social, political, economic and cultural realities that exist?

The current knowledge about the livestock sector is not adequate to provide the information needed by the Livestock Development Council. Past research output needs to be summarized in a meaningful and useful manner in order to provide a cumulative knowledge of the industry. Many issues relevant to the development of the industry still need to be addressed.

Hence, the demand for empirical research on the livestock industry is considerable. Scientific investigation of

the issues involved will contribute to systematic policy formulation, intelligent program planning and effective project implementation.

B. Objectives of the Study

There is no illusion that this study will answer all the questions raised earlier, nor fill in all the implied research gaps. Rather, this is only intended to be a preliminary study with the general objective of applying the subsector framework in describing the beef subsector in the Philippines and in identifying problems, constraints and potential opportunities for improvement.

Specifically, this study aims to provide:

a) a description of the organization and structure of the beef-cattle subsector, which can serve as a basis for designing more detailed research for policy, program and project analysis in the future,

b) a description of the coordinating mechanisms and institutions,

c) a description of the subsector conduct and performance,

d) an initial partial diagnosis of problems, bottlenecks, constraints and opportunities in the subsector,

e) a list of research questions needed to diagnose the subsector and improve policy, program and project planning.

C. The Choice of the Research Framework[a]

This study uses the subsector framework in describing the characteristics, and in interpreting the issues involved in the whole process of beef production, distribution and consumption.

A subsector is defined as a meaningful grouping of economic activities (and the enterprises that perform them) that are closely related vertically and horizontally in a utility creation process of a single or group of related commodity(ies) (47). The subsector framework uses the subsector as a unit of study. Most of the basic premises used in interpreting the dynamics in the subsector are based on established economic theories. Foremost are the emphasis on demand as the driving force in the subsector and the behavioral assumption that all enterprises are profit maximizers. The basic concern of the subsector framework is coordination. It has two aspects: one is whether the mass of sequentially related activities of the different enterprises are harmonized, and the other is whether enterprises in each stage adapt to the changes in the subsector (31).

Coordination is very critical in a subsector because the type of coordinating institutions, mechanisms and devices used in the subsector influence the distribution of

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[a]This section draws heavily from J. Bain (66), D. J. Henderson (26), B. W. Marion (30, 31), F. M. Scherer (44) and J. D. Shaffer (45, 46, 47).

incentives, risks, information, power, rights and obligations to individual enterprises. These factors affect the decisions and actions of enterprises. In turn, the decisions and actions of enterprises largely determine the aggregate performance of the subsector. Hence, the nature of coordination determines whether a subsector will have a stable output, price and profit, equitable distribution of returns, optimal technical and operational efficiency, minimum waste and spoilage, progressive enterprises, and properly matched supply and demand at all stages.

Coordination in the subsector is not static. The type of coordinating institutions, mechanisms and devices used in a subsector are influenced by structural characteristics which change over time.

Changes in a subsector are caused by many factors. One of these is a change in demand. It can be exogenous such as a change in income, or endogenous such as the attempts of enterprises to influence consumer taste and preferences via advertisement and promotion. The second factor of change results from the decisions and actions of enterprises designed to maximize their profit; for example, two strategies are often employed: one is by reducing risks (either physical or market risk) and the other is by improving productivity. The latter is usually accomplished by intra-enterprise actions such as technological innovation and specialization, while the former is accomplished by inter-enterprise organizational innovation such as vertical inte-

gration by ownership or contractual arrangements. These changes bring forth a new distribution of incentives, risks, information, power, rights and obligations, which also cause changes in the pattern of decisions and actions of enterprises (30).

The advantages of the subsector framework can be inferred from the above discussion. It has a systems perspective which allows a more comprehensive scope of investigation. That is, it can address issues whose ramifications extend beyond the traditional unit of study (e.g., production and marketing). It has a dynamic analysis which allows explanation of the causes/motives of change in the subsector, and even predicts probable consequences. The framework is very useful in evaluating public interventions and/or private actions.

D. Study Procedure

The study is basically qualitative and descriptive in nature. A review of relevant studies of the beef subsector in the Philippines was conducted. Based on the review, data and information were pooled into a meaningful summary of a systems analytic description of the beef subsector. The data were also interpreted and related using the subsector framework.

The report is organized into seven chapters. The first is the introduction. The second chapter provides a brief background about the Philippines and the role of agriculture in the economy. The next four chapters (3, 4, 5 and 6) give

a description of the basic conditions, structure, conduct and performance of the beef subsector.

The final chapter is devoted to a research agenda, identifying relevant research questions needed to provide more information in diagnosing the problems and opportunities of the subsector.

E. Limitations of the Study

The validity of the observations and assessments of the beef subsector made in this study largely depends on the reliability of the available data sets. There were three basic data limitations encountered in the study. The first was that the accuracy of some of the data is questionable. For example, the data on the number of cattle slaughtered annually come from accredited slaughterhouses. But the number of reporting slaughterhouses varied from year to year, and cattle slaughtered outside the accredited slaughterhouses were not properly accounted for. The second was that some of the data were not up-to-date. This raises the question of whether recent important changes in the subsector are captured in the available data set. The third was the lack of data on some areas of the subsector (e.g. transportation, meat retailing, research, etc.). As a result, not all relevant issues of the subsector were adequately addressed.

CHAPTER II

THE AGRICULTURAL SECTOR

This chapter presents background information about the Philippines and the role of agriculture in the Philippine economy.

A. Background Information About the Country

1. Location

The Philippines is located above the equator, between the latitude 4° 23' and 21° 25' North and longitude 116° 30 East. It is a part of the Asian continent, bounded by Taiwan to the North, Indonesia to the South, Western Pacific Ocean to the East and South China Sea to the West (Figure 2-1). The country has an archipelagic geography with 7100 islands and a surface area of 115,600 square miles.

2. Climate

The climate of the country can be classified as tropical. On the average the temperature would be around 80°F, humidity 75-80 percent and an annual rainfall of 92-95 inches. There are only two seasons, a dry season from November to May and a rainy season from June to October.

3. Population

The 1982 estimate of the population is 50 million and it is growing at 2.77 percent annually. Based on 1975 census, the population is relatively young; more

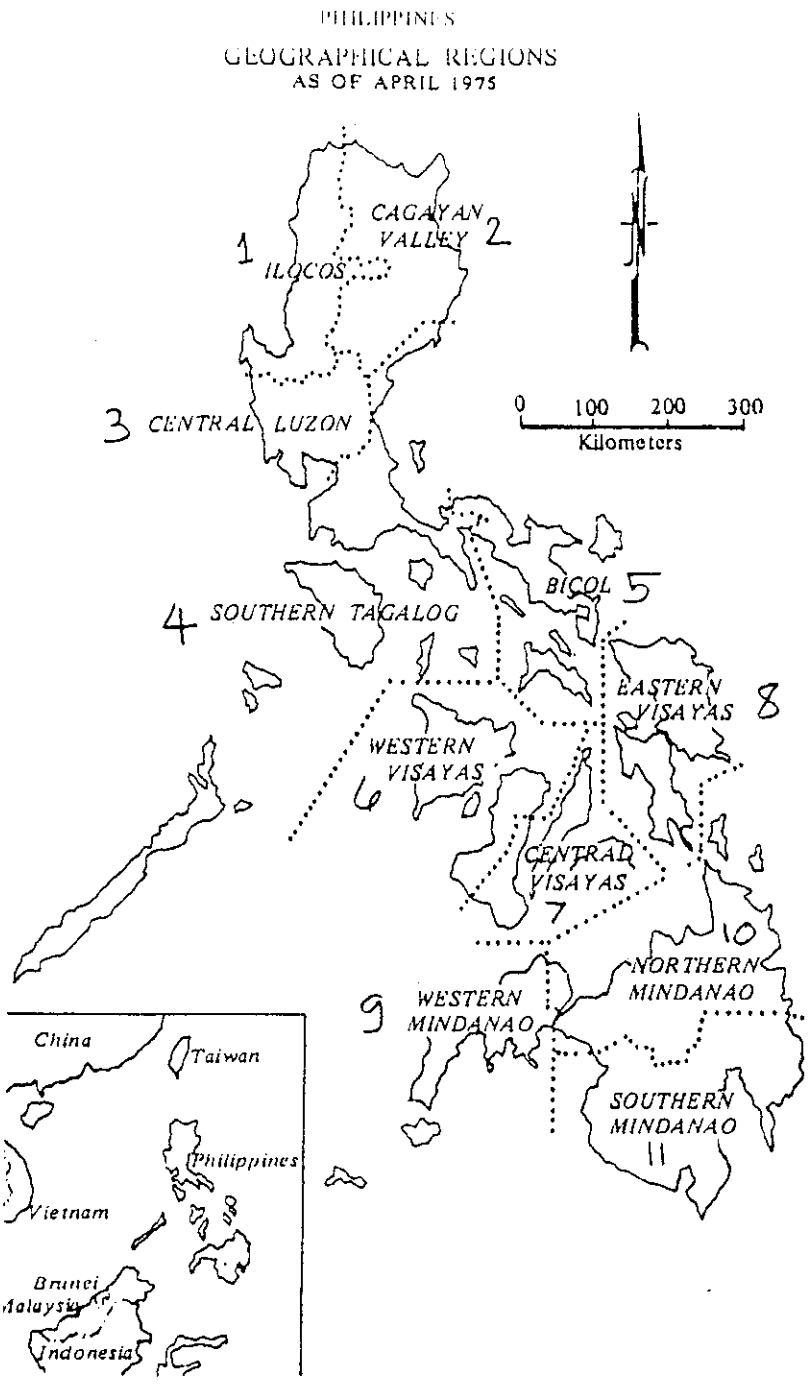

Figure 2-1. A Map of the Philippines

than half (56 percent) are below 20 years of age, and only five percent are above 60 years of age.

The Philippines has a literacy rate of 83.4 percent. Migration records show that between 1960-1970, eight percent of the population moved from one region to another. Of the total number, 43 percent moved to Southern Tagalog where the national capital city is located.

4. Income Distribution

Income distribution is highly unequal. Mijares (9) reported that the top five percent of income recipients share more than 25 percent of the total income, while the lowest 50 percent recipients share less than 20 percent. Also, there is a wide discrepancy between incomes of rural and urban families. The income of rural families is only 49 percent of the income earned by urban families.[b]

5. Policy Formulation

Policy formulation in the government is highly centralized. The executive branch issues Presidential Decrees to the Ministries for implementation. Several examples are cited in the text.

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[b]There are measurement questions in the rural-urban income comparison. Nevertheless, the discrepancy is very real.

B. The Role of Agriculture in the Philippine Economy

The Philippine economy seeks to accomplish three basic objectives: full employment of resources, rapid economic growth, and stable prices (34). Table 2-1 shows some indication of the performance of the economy from 1965 to 1976.

The role of agriculture toward the attainment of the above objectives is very significant. In fact, sometimes it is referred to as the backbone of the economy. Factual data attest to this claim.

1. Contribution to the Gross National Product

Table 2-2 shows that the agricultural sector has contributed a large share to the Gross National Product. It was 24 percent in 1978. From 1969 to 1978, the absolute value of its contribution (in real terms) was consistently increasing from 9.43 million to 19.28 million. This amounts to an average annual increase of 5.8 percent, but its relative share is slowly declining. This should not cause any alarm, however, because it simply means that the contribution from both the industrial and service sectors is growing at a much faster rate, a healthy sign for economic growth.

2. Contribution to Export Earnings

In 1977 agricultural exports contributed 58 percent of the total export revenue. The other 42 percent came from the export of non-agricultural products. But some of the products under this category are directly agriculture-based, such as textiles. Export revenue is

Table 2-1

SOME INDICATORS OF ECONOMIC PERFORMANCE, PHILIPPINES, 1965-1976

Year	GNP			
	Growth Rate (%)	Rate of Unemployment (%)	Rate of Inflation (%)	Exchange Rate (%)
1965	5.03	6.0	2.42	3.89
1966	4.35	7.0	5.40	3.89
1967	4.81	8.0	6.41	3.90
1968	5.08	8.0	2.40	3.90
1969	5.32	7.0	1.91	3.91
1970	4.31	8.0	13.99	5.76
1971	5.76	5.0	13.92	6.39
1972	4.92	7.0	11.11	6.61
1973	9.64	5.0	14.00	6.75
1974	6.33	7.0	33.50	6.77
1975	5.85	4.2	8.14	7.23
1976	7.02	5.0	6.19	7.47
Average	5.70	6.43	10.09	5.54

Source: NEDA, 1979, Philippine Statistical Yearbook.

Table 2-2

CONTRIBUTION OF THE AGRICULTURAL SECTOR TO THE GROSS NATIONAL PRODUCT, PHILIPPINES, 1969-1978*

Year	GNP (000)	Value of Agriculture** Production (000)	Contribution of Agriculture to the GNP (%)
1969	47,967	13,765	28.70
1970	50,035	14,013	28.01
1971	52,921	14,416	27.24
1972	55,526	14,967	26.95
1973	60,881	15,745	25.86
1974	64,739	15,876	24.52
1975	68,530	16,913	24.68
1976	73,342	18,086	24.66
1977	77,958	19,006	24.38
1978	82,477	19,828	24.04

*Valued at 1972 prices

**Includes fishery and forestry

Source: NEDA, 1979, Philippine Statistical Yearbook

very necessary to finance development projects. For example, the country has to import some raw materials and capital goods in order to boost its productive capacity. This type of import accounted for 84 percent of the total import bill in 1977.

3. Contribution to Employment

The agricultural sector is the biggest employer in the economy. It provides employment for 53 percent of the total labor force. It can also serve as a major supplier of labor for industrial development.

4. Contribution to the Market of Industrial Products and Savings

If the incomes of farm families are improved as a result of agricultural development, the agricultural sector can potentially serve as a market for industrial products, and at the same time be a major source of savings.

CHAPTER III

BASIC CONDITIONS OF THE BEEF-CATTLE SUBSECTOR

This chapter presents some of the basic conditions of the beef-cattle subsector, including a discussion of the nature of beef production, distribution and consumption, government laws, demand and supply elasticity and foreign trade.

A. Production

1. Production Systems

Beef-cattle production in the Philippines consists of three systems, namely, ranching in extensive areas, grazing under coconuts and breeding and fattening in backyards (38).[c] These production systems are distinctly different in terms of purpose, organization, resource base and management practices.

Ranching in extensive areas is common in Northern Luzon, Mindoro and Masbate where large tracts of land covered with native vegetation are leased by private operators from the government. These commercial operators consider beef-cattle production primarily as an

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[c]There is no clear standard definition of backyard and commercial farms in the literature. However, there is a common understanding of the basic characteristics of backyard farms; that is, most of the labor requirement is provided by the farm family, and feeds are home produced. The average size of a backyard farm would be between 2-5 head of cattle, but rarely to exceed 10. The size of the land is difficult to estimate because raisers tether their cattle along roads and in publicly owned idle tracts of land.

investment venture expected to generate remunerative returns in the future. Because of the size of their operation, commercial farms tend to have a capital-intensive organization. This in turn influences the farm management practices adopted by the farm. For an example, in the choice of breed, superior breeds either imported or locally improved are usually chosen in order to complement the other investments in the farm. Also, in order to take full advantage of the breeds' productive potential, concentrate feeding and pasture improvement practices, such as planting leguminous plants and applying inorganic fertilizers are very common. Labor is provided by hiring workers at rates established by minimum wage laws.

On the other hand, raising cattle in the backyard is common throughout the country. It involves breeding and/or fattening of one or a few heads of cattle. Because of its slow turnover, beef-cattle production is usually not the major source of farm family income. Rather, it performs some other roles such as traction power, transportation, animal excreta for fertilizer or fuel, capital storage, cultural needs and a means of utilizing idle farm labor and by-products. Native breeds are commonly maintained because they are cheaper and can subsist on the farmers' crude management practices. There are no other major investments except for the animals. Labor is the most important resource

because most of the feeds are home produced. Labor is provided by family members, usually the small children (9-13 years old). Concentrate feeding is minimal or sometimes not practiced at all. The feed ration is basically composed of farm by-products and grasses.

Grazing of cattle under coconuts is generally related to the control of weeds. Much like the backyard farms, cattle production is considered a supplemental enterprise. The size of most coconut plantations is relatively large, but more often it is not fully utilized for cattle production. One reason cited is the belief among farmers that trampling of the land by cattle decreases coconut yields (38).

2. Cattle Inventory and Number Slaughtered[d]

A 28-year record of cattle inventories (Table 3-1) shows a consistent increase from 698,000 head in 1950 to 1,921,000 in 1981. The annual rate of growth ranged from -5.04 to 19.07 percent, with an average of 5.74. Over this 28-year period, the cattle stock declined slightly (that is less than one percent, except in 1961) four years only. This does not suggest any systematic pattern of a cattle cycle.

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[d]The reliability of both the inventory and slaughter data cannot be ascertained.

Table 3-1

CATTLE INVENTORIES, PHILIPPINES, 1950-1981

Year	Number of Cattle (000)	Growth Rate (%)
1950	698	
1951	715	2.40
1952	739	3.30
1953	762	3.10
1954	763	0.13
1955	806	6.00
1956	861	6.80
1957	883	2.50
1958	896	1.40
1959	933	4.10
1960	1111	19.07
1961	1055	(5.04)
1962	1094	3.69
1963	1197	9.41
1964	1383	15.53
1965	1560	12.79
1966	1583	1.47
1967	1575	(0.50)
1968	1644	4.38
1969	1629	(0.91)
1970	1679	3.06
1971	1795	6.90
1972	1933	7.60
1973	2099	8.50
1974	--	--
1975	--	--
1976	1737	--
1977	1723	(0.80)
1978	1820	7.37
1979	--	--
1980	--	--
1981	1921	--

Source: NEDA, 1979 Philippine Statistical Yearbook.

In spite of the consistent increase in cattle stock, the number slaughtered showed no discernible pattern. It varied from year to year; the highest was 378,000 head in 1968 and the lowest was 292,000 in 1976 (Table 3-2). The annual variation ranged from 1000 to 137,000 head of cattle.

3. Production Share by Location and System of Production

Cattle production is found throughout the country. There is a certain degree of concentration in four regions, which accounts for 54 percent of the total cattle stock (Table 3-3). Southern Tagalog accounted for 15 percent; Ilocos 15 percent; Central Visayas, 13 percent; and Northern Mindanao, 11 percent. The other 46 percent was distributed among the eight remaining regions.

Cattle production is dominated by small and scattered backyard raisers. They account for 76 percent, or 1,457,800 of the 1,921,000 total cattle stock, while commercial farms account for only 24 percent, or 463,000 head. This pattern has not changed over the last five years. The share of commercial farms increased by only one percent from 1976 to 1981 (10).

B. Distribution

1. Movement of Beef-Cattle in the Subsector Organization.

Table 3-2

NUMBER AND WEIGHT OF CATTLE SLAUGHTERED
PHILIPPINES, 1960 - 1976

Year	Number Slaughtered (000)	Extraction Rate (%)	Average Carcass Weight (kilos/head)
1960	247	22	140.54
1961	248	24	123.63
1962	259	24	125.16
1963	280	23	138.22
1964	245	18	137.88
1965	319	20	141.22
1966	262	23	153.47
1967	358	23	151.09
1968	378	23	151.46
1969	302	19	153.81
1970	366	22	153.53
1971	381	21	153.33
1972	291	15	--
1973	343	16	--
1974	312	--	--
1975	300	--	--
1976	292	17	--

Source: NEDA, 1979, Philippine Statistical Yearbook

Table 3-3

DISTRIBUTION OF CATTLE INVENTORY BY REGION AND PRODUCTION SYSTEMS, PHILIPPINES, 1981

Region	Number of cattle in backyard farms	Number of cattle in commercial farms	TOTAL	Percent of total	Rank
I. Ilocos	251,800	28,100	279,900	14.57	2
II. Cagayan	104,600	81,800	186,400	9.70	5
III. Central Luzon	72,700	26,200	98,900	5.14	9
IV. Southern Tagalog	229,500	66,200	295,700	15.39	1
V. Bicol	47,100	68,600	115,700	6.02	8
VI. Western Visayas	134,500	13,200	147,700	7.68	6
VII. Central Visayas	228,800	22,200	251,000	13.06	3
VIII. Eastern Visayas	18,500	6,700	25,200	1.31	12
IX. Western Mindanao	92,600	4,100	96,700	5.03	11
X. Northern Mindanao	317,600	67,600	205,200	10.68	4
XI. Southern Mindanao	32,400	66,200	98,600	5.13	10
XII. Central Mindanao	107,700	12,300	120,000	6.24	7
Philippines	1,457,800	463,200	1,921,000	100	

Source: Ministry of Agriculture, Bureau of Agricultural Economics

Figure 3-1 presents a simplistic diagram showing the flow of beef-cattle as it move from stage to stage in the subsector organization until it reaches the ultimate consumer. Data on the number of cattle slaughtered, imports, auction market trading and cattle stock are the only ones available. The volume handled by other stages was estimated using simplifying assumptions that no purchases for inventory purposes were made by the enterprises in the intermediate stages.

In 1976, only 17 percent of the total cattle stock, or 292,000 head of cattle, moved through the distribution channels. Sixty-seven percent were purchased via the auction market, and the other 33 percent through direct negotiation with individual farmers at the farm level; 90 percent were slaughtered in municipal slaughterhouses, primarily for the fresh beef market, while 10 percent were slaughtered by meat processors. The supply from local sources reached 46,676 tons. During the same year, the country imported 8,139 tons; the total supply was 52,815 tons. This supply was distributed to institutional and individual buyers by the supermarkets and meat vendors in public markets. Most of the fresh beef supply was handled by the meat vendors.

2. Regional Movement of Cattle

A very obvious pattern of the regional flow of cattle can be observed in Table 3-4. All regions sold

Figure 3-1

FLOW CHART OF CATTLE MOVEMENT IN MAJOR STAGES IN THE SUBSECTOR PHILIPPINES, 1976

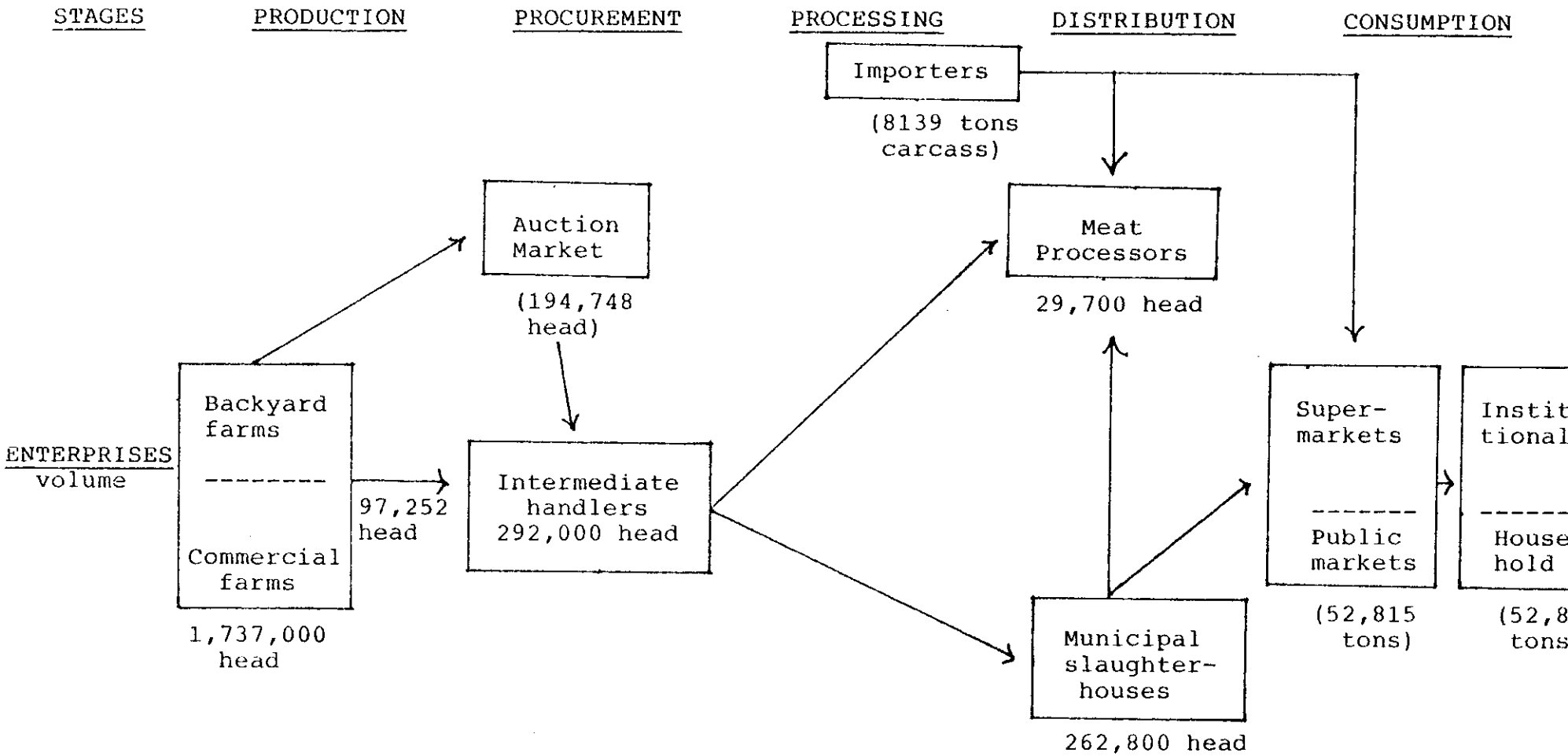

Table 3-4

INTERREGIONAL FLOW OF CATTLE IN THE PHILIPPINES, 1977

Region	OUTFLOW (Number)	OUTFLOW (Percent)	INFLOW (Number)	INFLOW (Percent)	NET FLOW (Number)
I. Ilocos	47,130	26.44	16,809	9.43	30,321
II. Cagayan	3,075	1.73	127	.07	2,948
III. C. Luzon	6,374	3.58	4,425	2.48	1,949
IV. S. Tagalog	26,825	15.05	134,060	75.21	(107,235)
V. Bicol	24,520	13.76	1,178	.66	23,342
VI. W. Visayas	24,509	13.75	7,402	4.15	17,107
VII. C. Visayas	6,858	3.85	3,501	1.96	3,357
VIII. E. Visayas	1,908	1.07	3,268	1.83	(1,360)
IX. W. Mindanao	2,229	1.25	44	.03	2,185
X. N. Mindanao	22,314	12.52	2,410	1.35	19,904
XI. E. Mindanao	10,608	5.95	3,874	2.17	6,734
XII. C. Mindanao	1,909	1.07	1,161	.65	748
TOTAL	178,259	100	178,259	100	

Source: Livestock and Poultry Marketing Bulletin, 1972-1977, Bureau of Animal Industry Manila.

to and bought from other regions. Only two regions experienced a net deficit, Southern Tagalog and Eastern Visayas. Of the total net exports from the other 10 regions, 99 percent were imported by Southern Tagalog, and only one percent went to Eastern Visayas. The major suppliers were: Ilocos, which contributed 28 percent of the total supply; followed by Bicol, 20 percent; Northern Mindanao, 18 percent; and Western Visayas, 16 percent.

C. Consumption

1. Regional Consumption Pattern

The Philippine Council for Agriculture and Resources Research reported that beef consumption is concentrated in only a few regions (38). Metro Manila alone accounted for 40 percent of the total beef consumed, followed by Central Luzon, 16 percent; Southwestern Mindanao, 13 percent. The concentration of beef consumption in Metro Manila can be explained by two factors: first, its high population caused by migrant workers lured by employment opportunities (see page 7); second, the high rate of per capita beef consumption due to high family income. Metro Manila families have incomes 221 percent higher than rural families (36).

2. Consumption by Form

Ninety percent of all the beef consumed was in fresh form. This is primarily due to economic reasons. Beef is already an expensive commodity. Additional

costs of processing, packaging and promotion by meat processors would make it doubly expensive. The availability of surplus labor in most households allows consumers to produce some of the marketing services at a relatively lower cost. Food preparation from fresh beef also affords more flexibility than processed beef. Also, there is a common belief among consumers that processed beef loses some of its nutritional value and contains harmful preservatives.

3. Consumption by Income Group

Table 3-5 shows the consumption pattern of families by income group. Two patterns are evident. The first, there is a strong relationship between the per capita rate of consumption and level of income. Consumers earning income below P400 per capita per annum consumed only 5.1 kilos per capita per year, while those earning above P1500 consumed 23.7 kilos. Second, there is a strong relationship between the relative share of processed meat in the total meat consumed and the level of income. Consumers earning below P400 consumed six percent of the total amount of processed beef, while those earning more than P1500 consumed 13 percent.

4. Consumption by Source

A case study indicated that in the canned or processed beef category, Filipino consumers have a strong preference for imports over the locally-processed pro-

Table 3-5

PER CAPITA RATES OF USE BY INCOME GROUP AND BY TYPE OF PRODUCT
PHILIPPINES, 1978

Income group (pesos/capita/ year)	Red meat* (kilos/capita/ year)	Red meat share of total (%)	Processed meat (kilos/capita/ year)	Processed meat share of total (%)	TOTAL kilos/capita/ year)
Below 400	5.10	94	.3	6	5.4
400 - 799	9.00	93	.7	7	9.7
800 - 1499	14.70	92	1.5	8	16.2
Above 1500	23.70	87	3.5	13	27.2
Average	13.12	90	1.5	10	14.6

*includes pork, beef and goat meat

Source: E. F. Aviguetero, et al. "Income and Food Consumption: Summary of 19 Economic Surveys, 78-15, June 1978.

ducts (51). This is often referred to as "colonial mentality," that is, a blind preference for anything foreign. There seems to be a reasonable explanation for such a preference. During the infancy stage of the domestic processing industry, imported products were unquestionably superior in quality over the local products. The length of time that this quality differential continued has conditioned the perception of consumers in their evaluation of product quality. This is compounded by the fact that imported products are produced by large corporations which have strong and aggressive advertising and promotional support for their products (16). Advertisements have a significant impact especially on the upper income group who are exposed to mass media and who are consumers of processed beef.

5. Related Products

Table 3-6 shows the level of per capita consumption of selected red meats and eggs. In terms of relative share, beef consumption ranks fourth and accounts for 13 percent of total consumption. The biggest share was pork consumption, accounting for 50 percent. The second was the consumption of chicken eggs, 17 percent, followed by poultry at 15 percent. However, beef and carabeef consumption increased by 100 percent from 1963 to 1970, while pork consumption decreased by three percent. Consumption of poultry and chicken eggs increased by 67 and 27 percent, respectively. Recent data (late

Table 3-6

PER CAPITA CONSUMPTION ON SELECTED MEAT* AND EGGS
PHILIPPINES, 1963 TO 1970

Meat/Egg	Kilos per Capita 1963	1964	1967	1968	1969	1970	(1970) relative share %	Rate of increase 1963-70 %
1. Beef	1.1	1.0	1.6	1.5	1.8	2.2	13	100
2. Carabeef	.4	.4	.6	.4	.8	.8	5	100
3. Pork	8.6	8.8	10.9	9.4	8.3	8.3	50	(3)
4. Chevron mutton	.1	.1	.1	.1	.1	.1	*	
5. Poultry	1.5	1.5	2.5	.25	3.2	2.5	15	67
6. Chicken eggs	2.2	2.2	2.1	2.2	2.8	2.8	17	
Total	13.9	14	17.8	16.1	17	16.7	100	

*Does not include organ meat, edible offal, or processed items that totaled 1.7 kilos per capita in 1970.

Source: The Statistical Reporter, National Economic Council Selected Issues.

1970's) on per capita consumption of red meat and eggs were not available.

A study by Orogo (37) determined the type of relationship between beef and some related products. The study revealed that beef has a positive cross price elasticity with poultry meat, eggs, fish, vegetable and fruits, and a negative cross price elasticity with pork. This means that beef is a complement to the former, but a substitute to the latter.

D. Demand Elasticities

Several studies have been conducted on the elasticities of demand for beef (37).[e] These studies reveal that the demand for beef is inelastic (-.475), when measured at the average quantity and price. That is, a one percent change in the price of beef will result in a .475 percent change in the quantity demanded in the opposite direction. The implications of an inelastic demand is that the magnitude of price variations will be large, and if the quantity supplied is reduced, the industry will generate more revenue.

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[e]But no definite judgments can be made on the reliability of their estimates. Only the statistical properties of their model can be examined. Both studies had very low R squared, about 30 percent. Secondly, the data used was derived from a three-year consumption survey. There is serious doubt whether enough price information was available to make the estimation.

The Engels curve in Figure 3-2 shows that income elasticity increases at higher levels of income. In fact, it moves from an income inelastic to an income elastic category. A one percent change in income for consumers earning ₱400 will result in a .52 percent change in the quantity demanded in the same direction, while those earning ₱1425 change their quantity demand by 1.42 percent.

E. Supply Elasticity

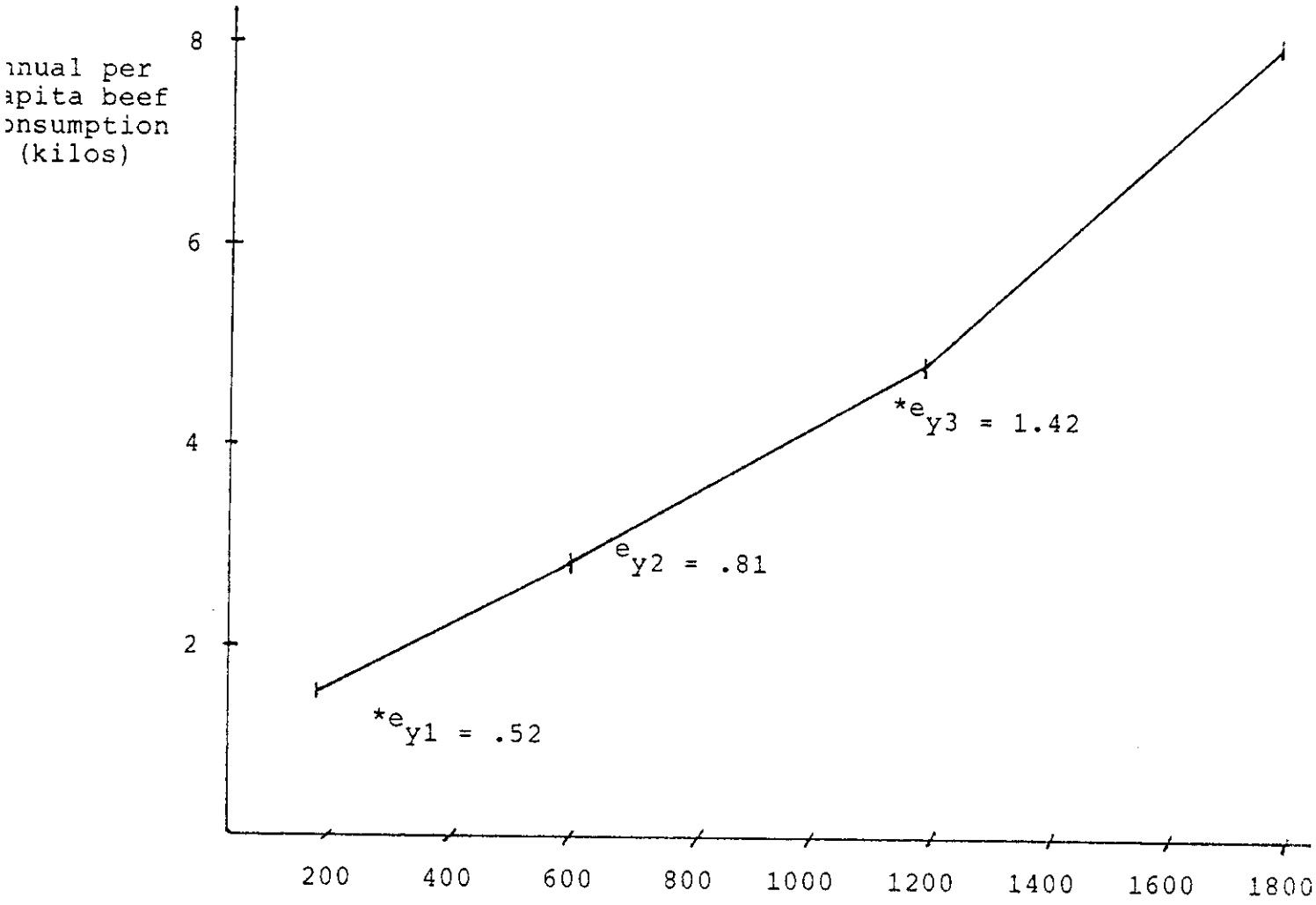
To my knowledge no study on beef supply elasticity has yet been conducted. In order to provide a rough estimate of the responsiveness of the quantity producers would sell in the market to changes in price, the author developed a simple supply model. It has two sub-models, one for inventory and another for slaughter. The result of the analysis indicated that beef supply is inelastic in the short run. Biological and investment constraints might explain this limited responsiveness. For the inventory model, a one percent increase in cattle prices would encourage producers to sell some of their cattle stock reducing inventory by .12 percent in the short run and 14 percent in the long run. For the slaughter model, a one percent increase in price increases the number of head slaughtered by .32 percent in the short run and .34 percent in the long run.

F. Pattern of Price Variation

1. Annual Price Variation at the Retail and Farm Level

Figure 3.2

RELATIONSHIP OF ANNUAL PER CAPITA BEEF CONSUMPTION AND ANNUAL PER CAPITA INCOME, PHILIPPINES, 1976



*e_{yi} = arc income elasticity

Source: Avigvetero, E. F., et al. Income and Food Consumption, NFAC, Quezon City, Philippines, 1976

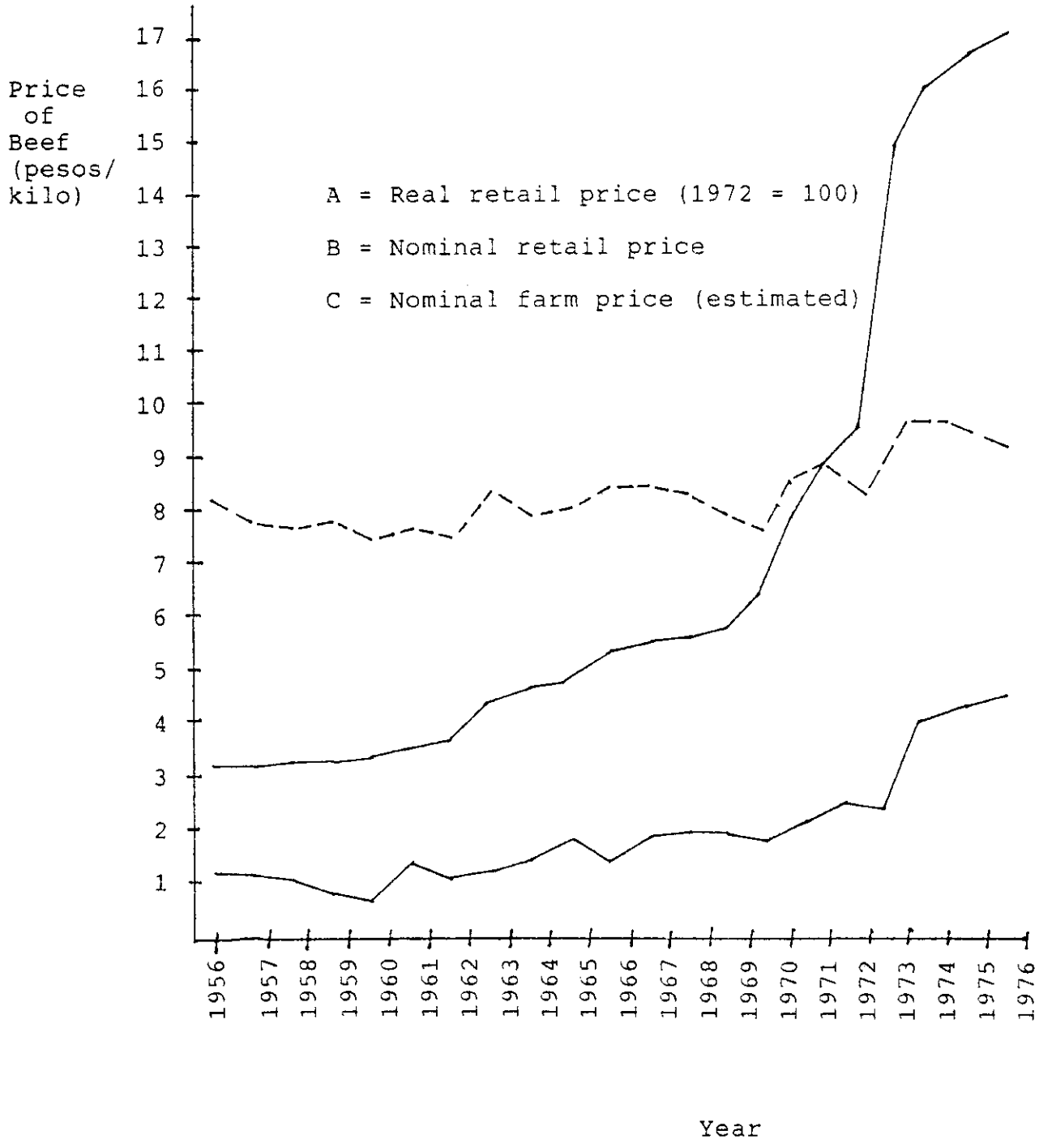
Figure 3-3 shows a 20-year annual behavior of prices. Nominal prices at the retail level showed a consistent increase at an increasing rate. Three periods with different rates of change can be observed. Price of beef was relatively stable between 1956 and 1961. The rate of annual increase was only .95 percent; between 1962 and 1969, prices increased at a moderate rate of eight percent. In 1970 to the present time, prices increased at a rate of 27 percent. Farm prices also showed an increasing trend over the same period. The rate of increase was at a slower rate relative to the retail market. On the other hand, over the 21-year period, the real price of beef at the retail level increased only by .83 percent annually. This suggests that the increase in the nominal retail price can be largely attributed to the effect of inflation.

2. Monthly Price Variation

Monthly price data collected from two provinces with the highest number of auction markets are shown in Figure 3-4. A common pattern can be observed. Prices start to increase at a rapid rate from January until they reach a maximum between June and July and then taper off until December. The real seasonal variation in prices followed a similar pattern, but is relatively small. The lowest price was 88-92 percent of the highest price.

Figure 3-3

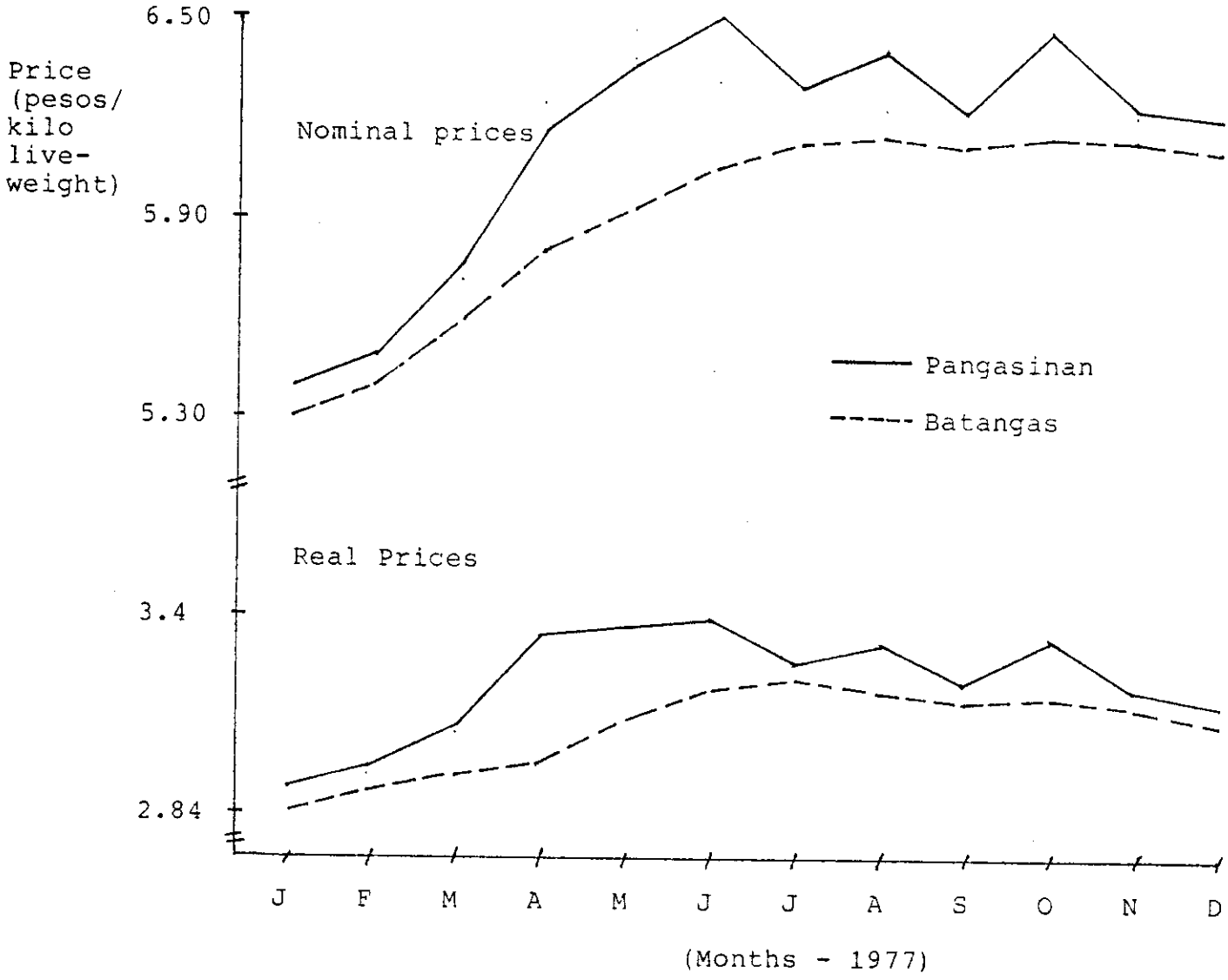
ANNUAL FARM AND RETAIL PRICE (NOMINAL AND REAL) BEHAVIOR, PHILIPPINES, 1956-1976



Source: Central Bank Statistical Bulletin and NEDA, Statistical Yearbook, 1979

Figure 3.4

AVERAGE MONTHLY PRICES (NOMINAL AND REAL)
OF CATTLE IN TWO PROVINCES, PHILIPPINES, 1977



Source: Diamante, T. D. Livestock Auction Market Operations in the Philippines, 1973-1977. B.A.Econ. Research Report Series of 1978. No. 6, Quezon City, Philippines, 1978.

2. Regional Price Variation

Prices varied from region to region. Table 3-7 shows that the price of a kilo of beef rump ranged from P9.00 in region 2 to P18.04 in Metro Manila. This behavior is partly explained in p. 100.

G. Government Participation and Regulation

Government participation in and regulation of the beef-cattle subsector is substantial and pervasive in almost all stages of the production-processing-distribution-consumption process.

The government is heavily involved in research and extension of improved production technologies. It is also involved in market development. For example, through a series of laws (Presidential Decree Nos. 7 and 45, Letter of Instruction No. 16, Memorandum Circular No. 2 and Administrative Order No. 1) the government created a network of 50 auction markets to be managed by municipal governments and a Meat Inspection Commission responsible for the quality inspection of cattle and meat.

The flow of investments is also regulated by the government using restrictions and incentives administered by the Board on Investment. Several laws have been passed to specify the nature of incentives and how they shall be implemented, such as Republic Act 5186--The Investment Incentive Act; Republic Act 6135--The Export Incentive Act, and Presidential Decree 1159--The Agricultural Investment Incentive Act. Some of the incentives include the right to

Table 3-7

AVERAGE REGIONAL RETAIL PRICE OF BEEF RUMP
PHILIPPINES, 1977

	Region	Average Price (pesos/kilo)
I.	Ilocos	12.78 - 14.00
II.	Cagayan	9.00 - 12.06
III.	Central Luzon	17.00
IV.	Southern Tagalog	11.68 - 18.04
V.	Bicol	12.00 - 12.32
VI.	Western Visayas	12.00
VII.	Central Visayas	12.00
VIII.	Eastern Visayas	15.00
IX.	Western Mindanao	10.00 - 15.00
X.	Northern Mindanao	11.09 - 14.00
XI.	Southern Mindanao	13.00
XII.	Eastern Mindanao	10.00

Source: Bureau of Agricultural Economics, Agricultural Marketing News Service

repatriate investments and remit earnings, freedom from expropriation of property, anti-dumping protection, preference in the granting of government loans, etc.

H. Foreign Trade

Foreign trade is also controlled by the government. Before 1972, a government agency called the National Marketing Corporation (or NaMarCo) handled the importation of consumer goods, including fresh beef and beef products. The purpose of the agency was to break the monopoly of aliens in the retail business, and to influence domestic prices toward politically acceptable levels (16). With the new incentive laws including anti-dumping provisions, the agency was dissolved. Government influence is still strong because it controls the allocation of dollar exchange to private enterprises engaged in foreign trade.

Imported beef is becoming a more important source of beef supply. Table 3-8 shows that its share in the total supply is increasing, from four percent in 1970 to 15 percent in 1976. Australia supplied 82 percent of all beef imports in 1976; New Zealand, 12 percent and the United States, two percent. The other two percent came from eight other countries with a share of less than one percent each. There was also an importation of live cattle for breed improvement purposes. Of the total 203 head, 131 came from the United States and the other 72 from Australia.

Table 3-8

SOURCES OF BEEF SUPPLY, PHILIPPINES, 1967-1976

Year	Domestic Supply[a] (MT)	Annual Relative Share (%)	Imported[b] (MT)	Annual Relative Share (%)	TOTAL
1967	54,091	94	3,336	6	57,427
1968	57,254	92	4,793	8	62,047
1969	46,453	92	3,916	8	50,369
1970	56,194	96	2,446	4	58,640
1971	58,419	94	3,433	6	61,852
1972	44,523	94	2,908	6	47,431
1973	52,479	97	1,854	3	54,333
1974	47,736	93	3,783	7	51,519
1975	45,900	82	10,133	18	56,033
1976	46,676	85	8,139	15	52,815

Source: [a]NEDA, 1979 Philippine Statistical Yearbook

[b]FAO, Trade Yearbook, 1967-1976

CHAPTER IV

SUBSECTOR STRUCTURE

This chapter presents the structure of both the horizontal and vertical dimensions of the beef subsector.

A. Vertical Dimension

The vertical dimension of the beef subsector refers to the organization of enterprises that are involved in performing sequentially related functions in the whole process of transforming a set of inputs into a product with time, form and space characteristics desired by consumers. Below is a brief discussion of the nature of this organization, with particular emphasis on its functional structure, exchange institutions and arrangements, types of exchanges, information system, risk sharing arrangements and decision making.

1. Functional Structure: Stages, Functions, and Enterprises

a) Stage I - Production

There are two types of enterprises engaged in cattle production: the commercial and backyard farms. In most cases, breeding and fattening functions are integrated within both types of farm enterprises.

A more detailed description of cattle production is found on page 16.

b) Stage II - Procurement

b.1 Function 1 -- Purchase and Assembly in the Rural Producing Areas

The assembly function is very important because cattle production is dominated by small and scattered backyard operators. The first level of assembly is performed by local buyers. They search out individual backyard operators and buy cattle directly from them. They then move the cattle, mostly on foot, to the town centers for resale. The establishment of the auction markets has diminished the role of barrio buyers. Farmers can now bring their animals directly to the auction markets.

b.2 Function 2 -- Assembly in the Rural Producing Areas and Shipment to Urban Consuming Centers

Shippers perform two major functions: the assembly of cattle in rural producing areas, and the shipment of cattle to urban consuming centers. They usually reside in the town centers where they buy cattle from auction markets or from local buyers and commercial farmers in provinces with no auction markets. Shippers always provide holding pens (either owned or rented) to house the cattle

until a minimum number is acquired for shipment. Those operating in Luzon usually own transport equipment, while those in the Visayas and Mindanao use passenger and/or cargo vessels (2).

b.3 Function 3 -- Assembly and Wholesaling of Live Cattle in Urban Consuming Centers

City dealers assemble and wholesale live cattle in urban consuming centers. They buy cattle from shippers and sell them to butcher-retailers and meat processing plants. Shippers always provide holding pens (either owned or rented) in the city in order to accommodate differences in the timing and rate of cattle arrival and disposal.

c) Stage III - Cattle Slaughtering and Meat Processing

The slaughtering of cattle for the fresh beef market is performed by butcher-retailers in publicly-owned slaughterhouses. Meat processing plants slaughter the cattle for processing requirements in their own slaughtering facilities.

d) Stage IV - Distribution of Beef and Beef Products

Meat vendors, supermarkets and the small retail stores distribute beef and beef products to consumers. Most of the fresh beef is handled by

meat vendors who sell directly to the consumers from rented stalls in public markets. Supermarkets handle only a small share of total fresh beef sales. However, supermarkets and the small retail stores handle most of the processed beef and beef products.

2. Marketing Channels

A diagram of the marketing channels for beef cattle is presented in Figures 4-1a, b and c. Figure 4-1a shows the marketing channels for fresh beef in the urban centers (particularly Metro Manila). There are 12 different alternative combinations of enterprises involved in production-procurement-processing-distribution. Figure 4-1b shows the marketing channels for fresh beef in rural areas. It is very simple; there are only three alternative combinations of enterprises. Figure 4-1c shows the marketing channels for processed beef and beef products. There are 18 alternative combinations of enterprises.

3. Exchange Institutions and Arrangements

a) Farm Level

Prior to March 1973 procurement of cattle was done mostly by individual negotiation. Local buyers, either acting as independent buyers or working as an agent of shippers, procured available cattle from small backyard operators. Negotiation on the value of the cattle was done on the

Figure 4-1a

MARKETING CHANNELS FOR FRESH BEEF
URBAN MARKETS, PHILIPPINES

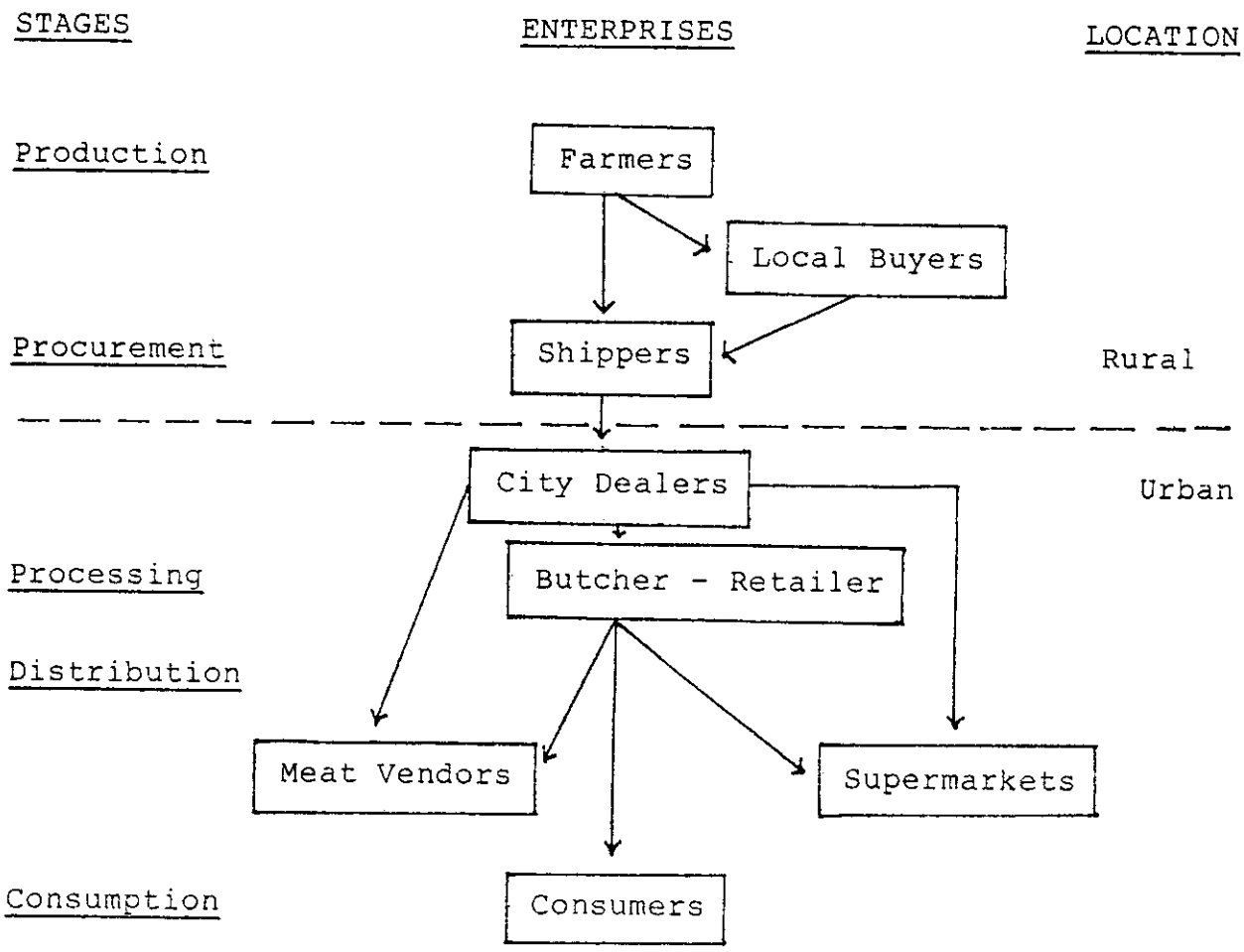


Figure 4-1b

MARKETING CHANNELS FOR FRESH BEEF,
RURAL MARKETS, PHILIPPINES

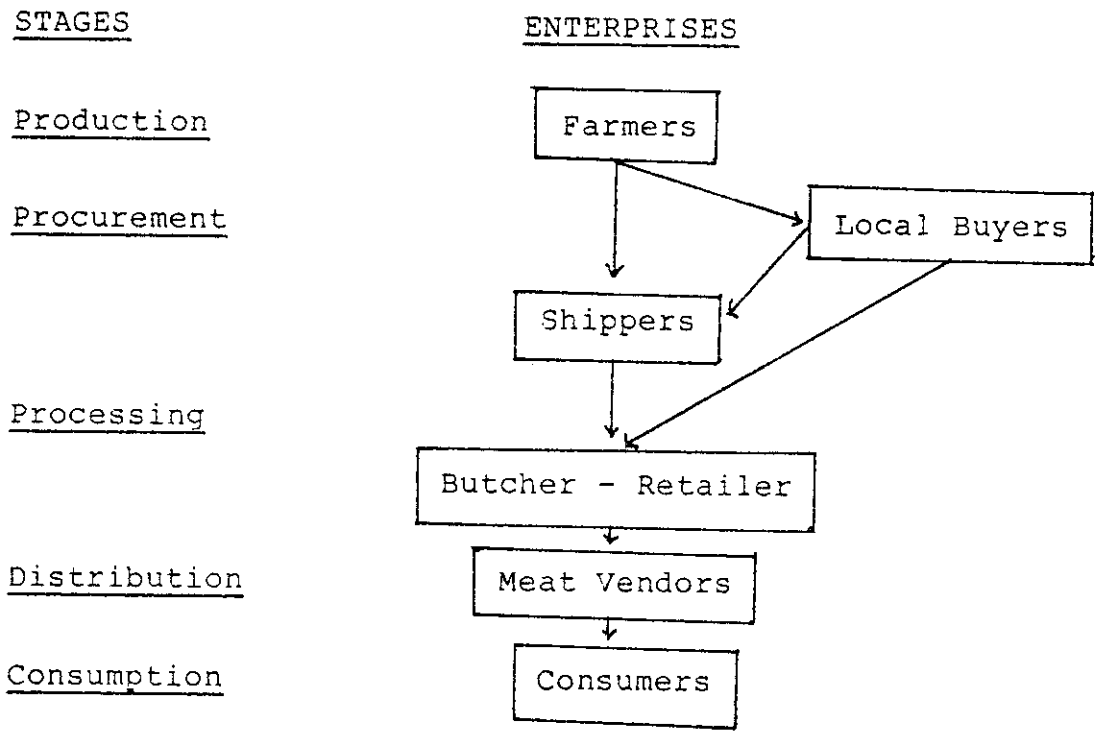
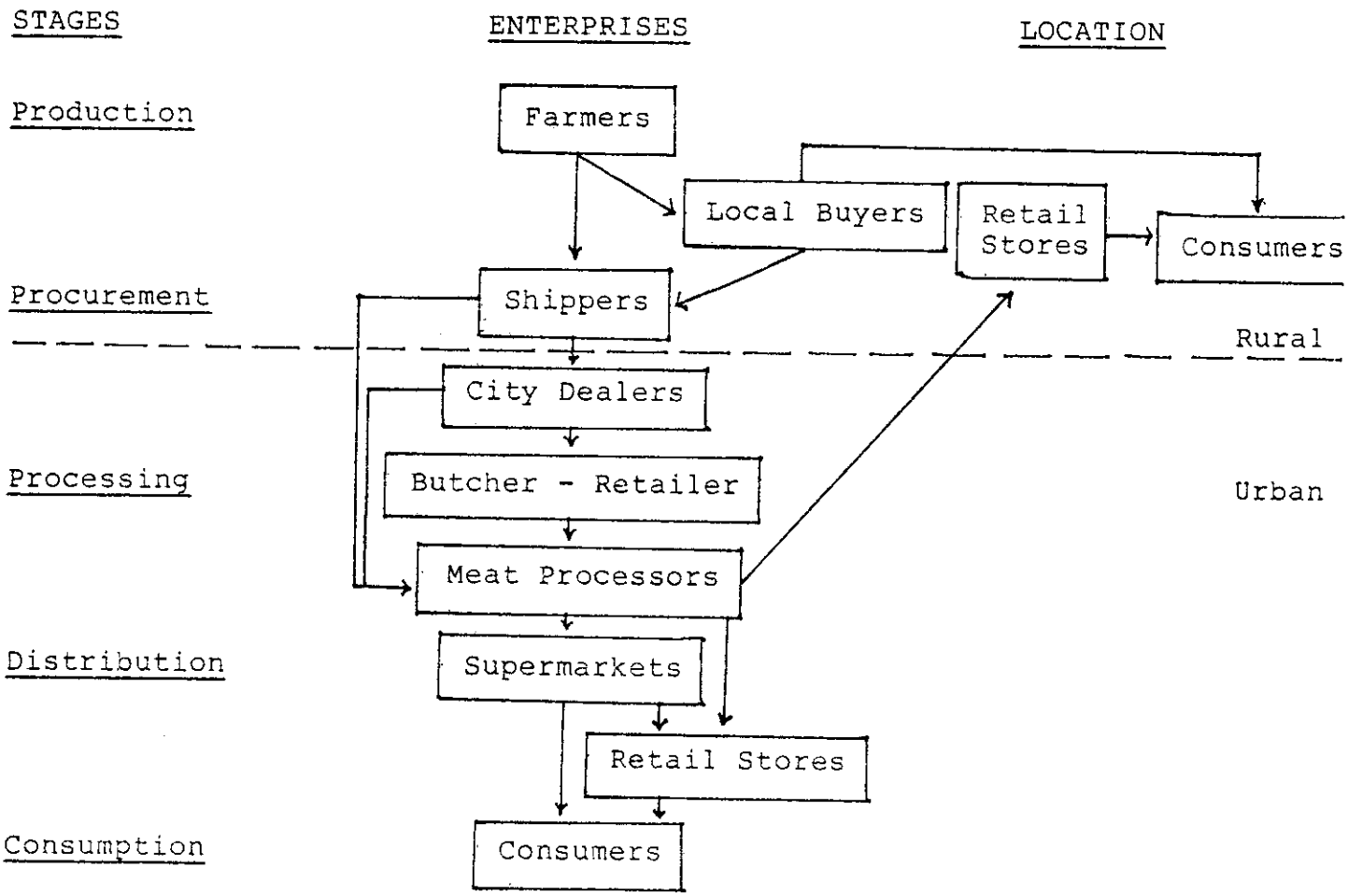


Figure 4-1c

MARKETING CHANNELS FOR PROCESSED/CANNED BEEF, PHILIPPINES



farm and was simply based on an eye estimate of the cattle's weight.

In mid-1973, auction markets were established to provide a more equitable and efficient trading procedure by substituting private agreements with open bidding and by providing market information equally accessible by all the trading participants. However, three months after the establishment of the auction markets in Batangas, the open bidding procedure was eliminated. Trading reverted to private negotiation as in other pooling areas. Selling on a per head basis was widely practiced despite the availability of weighing scales.

b) Fresh Meat Retail Level

Meat vendors operate in public markets. They rent stalls where large cuts of beef and pork are displayed. The public market administration has very little influence on the transactions between the meat vendors and buyers. The usual trading procedure is simple. Buyers browse around the meat section to compare prices and quality. Before they make the decision on how much and from whom to buy, a last effort is made to haggle for lower prices. Concessions made by sellers, if ever, usually come in the form of extra meat added free of charge, or cutting from the choicest part of the meat.

c) Shippers - City Dealers

Shippers and city dealers negotiate for the price on an individual basis. Once the price is determined, city dealers advise shippers through a purchase order of the number of cattle to purchase and the time for delivery.

d) Meat Processing Plants

Meat processing plants usually have pre-set buying price for different weight categories of cattle. Cattle delivered by shippers and/or city dealers are directly valued based on these prices without negotiation.

e) City Dealer - Butcher-Retailers

Butcher-retailers buy live cattle from city dealers. Price negotiation is done on an individual negotiation basis at the holding pens where butcher-retailers also inspect the quality of the cattle. The purchased cattle are delivered directly to the public holding pens of slaughterhouses.

f) Butcher-Retailer -- Meat Vendors

Meat vendors usually have a regular butcher-retailer as a supplier of meat. Price is negotiated privately, and the quantity and timing of delivery are specified on a purchase order. Purchase orders are placed on a daily or twice-a-week basis.

4. Types of Exchanges

a) Spot Market Transactions

Spot market transactions are used in the transactions between farmers-shippers, city-dealers-butcher-retailers and meat vendors-consumers. This type of exchange determines the price and quantity jointly with the physical presence of the cattle or dressed beef to be traded.

b) Purchase Order

On the other hand, shippers-city dealers and butcher-retailers-meat vendors use purchase orders in their transactions. This is a type of exchange in which the price and quantity of a future transaction is jointly determined in advance. It is not a contract because purchase orders do not bind the suppliers to any obligations if the order is not fully satisfied (in terms of quantity).

5. Information System

There are two major sources of information in the subsector: the information service of the government and information possessed by the participants. The Bureau of Animal Industry posts livestock market price information which is collected from 12 regions. This, however, was reportedly not widely used. Diamante (21) indicated in a study that only eight percent of the buyers and sellers interviewed used the price information. The most functional information is that collected

and shared by participants in their transactions. Cattle operators get information from current trading experiences shared by other operators, the local population, friends and neighbors. Shippers receive most of their market information from city dealers.

6. Risk Sharing Arrangement

Risk is defined as the probable reduction in the income of enterprises resulting from the occurrence of an uncertain event such as physical damage (death, shrinkage, quality deterioration), and a decrease in price. Risk sharing in the subsector is very simple; it is borne by the owners of cattle or meat. The cost associated with assuming risk is ultimately passed along to consumers in the form of higher prices and to producers in the form of lower selling prices. The exact distribution of cost depends on the elasticity/slope of both supply and demand at the retail and farm level.

B. Horizontal Dimension

The horizontal dimension refers to the industries in the subsector, that is, the grouping of enterprises performing similar functions and/or producing the same product/service. The concern of this section is the characteristics of an industry that influences the nature of interaction of enterprises in it and whether they compete or collude as they respond to profit opportunities.

To my knowledge, no study has yet been conducted on the structural characteristics of the industries in the beef subsector. In this section, attempts are made to infer some of these structural characteristics from known related information.

1. Size and Number of Enterprises

a) Meat Vendors

Municipal governments indirectly determine the number and size of meat vendors through control over the operation of public markets. In the study by Manuel, et al. (28) the average number of meat vendors was 36 for large public markets, 24 for medium and seven for small. The size of their operation (or volume of business) was limited by the space allowed for rental which averaged three square meters. Also, except for some major cities, there is usually only one public market in a city or municipality. That market is open only one day a week.

b) Supermarkets and Retail Stores

The concept of supermarketing is relatively new in the country. To date, there are only a few supermarkets. They are mostly located in the large cities, particularly Metro Manila. Because of the established meat, fish and produce sections in public markets, supermarkets do not carry them as

major profit centers, rather for consumer convenience.

Many small retail stores still exist, both in urban and rural areas. They serve a specific segment of the market.

c) Meat Processors

Currently there are 72 accredited meat processing enterprises in the country. They range from small family-owned and operated enterprises to big subsidiaries of multi-national corporations. Only nine meat processing enterprises, however, are classified (based on capacity and facilities) as Class A. Seven of these are located in Southern Tagalog (six in Metro Manila, one in Laguna) and only two in Cebu City. The size of individual plants is not available, but it is estimated by PCARR (38) that the combined requirements of the five major plants would be about 250,000 head of cattle and/or carabao yearly.

d) Slaughterhouses

Slaughterhouses are owned and operated by the government. There are 554 provincial and one national abbatoir. The national abbatoir is operated by the Bureau of Animal Industry, while the provincial slaughterhouses are operated by the municipal governments where they are located. The biggest and best equipped is the slaughterhouse in

Vitas, Tondo, Manila. Only one slaughterhouse is allowed for every municipality or city.

e) City Dealers

There is no information available on the exact number of city dealers. Because of the nature of their operation there is strong reason to believe that there are only a few (see condition of entry on page 58). In a relatively extensive study by Alunan (2) only three city dealers were identified, one in Southern Tagalog and two in Central Luzon.

f) Shippers

Alunan also reported that the average number of shippers in an auction market ranges from one to ten. Most of these shippers buy cattle from many auction markets.

g) Local Buyers

The number of local buyers is declining in provinces where there is an auction market. But they are still very active in many provinces far from auction markets where cattle raisers still prefer to sell cattle through them rather than directly to the auction market. Local buyers have a very limited volume of business due to inadequate resources and facilities. On the average, they handle only nine head of cattle per transaction (2).

h) Cattle Producers

There are many small backyard producers of cattle. A survey by Diamante, et al. (21) noted that on an average market day, there would be 60-100 cattle raisers in an auction market with 2-4 head of cattle each. This number excludes those raisers who sell through local buyers.

i) Auction Markets

Like slaughterhouses and public markets, auction markets are owned by municipal governments. To date, there are 36 auction markets in the country. Seven are located in Batangas, four in Iloilo, two in Pangasinan and the other 23 are scattered in other provinces. The average number of cattle and carabao sold in a market day ranged from 65-371. The auction markets were open for only 11-78 days during 1977.

2. Entry Condition

a) Meat Vendors

Access to the limited number of stalls in the meat section of a public market poses a major barrier to entry for meat vendors. Once market stalls are fully occupied, it is extremely difficult for potential entrants to secure space. Only entry for replacement is possible.

There are laws which discriminate against aliens in engaging in the retailing business.[f] For an example, in 1946 Congress enacted a law limiting occupancy of stalls in public markets to Philippine nationals. In 1949 partnerships and corporations owned by aliens were given 15 years to liquidate their enterprises. This anti-alien policy is still strong even in the most recent Incentives Acts. It is explicitly stated that the retail trade should be 100 percent owned by Filipino citizens.

b) Supermarkets

The size of the market and the considerable capital requirements are the limiting factors to the entry of new supermarkets. Because of the limited market, supermarkets are scattered over geographically separated market locations.

c) Meat Processing Enterprises

In the early 1970's the heavy importation and dumping of beef and beef products in the domestic market by NaMarCo served as a major barrier to the

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[f] In many cases the Chinese in the country have consistently shown their competence in retailing, management and an adequate financial capital to engage in the business.

entry of domestic meat processing plants. Even with the termination of NaMarCo's operation, the over-valued Philippine currency is still making imported processed beef and beef products artificially cheap, encouraging the continuous flow of imports into the domestic market. These are especially effective barriers to entry particularly because Filipino consumers have stronger preference for imported than the locally produced products.

With the consumers' preference for, and the presence of, artificially cheap imports, only large enterprises which can have significant economies of scale, both in production and promotion, can possibly compete in the market. This type of enterprise will likely not develop because the policies of the government in allocating foreign currency(ies) (dollars) needed to purchase capital equipment heavily favor labor-intensive rather than capital-intensive enterprises.

Through Republic Act 6135 (the Export Incentive Act) the government is encouraging new enterprises to engage in meat processing, provided 70 percent of production is geared for the export market. Despite all the financial incentives entry of new enterprises will be limited by the inadequate supply of cattle (see page 76).

d) Shipping and City Dealers

The capital requirements involved in building holding pens, maintaining cattle inventory and buying transport equipment pose barriers to the entry of new shippers and city dealers. The close trading contact between shippers and city dealers gives an advantage to old enterprises over potential entrants.

e) Auction Markets, Slaughterhouses, Public Markets

Auction markets, slaughterhouses and public markets are owned and operated by municipal governments. Entry of private enterprises is limited, if not completely prohibited. Most of these public enterprises are regulated by the National government (Bureau of Animal Industry) and the National Meat Inspection Board. For an example, each municipality is limited to one slaughterhouse and public market. Political considerations often dominate in the regulation of these enterprises (see page 87).

f) Producers

Many small farmers have sufficient labor and feed (farm by-products) inputs available for cattle production. These resources are usually left underutilized in the presence of a growing demand for cattle. A major limiting factor is the capital

needed to buy breeding and/or fattening stock. Most farmers have limited capital. In fact, their major enterprises (e.g. rice enterprise) still badly needs more capital infusion for improvement.

This problem is aggravated by the seeming neglect of lending institutions. Collado (14) reported that only nine percent of the total loanable funds of commercial banks go to agricultural borrowers. The government has attempted to correct this through a Central Bank circular requiring commercial banks to buy bonds from the Central Bank. The Central Bank in turn lends the money to the rural banking system. The lending thrusts of rural banks, however, give little attention to livestock growers, particularly the small cattle or carabao raisers. This might be due to the high risk, long maturity and slow turnover of cattle production.

Furthermore, even for the special financial assistance programs, for livestock producers administered by public lending institutions, many small raisers still cannot avail themselves of the program primarily because of high collateral requirements and an inflexible payment schedule inconsistent with the farm family's cash flow.

Table 4-1 reflects the scarcity of financial assistance in the livestock industry. Of the total

Table 4-1

ANNUAL RELATIVE SHARE OF THE AGRICULTURAL LOANS GRANTED BY COMMODITIES, PHILIPPINES, 1971-1975

Year	Commodities				Total
	Food	Commercial	Forestry	Livestock	
	(percent)				
1971	16.8	64.9	10.6	7.7	100
1972	16.4	63.5	12.2	7.9	100
1973	27.6	58.6	8.3	5.5	100
1974	28.9	60.1	5.2	6.8	100
1975	21.1	68.8	4.2	5.9	100

Source: TBAC Agricultural Credit Plan
CY 1977-1982 Financing Agricultural Development: The Action Program

agricultural loans granted, the relative share that went to the livestock industry was very low compared to other commodities and over a five-year period it decreased from 7.7 percent in 1971 to 5.9 percent in 1975. There is reason to believe that probably more than half of the share of the livestock industry went to the swine sector and of the remaining that went to the cattle sector, a large share went to commercial raisers.

The Presidential Committee on Agricultural Credit reported that in 1975-76, 35 percent of all farm families who borrowed money depended on non-institutional sources such as private money lenders. The rate of interest charged was usually high, between 50 to 95 percent per annum (39).

3. Product Characteristics

a) Perishability

The perishability of the product changes as it moves in the subsector. Cattle and processed beef are relatively storable while fresh beef is very perishable. This characteristic influence some of the operations of enterprises. For an example, while city dealers and supermarkets can afford to keep product inventory, meat vendors have to buy only the quantity that can be sold in one day.

b) Product Safety Regulation

The Meat Inspection Commission is responsible for insuring the supply of wholesome meat in the market. It has instituted several procedures to perform this task. In the auction markets an animal health inspector inspects registered animals. Only healthy animals are allowed to be brought in for trading. Checkpoints are located on strategic highways to inspect animals transported by shippers. In slaughterhouses, a veterinarian is expected to conduct ante and post-mortem inspections (3). Only beef labelled as "passed" by the veterinarians are to be admitted to public markets.

The quality regulations applicable to meat processing enterprises are enforced by the Meat Inspection Commission and the Food and Drug Administration.

c) Differentiation

c.1 - Farm Level

Cattle in the auction markets are classified according to quality ranking: Grades A, B, and C. Grading is done by a livestock grader, employed by the government. Photographs of livestock are conspicuously placed where farmers can easily compare their cattle.

c.2 - Retail Level

There is very little product differentiation in the fresh beef market. Product differentiation is pronounced in the processed beef market. This is manifested in different forms such as brand names, manufacturer's name (local or imported), packaging, etc.

CHAPTER V

SUBSECTOR CONDUCT

A. Vertical Dimension: Subsector Coordination

A subsector is composed of a set of complex activities and function. These activities need to be coordinated in order to insure that what comes out of the subsector is indeed what is demanded by the consumers. Coordination involves three aspects. The first is the correct articulation of consumer demand. Second is the dissemination and translation of consumer demand into specific enterprise activities. And third is the structuring of profits, risks and costs in such a way as to provide sufficient incentives for all enterprises to individually contribute toward meeting consumer demand. This section presents a brief discussion of the mechanisms employed and the processes involved in coordinating the beef subsector.

1. Coordinating Mechanisms

a) Price System

The price system is the dominant coordinating mechanism in the beef subsector. It provides a system of articulating consumer demand and gives signals to guide most of the decisions of enterprises, such as the basic questions of what, when, where, how, and how much to produce.

However, the price mechanism is far from working freely. The government, through the Price

Control Council, intervenes to promote consumer-oriented price policies. For example, in 1972 Presidential Decree No. 7 terminated the right of municipal governments to collect fees such as re-inspection fees, inventory fees, fees for certificate of ownership and checkpoint charges. Through Letter of Instruction No. 16 the Price Control Council was directed to reduce the retail price of meat to the extent possible and to implement the new price within 30 days.

The price ceiling program created a condition where more beef is demanded than what is produced locally. Thus, to make the price ceiling workable additional supply from imports needs to be acquired.

Control by the government on imports is weak, however. Hence, even if the price ceiling program is still technically in effect, its effectiveness has decreased significantly. In addition, processed beef and beef products are not included in the price ceiling program.

b) Contractual Arrangements

Contractual arrangements can serve as a co-ordinating device in the subsector because they bind enterprises to perform certain functions in a clearly defined manner, making inter-stage and/or inter-enterprise activities/functions easy to

harmonize. Contracting is not widely used by enterprises in the subsector for two reasons. The first is the long period of time required to produce and sell cattle. For example, of all the cattle traded in auction markets only three percent were one year or younger, 23 percent were between 2-5 years and 74 percent were six years and older. It would be very difficult to operationalize a contract for more than six years. The second reason is the technical and economic feasibility of contracting with small and scattered cattle raisers. It would be extremely difficult to administer or supervise such contracts.

The nearest form of contractual arrangement is the purchase order. This is an arrangement where at a pre-negotiated price, buyers indicate to sellers ahead of time the number of cattle or amount of beef they want to buy and when and where it is to be delivered. Purchase orders are short-term in nature; hence, they cannot really guide sellers because most of their commitments are based on existing cattle stock rather than on new production.

c) Vertical Integration

Vertical integration through ownership allows better coordination of enterprises because previously independent enterprises are placed under

one management. The need for vertical integration to minimize the risk associated with specialization is apparent, but it is not widely practiced in the subsector. The size of some enterprises is not great enough to make forward or backward integration economically attractive. The most likely enterprises to pursue vertical integration are the meat processing enterprises. The volume of their demand for cattle is great enough and timing and quality specifications are important enough to their operation (9) to justify the additional capital outlay to effect vertical integration.

d) Collective Organization

Through Presidential Decree No. 175, the government established a Cooperative Development Program to create a network of supportive cooperative organizations. This network is composed of independently operated production, marketing and financing cooperatives. A federation at the national level is supposed to participate in the formulation of government policies that affect the producers. Such organization and linkages can promote better coordination. The implementation of this program, however, particularly in the livestock industry, has been very limited.

2. The Process of Coordination

a) Coordination at the Farm Level

Cattle producers basically face two major decisions--production and selling. Because cattle production takes 1-6 years, or longer, the general level and stability of prices are a major consideration in the production decision, whereas, the selling decision is largely affected by the level of current prices.

The nature of actual transaction between sellers (or raisers) and buyers is not yet definitely known. But it seems reasonable to believe that in the price negotiation sellers base their asking price on their reservation demand[9] and buyers base their bid price on the adjusted expected price in the retail market. The gap between the reservation demand price of raisers and the maximum bid price of buyers is the range for price negotiation. The final price of the cattle depends on the relative bargaining power of raisers and buyers.

The responsiveness of cattle raisers to price signals is also affected by factors outside their control. Weather is a good example. Sometimes the adequacy of the response is limited due to the

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[9]The reservation demand price is the cut-off price below which raisers withdraw their cattle from the market. It is determined by the cost of production, desired income, cash needs of farm-family, and cost of withdrawal.

inherent constraints posed by the biological process involved and the large capital investments required.

Short-term supply adjustment at the farm level is more flexible in the downward direction. When the price of cattle is below the reservation demand price, raisers can withdraw their cattle from the auction market. On the other hand, if prices are very attractive, the response is limited by the number of animals brought to the auction market. Raisers could hardly go back to their farms for more cattle because the auction market operates only once a week.

Coordination of input supply does not pose serious problems because it is done internally in most farms. The major inputs in cattle production such as feeds and labor are mostly produced by the farm-family. For an example, 95 percent of the total man-days used in production was provided by farm-family labor, and 98 percent of the total quantity of feeds consumed was home produced (13).

b) Coordination at the First-Handler Level

The coordination in the first-handler level is mostly accomplished by means of the purchase order exchange arrangement. City dealers usually advise shippers, who are in provincial municipalities, through a purchase order indicating the

number of cattle to buy and the timing of delivery. This purchase order is sent by mail, telegram or telephone. Both shippers and city dealers have holding pens to accommodate short-term supply and demand imbalances in the rural and urban areas.

The price mechanism guides the allocation of products. The allocation decision between rural and urban markets is made by shippers based on the net bid price offered by rural butcher-retailers and city dealers. Similarly, the allocation decision between fresh and processed beef is made by city dealers based on the net bid price offered by meat processing plants and butcher-retailers.

e) Coordination at the Retail Level

The short-term nature of the purchase orders allows meat vendors to make adjustments in supply. When there is a surplus beef supply, meat vendors simply reduce their next order, and sell the unsold beef with the new supply on the next market day. Adjustments when there is a deficit is more difficult. Meat vendors have to wait for the next purchase order. Provision of cold storage facilities would improve the ability of meat vendors to respond to short-term demand-supply imbalances.

On the other hand, meat processing plants have more flexibility to adjust to changes in the supply and demand condition in the input and out-

put markets because of greater product storeability. On the input side, meat processing plants can build up cattle inventory during the dry season when cattle supply is ample in preparation for the limited supply during the rainy season. On the output side, meat processing plants can adjust their supply over a relatively long period of time and over a wider geographic market.

B. Horizontal Dimension: Enterprise Competition

1. Product and Pricing Behavior

Auction markets are increasingly becoming an important institution in discovering the initial price of cattle. This function is critical because the initial price of cattle influences, to a great extent, the prices in succeeding stages. The reason for this is that the cost of sales (or cattle) contributes the largest share (85-98 percent) of the total cost incurred by enterprises (2). The price of cattle is arrived at via negotiation; however, for some of the reasons cited below, buyers basically dictated the price due to their stronger bargaining power.

As indicated on page 48, the auction markets reverted to private negotiation trading procedures. Despite the availability of weighing scales, sales were still made on per-head basis. In the province of Batangas where seven auction markets are located, 70 percent of the interviewed sellers indicated selling on

per-head basis; 29 percent in Urdaneta; 51 percent in Cebu; 49 percent in Iloico; 32 percent in other auction markets and 77 percent in pooling places (20). This procedure of trading is clearly disadvantageous to the sellers because the value of the cattle is determined based on an eye-estimate of the weight. Buyers have an advantage because they are more skilled at estimating weight than are producer-sellers.

Because of the lack of standardized and orderly trading procedures, middlemen (particularly corridores) are still exerting a strong influence in determining the price. Corridores ask farmers in the market for their selling price. They then arrange for the sale to the real buyer (such as the shippers). Their share is either the difference between the farmers' asking price and the buyers' buying price or a commission fee based on a fixed rate. Diamante (20) reported that this amount is usually unreasonably high.

More than half of the operators sold their cattle through corridores. The reasons cited were: corridores effected faster sales and knew more buyers.

The establishment of the auction market has also changed the balance of bargaining power in favor of the buyers. When the sale negotiation was done on the farms, the initial cost was incurred by the buyers; the cost of withdrawal by the farm was almost zero. The farmers had a high reservation demand price, while the

buyers' interest was to successfully close a deal. In the auction markets, raisers incur a higher initial cost because they have to bring their cattle from the farm. The cost of withdrawal from the market is significant. When cattle are not sold, the farmer has two alternatives: one, to wait for the next market day, in which case he has to pay ₱0.50 per day for a stockyard fee, or the cattle can be taken home, in which case the raiser has to pay for transportation and weight shrinkage. For these reasons, raisers have a relatively low reservation demand price in the auction market. It is alleged that buyers take advantage of this situation. One common strategy used is to come to the auction market late in order to put increasing pressure on the sellers to settle for a low buying price as the market nears the closing time (23).

Also, although the auction market was established to promote competition (in contrast to the one-on-one negotiation between the buyer and seller at the farm level), it has turned out to be a buyer's market; there are more cattle raisers than the number of buyers. It is alleged that sometimes buyers tend to respect each others' bid price, leading to limited buying competition (23).

This type of behavior of buyers tends to be effective only when there is a surplus supply of cattle.

But, in the Philippines where there is a deficit, only a tacit collusion among buyers can make it workable.

In the fresh beef market meat vendors tend to be price-takers. This is explained by the homogeneity of the product they sell, their relatively large number in the public market and the staggered flow of buyers.

On the other hand, because of pronounced product differentiation (in terms of brand name, packaging, etc.) meat processing plants can charge different prices for similar products.

2. Advertisement and Promotion

Of the 79 registered meat processing enterprises only five of the largest plants engage in advertising and sales promotion. This strategy is necessary and feasible because processed products can be differentiated and the volume of their operation is sufficient to spread out the cost involved.

3. Product Specialization and Market Segmentation

Small enterprises employ product specialization and market segmentation strategies to survive in the presence of large competitors in their industries. Two examples are cited.

The claimed economies of scale attained by supermarkets from their large volume of operation have neither driven out old nor hindered the entry of new small retail stores. Two reasons explain this. The first is that the labor-saving operation of super-

markets has a limited impact because they are required to pay minimum wage rate specified by law. Whereas, small retail stores can hire clerks at very low rates, or even provide free family labor (children are usually used). The second reason is effective market segmentation. Retail stores are effectively serving segments of the market with low income and no or limited home storage and transportation facilities.

Another example are the small meat processors. They are specializing in the production of local delicacies such as longaniza, lechon, paksiw and tocino. These products are technically difficult to mass produce, and they also have a relatively small market.

CHAPTER VI

SUBSECTOR PERFORMANCE

This chapter presents the consequences of the mass of decisions and actions of all enterprises in the subsector that affect the economic welfare of consumers.

A. Waste

1. Capacity Utilization

Capacity under-utilization is of two kinds--either planned or unplanned. Only the latter is considered wasteful.

a) Meat Processing Plants

Due to inadequate supplies of cattle, processing plants in the country have unplanned under-utilized processing capacity. The combined requirements of the five largest processing plants in Manila is 250,000 head of cattle and/or carabao yearly. The total average annual slaughter for the country as a whole for the last 10 years has been only 332,000 and most of this is allocated to the fresh beef market. Meat processing plants are left with only a limited supply. In fact, sometimes they have to resort to importing frozen meat in order to operate at or above break-even capacity. This strategy is not sufficient and it idles their slaughtering facilities. A good example of the seriousness of the problem was the bankruptcy in

the mid-1970s of the largest and only fully-automated meat processing plant in the country primarily due to an inadequate supply of cattle.

b) Slaughterhouses

Slaughterhouses in the rural areas and even in small cities are utilized for only about 4.57 hours per day. In contrast, the slaughterhouse in Metro Manila operates 24 hours daily primarily because the demand for beef is concentrated in Metro Manila and the cattle shipped into Metro Manila are shipped live. The reason for the latter is that carcass shipment is subject to a more rigorous inspection by Metro Manila veterinarians who have strong suspicions that sanitary regulations are not as strictly enforced in the rural slaughterhouses. A law was passed requiring all suppliers of meat in Metro Manila to slaughter their cattle in a Metro Manila slaughterhouse. As a result, the demand for slaughtering services is transferred from the rural area to Metro Manila.

Since slaughterhouses are owned by municipal governments, the law amounts to an income transfer from rural municipalities to Metro Manila. Economic motives behind the mandatory transfer of demand have not been addressed.

2. Weight Shrinkage

Transporting live cattle from the different regions to Metro Manila causes weight shrinkage. Villegas (50) reported that live cattle transported from Mindanao or Visayas to Metro Manila lose about 15-20 percent in weight, while cattle from Luzon lose 5-10 percent. When translated into money value, weight shrinkage accounts for 47-50 percent of total marketing cost (2).[h] This estimate excludes the high incidence of diseases and mortality, feed and care costs such as labor and space.

B. Product Safety Regulation

The safety and wholesomeness of beef and beef products should be regulated by the government because there is a strong possibility that sellers might sacrifice product safety and wholesomeness in favor of more profits. Consumers do not have the necessary technical competence, or the economic incentive to assess the wholesomeness of beef when they make their purchases.

The implementation of product safety regulatory procedures (page 62) is very poor, leaving the safety and wholesomeness of the beef supply basically unchecked. Several examples can be cited. The checkpoints that were estab-

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[h]These estimates are believed to have overestimated the real cost of weight shrinkage. Neither Villegas (49) nor Alunan (2) specified whether the nature of weight loss is "excretory" or "tissue." Only the latter is an economic cost. This problem area needs further study.

lished to prevent the spread of hoof and mouth and other diseases have become simply centers for collecting fees. It is common knowledge that shippers can pass through most checkpoints without any animal inspection if they pay "grease money" (50). Those who refuse to pay are intentionally delayed in the name of inspection and those who want to avoid them have to take longer routes, making transportation and shrinkage costs even higher. The problem is so serious that in the Letter of Instruction No. 16, the Minister of National Defense was directed to arrest and detain persons committing such malpractices.

The real control of meat safety, however, is in the slaughterhouses where meats are either "passed" or "condemned." Some slaughterhouses do not have regular livestock or meat inspectors. They could hardly generate enough income to justify their employment. Even those slaughterhouses with hired inspectors, quality control procedures are not strictly enforced. Several problems can be cited: sometimes inspectors are not present to conduct ante and post mortem inspections; butchers are not licensed nor do they have health certificates; facilities are inadequate and not well maintained; and the overall sanitary condition is very poor (1, 9, 15, 22).

Public markets face similar sanitary problems. Manuel et al. (28) reported that most public markets do not meet

minimum sanitation requirements. They lack qualified employees and facilities to handle perishable products, water supply is inadequate, underground drainage is clogged and garbage disposal is irregular.

The breakdown of the implementation of product safety regulation raises many difficult issues. The first is the basic question of whether consumers of meat in general are conscious and concerned about the safety and wholesomeness of the product they buy. The second is a question of whether consumers have the monetary and political power to command the market to respond to their preference for wholesome products. The third is a question of technical competence. That is, whether there is enough technically trained personnel with an adequate support system (equipment, facilities, operating budget, etc.) to effectively implement the regulatory rules and procedures. The fourth is the question of whether public bureaucrats responsible for implementing regulatory rules and procedures can and will take the issues seriously in the absence of an effective mechanism to articulate the feedback of consumers to the right authorities, and the absence of a pressure from a democratic system to hold bureaucrats accountable. The fifth is the issue of differential influence production capability. That is, the regulated enterprises will have more economic incentive to commit resources to influence the regulatory agency because of their concentrated interest, while the dispersed nature of

interest among consumers is not an effective counter influence.

C. Progressiveness

The progressiveness of the subsector has two aspects; the first is the rate at which the potential production possibilities of the subsector is expanded via research and the second is the rate at which these new discoveries are applied.

The government is the major source of progressiveness (both research and application) in the subsector. Some examples are discussed below.

A significant limiting factor in cattle production is the low productive potential of native breeds which are commonly maintained by backyard raisers. To overcome this constraint the government launched a breed improvement program. This is composed of importation of superior breeds adaptable to local conditions, dispersal of improved breeds, and an artificial insemination service providing semen of superior breeds. So far, 21 pure breeds and crossbreeds have been introduced in the country. The impact of this program is evident in many auction markets where the proportion of upgraded breeds is increasing. Slaughter data suggests that in the past few years there was an increase in carcass weight of 14 percent of 18.95 kilos per head.

The government also created institutions to improve the coordination and regulation of the subsector. One of these is the livestock auction markets. These auction markets

serve primarily for price discovery, and assembly points as well. As of 1978, there were 36 officially approved auction markets. Only 32 were operational, however. The number of cattle passing through the auction market has been increasing significantly from 46,611 in 1973 to 135,573 in 1977.

Another institution in the National Meat Inspection Board. Although the implementation of its programs is still far from ideal, at least there is already an established machinery responsible for meat safety regulation.

There seems to be a common phenomenon in the subsector that a wide gap in progressiveness usually exists among similar enterprises. In production, commercial raisers are more progressive than backyard raisers (see page 16). They are more responsive to government programs such as the breed and pasture improvement program. This progressiveness can be explained by their greater financial capability to introduce new technology and the need to increase the productivity of their fixed investments.

In slaughtering, Metro Manila's slaughterhouse is more progressive than municipal slaughterhouses in their use of better equipment and processes. The Manila slaughterhouse uses the bolt pistol in rendering cattle unconscious while municipal slaughterhouses still use a sledge hammer. In cutting dressed carcasses, the Manila slaughterhouse uses an electric circular saw, while municipal slaughterhouses still use an axe.

The impact of progressiveness (in terms of availability of improved equipment and processes) is significant; a killing crew in the Manila slaughterhouse takes only 41 minutes to slaughter each animal, while it takes 134 minutes in a municipal slaughterhouse (9).

The difference in progressiveness can be explained by the transfer of the demand for slaughtering services from the rural areas to Manila as a result of government policies (see page 77). The higher the demand, the more likely that investments for technical improvements will be made.

In meat processing the larger meat plants are more progressive than the small plants in terms of facilities and processes. The Philippine Meat Corporation in Metro Manila is fully automated. It conducts the following operations: slaughtering, fresh meat preparation, curing and smoking, inedible rendering, canning, labelling, blood drying, hide curing and storage. Small meat processing plants are far from this sophistication. They have limited facilities and are more labor intensive.

In meat retailing, supermarkets are taking the lead in adopting improved merchandising techniques. They sell standardized meat cuts, pre-wrapped, pre-priced, and displayed in well-lighted display cases. Meat vendors, on the other hand, still practice the old way. That is, a big chunk of meat is displayed on wooden tables while buyers haggle for the price and specify which part and how much they want to

purchase. Then the meat is wrapped with old newspapers and magazines.

Most of the government owned and operated enterprises such as the auction markets, slaughterhouses and public markets are very slow in improving their operations. Several factors explain this. The first is the "monopoly" position of these enterprises. There is no significant competitive pressure from without to improve operations. Also, a deteriorating financial position is not directly felt because funding from the municipal government is not tied to performance. The second is the distribution of the income generated by these enterprises. Very little is reinvested. The nearest form of reinvestment is the repair and maintenance of facilities. This was only a limited amount, 1.76-3.36 percent, of total cost for slaughterhouses (1, 22) and 2.7-11.00 percent for public markets. The remaining income is distributed to the other financial commitments of the municipal government (15, 28). See Table 6-1 for an example of income allocation of public markets. As a result, not only is there limited money left to improve technical processes, in most cases, no provision is made to recover the capital invested for maintenance and replacement purposes. This practice inescapably leads to a steady deterioration in physical facilities and operational efficiency.

D. Technical and Operational Efficiency

Technical and operational efficiency refer to the input-output relationships of the productive transformation

Table 6-1

UTILIZATION OF NET INCOME, PUBLIC MARKETS
PHILIPPINES, 1971

	Utilization	Percent distribution
1.	Provincial Health Fund	6
2.	Provincial Agricultural Fund	3
3.	Provincial Hospital Fund	7
4.	Provincial Permanent Improvement Fund	12
5.	City/Municipality General Fund	72
		100

Source: P-C Manuel, et al., A Model Public Market

in each and among stages in the subsector. That is, whether resources are optimally utilized given the existing production possibility(ies).

1. Production

Several production indices convincingly indicate that technical and operational inefficiencies are common in cattle production. For example, of the total number of breeding cows only 55 percent calved each year. PCARR reported that if bonemeal is supplemented in the ration as a source of calcium and phosphorous, the calf crop can increase from 50 to 80 percent for cattle grazing on native forage. The mortality rate is high at five percent of the total cattle inventory annually. The stocking rate is low, .41 animal unit per hectare. An improved pasture has a carrying capacity of 2-4 animal units per hectare. Average carcass weight is only 153 kilos per head. The selling age is usually six years and above (36, 38).

Many factors contribute to the problem of low productivity. A few are cited here. Most backyard raisers maintain native breeds which are poor performers (e.g., poor feed converters). Production management is very poor; lack of culling and selection, natural weaning of young stock resulting in early breeding and even inbreeding and lack of preventive health practices leading to a high incidence of infectious diseases and increased parasite load. These are not limited to back-

yard raisers; even some commercial farms are also poorly managed, particularly those managed by absentee owners. For example, pasture utilization is inefficient due to lack of subdivisional fencing and herd management is made difficult by improper segregation of animal stock (38).

2. Auction Market

The improper location of auction markets has caused technical inefficiencies in the subsector. Table 6-2 shows the cattle population and number of auction markets in the 11 leading cattle producing provinces. The number and location of auction markets are clearly not consistent with the cattle population. Since many big auction markets are located near Manila, it implies that cattle are transported in small lots over a long distance and then assembled into larger lots in auction markets for transport over a short distance. The opportunities of economies of scale in transporting is not fully exploited.

The second type of inefficiency results from under-utilized auction markets. A good example is the Province of Batangas. It has seven auction markets located near each other which operate only one day a week on alternate weeks. One auction market is no longer operational due to inadequate volume. Although convenience to local patrons should be considered,

Table 6-2

CATTLE POPULATION AND NUMBER OF AUCTION MARKETS IN ELEVEN PROVINCES LEADING IN CATTLE PRODUCTION, PHILIPPINES, 1978

Province	Cattle[a] Population (number)	Auction[b] Market (number)
1. Pangasinan	106,340	2
2. Cebu	99,880	2
3. Bukidnon	84,240	-
4. Negros Orr.	70,310	1
5. Isabela	67,110	1
6. Lanao Del Sur	66,820	-
7. Batangas	65,610	7
8. Iloilo	65,390	4
9. Misamis Orr	63,670	1
10. Ilocos Norte	61,550	-
11. Masbate	59,170	1

Source: [a]B.A.Econ., Ministry of Agriculture

[b]T. D. Diamante, Livestock Auction Market Operations, 1973-77, Philippines

expensive fixed assets and technical employees should not be wasted.

This issue has not been addressed; my hypothesis is that a jurisdictional question of benefit distribution is involved. Auction markets collect fees such as commission fees (.5 percent of sales), stockyard fees (P0.50 per head), and transfer of title fees (P2.00 per head). Income generated by auction markets sometimes represents one-fourth of the income of some municipalities (excluding the ancilliary businesses generated by the auction markets). Hence, each municipality desires to have an auction market, even if it is permitted to operate only once a week.

3. Slaughterhouses

For a number of reasons, most of the publicly-owned monopoly(ies) in the beef subsector are not technically efficient. A case in point are the slaughterhouses. The first reason is that there is no strong incentive for slaughterhouse operators to be cost effective. The monopoly position removes the competitive pressure. The budget allocated to the slaughterhouse is not tied to performance. There is even a strong incentive to spend all that is allocated because savings might be taken as a signal for reduction of budget. The second reason is that slaughterhouse operators are constrained by the bureaucratic red tape involved. It was reported that the national abattoir

had to request even its barest needs from the Bureau of Animal Industry. Red tape continually obstructed operations and caused considerable losses to the abbatoir (9).

4. Meat Processing Plants

The poor location of meat processing plants is also another source of technical inefficiency in the subsector. A processing plant that reduces the volume, size, weight and perishability of the raw material should be located near the source of raw material. Meat processing plants are classical examples of this type of plant because live cattle loses 50 percent of its weight after slaughtering (1, 22). Add to this the further reduction in size and weight after deboning and removal of other inedible parts and the significant reduction of the perishability of the final product. However, of the nine Class A meat processing plants, seven are located in Southern Tagalog (six in Metro Manila).

Table 6-3 shows the relative cost of shipping live cattle versus chilled carcasses. A savings of 61-67 percent is gained if chilled carcasses are shipped rather than live cattle. Almost 100 percent of the cattle, however, are still shipped live to the Metro Manila Slaughterhouse.

Several studies have investigated the merits of locating meat processing plants in the major cattle

Table 6-3

ITEMIZED SHIPPING COST FOR LIVESTOCK FROM DAVAO AND CEBU TO MANILA AND POTENTIAL SAVINGS WITH THE SHIPMENT OF CHILLED CARCASSES

Cost Item	Live cattle		Chilled		Savings	
	Davao	Cebu	Davao	Cebu	Davao	Cebu
	(pesos per head)					
1. Trucking (source to pier)	20.00	20.00	5.00	3.00	15.00	17.00
2. Arrastre fee	1.00	1.00	.50	.50	.50	.50
3. Ship's freight	122.00	94.50	70.00	50.00	52.00	44.50
4. Caretaker's wage	3.00	3.00			3.00	3.00
5. Arrastre Manila	1.00	1.00	.50	.50	.50	.50
6. Trucking fee Manila	10.00	10.00	2.50	2.50	7.50	7.50
7. Feed costs	2.50	2.50			2.50	2.50
8. Miscellaneous	1.00	1.00	1.00	1.00		
9. Shrinkage*	160.00	120.00	45.00	25.00	115.00	95.00
Total	320.50	253.00	124.50	82.50	196.00	170.50

*Refer to the footnote on page 78.

Source: N. R. Deamampo, et al., A Brief Appraisal of Livestock Marketing in the Philippines.

producing areas. For example, Collado, et al. (15) recommended[i] the establishment of modern livestock processing plants in nine municipalities. The location of the plants is shown in Figure 6-1, and their respective capacity, potential slaughter number and estimated costs are presented in Table 6-4. The study assumed the economic feasibility of the project and simply enumerated the benefits in qualitative terms. Other studies of a like nature, however, show high rates of return. A feasibility study of establishing a livestock processing plant in Ilagan reported a 40 percent internal rate of return (29) and for a plant in Naga, a 17 to 48 percent return (18).

5. Marketing

Inefficiencies in marketing can be gleaned from the type and amount of cost incurred (Table 6-5). Transportation cost contributes the biggest share. Some cost items are unnecessary or rather can be significantly reduced, such as shrinkage, "grease money" and feeds.

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[i]This recommendation was based on the following criteria: volume of local slaughter; volume of outshipment; actual and potential animal population; proximity to a port, national highways, train stations; availability of a site; interest of municipal government and private sector; and transport economies.

Figure 6-1

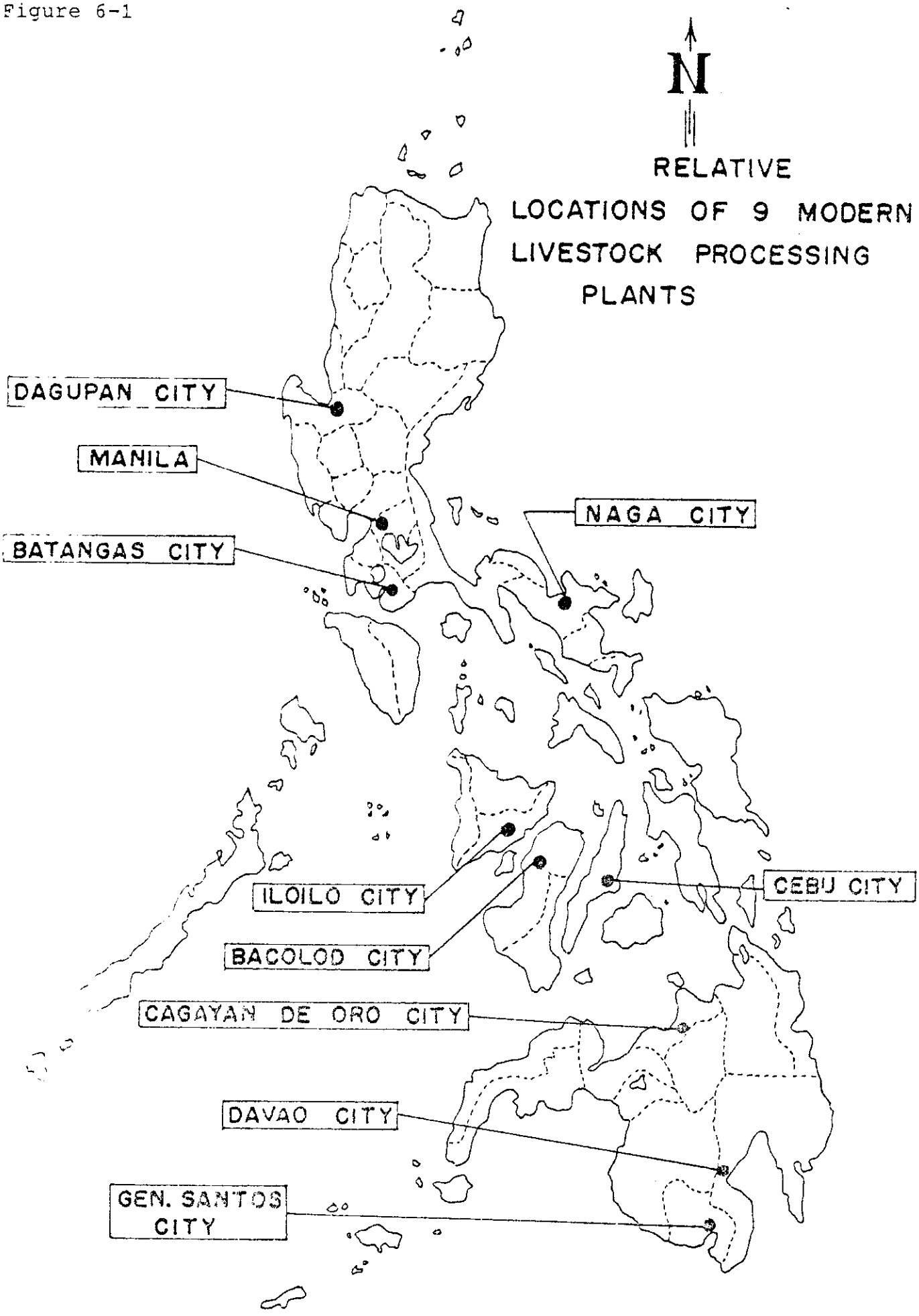
N
RELATIVE
LOCATIONS OF 9 MODERN
LIVESTOCK PROCESSING
PLANTS
DAGUPAN CITY
MANILA
BATANGAS CITY
NAGA CITY
ILOILO CITY
BACOLOD CITY
CEBU CITY
CAGAYAN DE ORO CITY
DAVAO CITY
GEN. SANTOS
CITY

Table 6-4

RECOMMENDED PLANT CAPACITIES AND COST ESTIMATES OF MODERN LIVESTOCK PROCESSING PLANTS, 1972

City	Potential Slaughter number per year			Recommended Plant Capacity (number per 8 hours)				Estimated plant costs
				Cattle-Carabao		Hogs		
	Carabao	Cattle	Hogs	Min.	Max.	Min.	Max.	(million pesos)
Bacolod	2,965	7,007	44,788	30	50	150	200	4-5
Batangas	2,287	11,487	51,550	50	70	150	200	4-5
Cagayan De Oro	407	4,861	32,674	20	40	100	150	
Cebu	8,790	12,620	72,403	80	100	250	300	
Dagupan	5,633	9,958	41,886	50	70	100	150	4-5
Davao	2,002	4,981	71,157	20	40	200	250	
Iloilo	5,722	11,296	51,661	50	70	150	200	
General Santos	---	4,415	51,171	20	40	150	200	
Naga	1,986	4,099	33,335	20	40	100	150	

Source: Collado, G. M., et al., Optimal Locations and Sizes of Livestock Processing Plants in the Philippines, 1971.

Table 6-5

RELATIVE SHARE OF SOME MAJOR COST ITEMS IN THE TOTAL COST OF MARKETING BEEF, PHILIPPINES, 1971

Cost Items	Share of subtotal			Percentage share of total cost
1. Initial Procurement				3.97
a. Transportation	68%			
b. Handling	9			
c. Farmers' subsistence	6			
d. "Grease money"	6			
2. Transfer from assembly plant to Manila				59.73
	Luzon	Visayas	Mindanao	
a. Transportation	52	36	53	
b. Shrinkage*	16	47	35	
c. "Grease money"	4	1	2	
d. Feeds	6	1	1	
3. Cattle Slaughtering				18.14
a. Slaughter fee	42			
b. Use of slaughterhouse	32			
4. Retailing				18.15
a. Labor	56			
b. Market fee	16			

*Refer to the footnote on page 78.

Source: J. Alunan - Cattle and Carabao Marketing, 1976.

In meat retailing, 56 percent of the cost is accounted for as labor costs. Although labor is cheap, most meat retailing is done by the owners. It is the (only) main source of their income. With the limited volume of business, they have to charge a relatively high price for their labor.

6. Public Markets

Public markets are also beset with operational problems. Most have been cited earlier. But a major source of its inefficiency is the lack of cold storage facilities. The current practice is very inefficient. Meat vendors have to take home unsold product and return it the next market day.

E. Profits and Equity

The profit rates of enterprises in the subsector give some indication of whether resources are adequately remunerated. It can also provide (weak) indications of whether the distribution of benefits is equitable.

Table 6-6 shows the income statement of an average backyard raiser. The estimated return on investment is 7.79 percent.[j] This rate of profitability is caused by a combin-

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[j]This estimate does not reflect the true profitability of backyard farms. There are serious measurement and computational problems. For example, cattle are raised for many purposes such as to provide animal power for farm activities (e.g., land preparation and as means of transportation). The economic value of these services is usually not accounted for. Also, some resources used in cattle production are difficult to specify such as land (e.g., public land where cattle are tethered). The valuation of farm-owned resources such as family labor and home produced feeds is arbitrary. And the marketing costs incurred by raisers are not included.

Table 6-6

INCOME STATEMENT OF AN AVERAGE BACKYARD RAISER, PHILIPPINES, 1978

Gross Revenue (162.50 kg x P8.16/kg)					P1326.00
Production Costs:					
	Cash	Non-Cash	Total		
Labor*					
Care and Sanitation	45.06	105.55	150.61		
Feeding		317.32	317.32		
Watering		133.81	133.81		
Sub-Total	45.06	556.68	601.74		
Feeds					
Rice Bran	3.90	177.75	181.65		
Grass		108.30	108.30		
Rice Straw	1.74	55.84	57.58		
Corn Silage		2.61	2.61		
Veterinary drugs	1.86		1.86		
Dry mixed feeds	2.60	23.38	25.98		
Sub-Total	10.10	367.88	377.98		
Grand Total	55.16	924.58	979.74	=	949.74
Net Income					346.26
Total Investment					4440.90
Return on Investment					7.79%

*Family labor was valued at 50 percent of the minimum wage rate.

Source: B.A.Econ. Production Costs and Returns in Backyard Poultry and Livestock Enterprises, 1978.

ation of factors such as the inherent slow rate of turnover, low productivity, and low farm prices. Despite the low profitability, small backyard operators still continue to produce because most of the costs incurred (94 percent, except for cattle stock) are non-cash in nature: unpaid family labor and home-produced feeds. These resources have limited alternative uses. Also, cattle provide the needed animal power in performing farm activities such as land preparation and transportation. And, the cattle enterprise does not pose a strong competition to the other enterprises in terms of the use of farm resources. Children are usually assigned to care for the cattle, while older members of the family work in the main enterprise (e.g., rice farm). Commercial farms might even be in a worse financial condition because they are required to pay the minimum wage, more debt exposure, and more fixed investments. A case study by the author showed that a commercial farm with 1600 hectares of pasture land and 700 cattle had a 1.74 and 1.58 percent return on investment in 1976 and 1977 (23).

On the other hand, Alunan (2) reported that market intermediaries earned 70-78 percent return on investment.[k]

No definitive equity conclusions can be made based on a comparison of the rates of return on investment of the dif-

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[k]Valuation of operator-owned resources (e.g. labor) was not explicitly explained in the study.

ferent enterprises in the subsector. The first reason is that there is no strong basis of comparison of rates of profitability between different enterprises due to the lack of information about the relative level of risk assumed by the enterprises. The second is that the return on investment does not provide a very appropriate measure of profitability given the labor-intensive nature of most enterprises. Also, the return on investment is sensitive to the value assigned to the unpaid operator-owned resources, particularly family labor.

F. Allocative Accuracy and Price Efficiency

Allocative accuracy refers to the matching of quantity, quality, time, and location of supply and demand. Pricing efficiency, on the other hand, refers to the efficiency of the price system in bringing about allocative accuracy in the subsector. Hence, in a subsector where the price system is the major coordinating mechanism, allocative accuracy implies pricing efficiency and vice versa.

No specific quantitative measure is attempted here. What is done is a simple assessment as to whether prices move in a direction toward matching supply and demand.

1. Timing

The demand for beef in the Philippines is not seasonal. The supply of cattle is somewhat seasonal, however. The reason is that the reservation demand price of cattle changes by season. During the dry

season, the reservation demand price is relatively low because farm activity(ies) is slack and the availability of grasses is limited. However, during the rainy season, the reservation demand price is relatively high because the cattle are committed to more farm activities, and pasture grasses are abundant.

The price movement observed in the two provinces with the most auction markets seem to be consistent with matching supply and demand over time. Prices usually start to increase at a fast rate from January and reach a maximum at the beginning of the rainy season, between June and July, and stay at a higher level until the end of the year (Figure 3-4, page 36).

2. Location

The demand (or consumption) of beef is geographically concentrated. Southern Tagalog accounted for 40 percent of total beef consumption, Central Luzon, 16 percent and Southwestern Mindanao, 13 percent. Among the 12 regions, these three regions also showed the highest retail price for beef: P18.04 per kilo in Southern Tagalog; P17.00 in Central Luzon and P15.00 in Southwestern Mindanao. These high prices serve to guide the interregional flow of cattle to match supply and demand over space. Indeed, of the total recorded flow of cattle, 75.21 percent were channeled into Southern Tagalog.

Also, the regional price differences are consistent in accounting for transportation costs. Using Metro Manila as the market base, the price of live cattle decreases as the auction market is located farther away from Manila. Table 6-6 shows that the price of live cattle in Batangas, the nearest auction market, was P10.38 per kilo, while in Cebu, the farthest auction market, the price was only P6.14.

3. Quality

The grade of cattle is ranked according to quality as Grade A, B and C. Table 6-7 shows that the grade price differential is consistent with the quality ranking. Except for Pangasinan, Grade A always had the highest price, followed by Grade B, then Grade C.

4. Quantity

The price of cattle and beef show a consistent increase. Also, the domestic cattle inventory and level of beef imports are showing an increasing trend. However, in terms of the exact amount the supply of cattle has not sufficiently met domestic demand particularly that of the meat processing plants. They have to import some of their meat requirements or sometimes just operate below normal capacity.

No study has yet been conducted on why local cattle production has not delivered the adequate number demanded. My hypothesis is that the price of cattle at the farm level is not remunerative enough to encourage

ble 6-7

AVERAGE PRICE OF CATTLE PER KILO LIVEWEIGHT
SOLD BY GRADE AND MARKET, 1980 - 1981

Livestock Market	Estimated distance from Manila (kilometers)	Year 1980 Grade A	1980 Grade B	1980 Grade C	1981 Grade A	1981 Grade B	1981 Grade C
		(Pesos per kilo liveweight)					
Batangas	80	10.38	9.62	9.09	12.51	11.14	10.80
Pangasinan	150	8.98	7.73	8.94		10.29	10.36
Iloilo	400	7.74	6.75	6.20	9.41	8.05	7.14
Negros	500	7.66	6.59	6.20	8.10	7.64	7.09
Cebu	550	6.14	5.75	5.14	7.19	6.16	4.63

urce: B.A. Econ. Livestock Auction Markets. Annual Report 1980-1981.

more local production and financial constraints limit the capability of the raisers to expand production.

G. Stability

Supply variability is the major cause of instability in the subsector. This is somewhat expected due to the presence of many factors impacting on supply which are outside the control of individual enterprises such as weather, government policies, etc. The trend toward the increasing share of imports in the total beef supply is even exposing the subsector to more uncontrolled factors, e.g., world prices, production and export policies of exporting countries, exchange rates, and dollar allocation policies of the government.

Some of the instability in the subsector is caused by the changing policies of the government. For example, at one time the rights of municipal governments to collect fees[1] were terminated in order to reduce the ceiling price of beef in retail market. Forty days later, after many municipal governments complained because their financial stability was prejudiced, Presidential Degree No. 45 was passed reinstating their right to collect some of the suspended fees. No adjustment was made on the ceiling price after this policy was changed (20). Another example is the fertilizer subsidy program. This was implemented in the middle of the 1970s.

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[1]This includes reinspection fees, inventory fees, certificate of ownership fees, and check-point changes.

When it had been in effect long enough so that commercial farms have made complementary investments (e.g., tractors, etc.) the subsidy was lifted due to budgetary constraints. The unpredictability of government policies similar to the example cited above add to the risk and uncertainty in the subsector.

CHAPTER VII

SUBSECTOR RESEARCH AGENDA

In the previous six chapters problems in the beef subsector have been diagnosed and opportunities for improvements have been identified. This chapter outlines a research agenda intended to identify what additional information is needed to clearly understand and fully diagnose the problems and design actions to effectively solve them. The research agenda is structured as a series of inter-related questions on specific issues intended to generate descriptive, diagnostic and prescriptive information.

The problem of data reliability poses the biggest limitation in arriving at a correct understanding and diagnosis of the research issues and questions enumerated below. Improving the data base is a prerequisite for further progress in the analysis of the beef subsector.

A. Research Issues

1. Demand and Supply Imbalance

The supply of cattle has not sufficiently matched domestic demand. This is very evident in the meat processing industry where enterprises are forced to close down, operate at low capacity and/or import chilled meat due to the inadequate domestic supply of cattle. No focused study has yet been conducted on why local cattle producers have not responded to provide the ade-

quate number of cattle demanded. The following questions are suggested for investigation:

a) What is the nature of cattle demand in terms of the quantity, quality and timing specifications?

b) What is the current level of cattle shortage at existing prices?

c) What is the short-run and long-run comparative advantage of local cattle supply versus imports in terms of cost, stability and control?

d) Is there any significant impact of imports on local production?

e) Is the current price level in the farm market remunerative encugh to attract resources into cattle production?

f) Is the price mechanism responding correctly (upward pressure) to the cattle supply shortage condition?

g) With the presence of the cattle shortage--

   1) What constrains existing raisers to expand production and what hinders potential entrants to engage in actual cattle production?

   2) Is the demand for cattle adequately communicated to the farm level?

   3) What limits the flow of information?

4) Are there other limiting factors to production, such as credit, access to grazing land, seasonal shortages of feedstuffs?

5) Is cattle production primarily for meat? Or are there other products jointly produced, such as animal power and milk? Which product(s) significantly influences production decisions?

2. Production Inefficiencies

Several production indices have reflected the inefficiencies in cattle production. These inefficiencies translate into higher cost of cattle which might erode the competitive position of beef. In fact, since 1971 the price of beef relative to pork (its closest substitute) has consistently increased. The potential of improving production efficiency is significant.

a) What is the comparative advantage of producing cattle in backyard versus commercial farms?

b) What factors affect production and marketing decisions? Why are most cattle kept for more than six years?

c) Are there economies of scale opportunities in the existing organization of backyard and commercial farms?

d) What specific factors hinder raisers in using improved breeding and management practices?

1) Is the supply of feeder stock adequate in number, acceptable in quality (breed, age, etc.), appropriate in timing and reasonable in cost?

2) How are veterinary products and services supplied to cattle raisers, particularly backyard operators?

3) Is financial assistance for backyard cattle production projects available? What are the terms of the financial assistance?

3. Inefficient and Inadequate Marketing Organization and Methods: Auction Markets

A crucial influence affecting the level and rate of expansion of production of a large part of the Asian livestock industry is the degree to which improvements can be made in livestock marketing organizations and to the efficiency of their operators (33). A major project to improve the livestock market organization in the Philippines was the establishment of auction markets. It was intended to serve both as a price discovery institution and assembly centers. The prices generated in auction markets are crucial because they affect the production adjustment decisions of existing and potential raisers, and they also influence the level of

prices in the succeeding stages. As assembly centers, auction markets influence transportation cost (the biggest single cost item).

However, it was shown in the previous chapters that the actual development and management of auction markets is far from achieving the original set of objectives it was designed to accomplish. The operation of auction markets is inefficient and their locations are not strategic. For example, as of 1978, of the 36 auction markets four were inactive due to inadequate volume of operation. On the average, auction markets operated only for 11-78 days during 1977. The number of cattle and carabao sold in a market day ranged from 65-371. Also, the actual standard operating procedure followed in auction markets are not clearly defined or controlled. This led to the many allegations of unfair trading practices. There are serious questions that need to be answered if auction markets are to serve their role in the market organization.

a) What should be the optimal size of auction markets to insure effective utilization of the resources?

b) Where are the strategic locations for auction markets to balance economies of scale in market operations with transportation costs?

c) Are there technically trained personnel available to manage auction markets?

d) Should auction markets be privately or publicly owned and operated? If publicly owned and operated, should it be the national, provincial or municipal government? What are the performance consequences of these alternative ownership arrangements?

This paper also raised some of the alleged imbalance of bargaining power in favor of the buyers. If true, this chokes off the incentives of raisers to produce.

e) Is there any truth to the alleged direct or indirect collusion of buyers (such as coming late to the auction market and respecting each others' bid price) in order to depress cattle prices in the auction markets?

f) What are the barriers to entry that might allow collusion among buyers to persist and what can be done to remove these barriers?

g) Why did auction markets do away with open-bidding and revert back to private negotiation? Was it due to management incompetence, or influence of buyers?

h) Why is selling per head still commonly practiced despite the availability of weighing equipment?

i) What standard operating procedures should be adopted by auction markets to insure equitable trading?

4. Inefficient Market Facilities: Slaughterhouses

The provision of appropriate, and efficiently operated market facilities is a prerequisite to the improvement of market organization (33). The current situation regarding slaughterhouse facilities needs a focused investigation. The interregional flow of cattle is significant due to the concentrated market in Southern Tagalog. Almost all of the physical shipments involve live cattle. It is reported (19) that the costs of shipment including labor, feeds, shrinkage and sometimes death due to improper handling are considerable. Slaughterhouses in small cities and municipalities are idle 81 percent of the time, while the Manila slaughterhouse is operating 24 hours a day for the whole week. For most municipal slaughterhouses, available capital for reinvestment is inadequate due to the low volume of operation and the re-allocation of profits to the other financial commitments of the municipal government. With inadequate reinvestment for maintenance and improvement, fast deterioration of facilities and decline in standard of operation is inescapable. Alternative ways of organizing the slaughtering activity need to be investigated. The following questions are suggested.

a) How accurate are the estimates of weight shrinkage? What is the relationship between the amount of shrink and the time and distance of shipment?

b) What is the comparative advantage of the current practice of shipping live cattle versus establishing modern regional slaughterhouses, shipping chilled carcasses to the Manila market?

c) What would be the optimal number and size of regional slaughterhouses? And where should this be located?

d) What and how much investment is required to establish a refrigerated system for shipping chilled carcasses?

e) Should the ownership of slaughterhouses be public, private, or a combination of both? If public, should it be national, provincial or municipal? What are the performance consequences of these alternative ownership structures?

f) What is the distribution of costs and benefits of the planned change?

g) How should the change be instituted to insure proper matching of costs and benefits to all enterprises involved?

5. Ineffective Product Safety Regulation

The implementation of product safety regulation is deficient. Its less obvious manifestation and subtle effect might have caused the seeming neglect of the real danger that exists.

a) Are consumers conscious and concerned about product safety issues?

b) What factors have contributed to the poor implementation of regulatory rules and procedures?

   1) Is there adequate budgetary support from the government?

   2) Are there technically qualified personnel to implement the rules?

   3) Is there a feedback mechanism to articulate the opinion of the target beneficiaries (meat consumers)?

   4) Is the location of responsibility clearly defined?

c) How should the meat inspection commission be designed to improve its effectiveness in implementing regulatory rules and procedures?

The following areas in the subsector were not adequately addressed in the paper due to lack of relevant information. The suggested questions are intended to generate basically descriptive information needed for initial diagnosis.

6. Transportation

The transportation industry plays an important role in matching supply and demand of cattle/beef over space. The services provided by the industry are necessary because of the nature of geographic distribution of cattle production and beef consumption in the country. Transportation cost contributed the biggest share in the total marketing bill. Other significant cost items were also related to transportation. Several changes that have been recommended in the organization of the slaughtering function will significantly affect the nature of demand and supply of transportation services.

a) Some shippers own trucks and barges.
   1) Are the size of transport vehicles optimal?
   2) Are the vehicles fully utilized?

b) What mode of transportation is used by those who do not own transport vehicles? How do they coordinate their demand specifications for transportation service?

c) Is the supply of transport service adequate in quantity, acceptable in quality, appropriate in timing and reasonable in cost?

d) If refrigerated transport equipment is to be developed, what is the desirable ownership structure--public, private or a combination?

e) What should be the design specifications to maximize efficiency (e.g., size, routes, etc.).

f) Are there technically qualified personnel to manage the system?

7. Meat Processing

The meat processing industry plays an important role in the beef subsector. It improves the market for beef by introducing new characteristics and new uses of beef products in the market. Also, it widens the geographic market due to longer storeability and the relative ease of transporting processed beef products.

Although fresh beef consumption still accounts for a big share in the total beef consumption, there is a clear indication of a potential shift from fresh to processed beef as incomes of consumers increase (see p. 27).

The meat processing industry faced a profit squeeze as a result of strong competition from long-established market intermediaries (serving the fresh beef market) in the procurement of the limited cattle supply, and the strong competition in the retail market from imported processed beef products.

a) Are the size of plants optimal?

b) Are the locations strategic?

c) What is their annual average capacity utilization?

d) What are the quantity, quality, timing and cost specifications of their demand for cattle?

e) What percentage of their budget is invested in sales promotion and research?

f) What is the average rate of profitability among enterprises?

g) Are there significant differences in profit rates?

h) What type of market relation exists among meat processors (degree of competition or collusion)?

i) Are there unexploited market potentials for processed beef?

8. Meat Retailing

Meat retailing is the least studied industry in the beef subsector. The traditional practice of selling meat in public markets by small meat vendors is still very common. Potentials for improvements are evident, yet no attempts have been made to assess them.

a) Are there potential economies of scale in meat retailing?

b) What should be the minimum number and size of retail stalls in public markets to promote effective competition and economies of scale?

c) What are the common marketing practices of meat retailers (e.g. procurement, pricing, promotion, packaging, etc.)?

d) What improved merchandising techniques are applicable in meat retailing (e.g. grading, packaging, standardized cuts, etc.)?

e) What is the economic feasibility of establishing cold storage facility(ies) in public markets?

f) What is the pattern of consumer food purchasing (e.g. volume, frequency, etc.)?

g) What is the share of beef purchases in the consumers' food budget? How stable is the relative share for the last 10 years?

9. Information

Availability of information is a basic element in subsector coordination and economic performance.

a) What types of information are needed by the participants in the subsector?

b) Is the current system of collecting data adequate to meet the information needs of participants?

c) How accurate, reliable and up-to-date are the data (e.g. cattle inventory, slaughter, consumption, etc.)?

d) What are the limitations in improving the data collection system -- budget, personnel, organizations, etc.?

e) What types of analyses are usually conducted on the data?

f) Is the right information disseminated to right users at the right time?

g) Is the cost incurred in collecting and disseminating information consistent with the distribution of benefits derived from the use of the information?

h) Who is predicting future supply and demand?

1) What are the likely impacts of the following on the demand for beef in the next 10 years?

-- Change in demographic characteristics such as urbanization.

-- Change in income level and pattern of distribution.

-- Continuous improvement in the technology of producing related products such as chicken and pork.

10. Research and Extension

The amount of money invested in research and the effectiveness of extension has a major impact on the progressiveness of the subsector. Both research and extension are mostly done by the government.

a) How is the allocation of research budget for the beef subsector arrived at?

b) How much is the annual rate of increase in the budget for livestock research? How much money was invested into research in livestock compared to other commodities?

c) Who is benefitted most by the public research outputs--backyard raisers vs. commercial raisers, producers vs. consumers?

d) How is the extension function organized?

e) What factors limit the effectiveness of extension work?

B. Proposed Research Implementation

This section presents a short description of the existing arrangements in the research system of the Philippines and a discussion of broad tentative strategies for possible implementation.

There are three major agricultural research centers in the country. All are publicly supported but independently managed: state colleges and universities (under the Ministry of Education and Culture), University of the Philippines System and the Bureau of Animal Industry (under the Ministry of Agriculture). These research centers are coordinated by the Philippine Council of Agriculture and Resources Research (PCARR) to insure that their research activities are in line with the national development thrust and to insure efficiency by eliminating duplication.

The coordination is done by commodity groups. For example, livestock subsector researches representing the three centers are coordinated by the Livestock Commodity Group. The group sets the research priorities of the livestock subsector on an annual basis and then coordinates the three research centers according to the established priorities. Actual coordination is accomplished in two ways. First, the government channels a large proportion of the research budget through PCARR. Individual research centers submit research proposals to PCARR for funding. This is the first area where commodity groups can effectively implement research priorities by screening research proposals. The second is based on a circular in the Ministry of Budget which requires research centers seeking direct budget allocation from the Ministry of Budget to have their research plans approved by PCARR. In both ways, commodity groups are influential in directing the research activities of research centers.

There are three broad tentative strategies considered for possible implementation. The first is to bring the issues addressed in the study and the research question in the research agenda to the attention of the Livestock Commodity Group as they set the research priorities of the livestock subsector. The second is to directly raise specific issues to interested institutions, such as the Bureau of Animal Industry, state colleges and universities, Bureau of Agricultural Economics, Bureau of Agricultural

Extension, Bureau of Transportation, etc. The third is that the author plans to conduct studies on some of the research questions as part of his research responsibilities in the Central Luzon State University.

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