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ABSTRACT

Indonesia's economic growth over the past two decades has been impressive compared to many other developing countries. This growth has been achieved through both industrial and agricultural development and has resulted in substantial increases in GNP per capita, despite substantial population growth. Increasing per capita GNP, together with increased population, is driving the demand for agricultural food products, particularly higher protein foods such as meat and dairy products.

This study investigates factors affecting household expenditure on foods, and estimates elasticities for all-food, rice, vegetables, meat and milk, with a view to examining export market opportunities in Indonesia for the New Zealand meat and dairy industries.

This study uses the 1990 National Social and Economics Survey (SUSENAS) and focuses on urban areas in five provinces in Java; Jakarta, West Java, Central Java, Yogyakarta and East Java. Compared to other provinces, these provinces are centres of development in Indonesia and hence seem potential markets for New Zealand products.

Survey households are grouped into four clusters based on the number of adults, the number of teenagers, the number of children, average adult highest education level and average adult age. Engel functions are then estimated for households in each cluster. Results are used to identify potential markets for New Zealand meat and dairy products.

Results of this study indicate that average households in all clusters consider all-food, rice and vegetables to be normal goods, while meat and milk are considered luxuries. Results also suggest that, despite rice being a staple food in Indonesia, with increasing per capita income, rice will become an inferior good. This study reports relatively high expenditure elasticities for meat and milk, hence strong demand for these products can be expected in the future as household incomes increase. With increasing per capita

incomes, households can be expected to increase intake in protein relative to starch and carbohydrate rich foods.

From a New Zealand perspective, future market opportunities for meat and dairy products in Indonesia appear to be substantial, particularly for the younger, better educated and higher income market segment.

CHAPTER ONE

INTRODUCTION

1. 1. Background

In 1992, the World Bank reported that countries in East and Southeast Asia such as China, Japan, South Korea, Singapore and Thailand were distinguished as countries which have gained a remarkable growth in GNP per capita. Between 1965 and 1973, the growth of GNP per capita in these countries was on average 4.8 percent, while in 1990 it became 5.3 percent which was the highest growth over the world. For example, in the same time the growth of GNP per capita in high income countries and OECD members were 1.5 percent and 1.6 percent, whereas in the low and middle income countries it was 0.3 percent. It is predicted that in future the annual growth of GNP per capita in the East and Southeast Asia region will remain high due to rapid industrial growth.

Likewise, Indonesia has been recognized as a country which has made impressive development gains both in the agricultural and the manufacturing sectors. Not surprisingly, Indonesia is predicted to be a newly industrialised country following Singapore and South Korea. More importantly, the growth of GNP is exceeding the population growth indicating the Indonesian per capita income gains are quite impressive. As seen in Table 1.1, despite the fact that Indonesia is still categorised as a low income and high population country, the annual GNP growth is quite exciting.

Due to the relatively high annual growth of GNP per capita and relatively rapid population growth, Indonesia is a potential market for agricultural products. The growth of agricultural production, with the exception of cereal (Indonesia had achieved self-sufficiency in rice production by 1983) is still low indicating that in future Indonesia desperately needs more agricultural products, particularly animal and dairy products.

Table 1. 1. GNP and Population in Indonesia 1976-1990.

Year	GNP per capita (US$)	Average Annual GNP per capita growth rate(%)*	Population (millions)
1976	240	3.4	135.2
1977	300	3.3	133.5
1978	360	4.1	136.0
1979	370	4.1	142.9
1980	430	4.0	146.6
1981	530	4.1	149.5
1982	580	4.2	152.6
1983	560	5.0	155.7
1984	540	4.9	158.9
1985	530	4.8	162.2
1986	490	4.6	166.4
1987	450	4.5	171.4
1988	440	4.3	174.8
1989	500	4.4	178.2
1990	570	4.5	178.2

* From base year: 1960.
Source : World Bank. *World Development Report.* Several Issues.

It is estimated that in future the demand for agricultural products, particularly meat and animal products, will continue to increase. However, for rice consumption, despite the fact that the demand for rice will increase, it is reported that income elasticity of demand has decreased substantially, indicating per capita rice consumption will soon reach a maximal level and then start declining (Ito *et al.,* 1989). The implication of this finding is, as Ito *at al.*, (1989) stated, that consumers can be expected to increase their consumption of meat and dairy products in the future. Statistics shows that in the last five years, there was a rapid change in per capita meat product consumption compared to per capita rice consumption. For example, 1987 per capita meat consumption was 3.02 kg whereas in 1991 it became 3.40. Not surprisingly it has been predicted that in future, per capita rice consumption would decrease. It is shown in Table 1.2 that per capita rice

consumption declined considerably from 150.03 kg (1988), becoming 145.53 kg in 1991.

Table 1. 2. Selected Food Consumption in Indonesia 1987-1991 (kg/capita).

Year	Rice	Meat	Egg	Fish	Milk
1987	143.17	3.02	2.08	12.28	4.19
1988	150.03	3.08	2.21	12.76	4.19
1989	140.84	3.11	2.24	12.58	3.68
1990	150.05	3.25	2.36	12.91	3.49
1991	145.53	3.40	2.46	13.13	3.49

Source: Indonesian Central Bureau of Statistics. *Food Balance Sheets.* Several Issues.

In addition to increasing incomes, changes in food consumption in Indonesia have been partly caused by the degree of urbanization. The rapid rate of urbanization and high urban population growth have been associated with dramatic changes in diets which have been shifting away from traditional grains, root and tubers to food containing more protein such as meat and milk. It is reported that between 1970 and 1985, the level of urbanization increased from 17.5 percent to 26.2 percent of the total population. Together with increasing population, thereby increasing the level of urbanization, there has been an increase in the share of the adult-aged group in the population (Hedley,1986). A combination of an increase in urbanization, higher incomes and a fall in dependency ratios tends to reduce the aggregate elasticities of demand for staple foods (Tabor *et al.*, 1989).

Information regarding the demand for agricultural products would be useful in developing production and marketing programmes. Consequently, the parameters affecting household consumption of various food items should be carefully investigated. Since other factors such as demographic variables also determine the likelihood of consuming particular food items, time series data may not always provide relevant information. A cross-section analysis, on the other hand, allows a much richer analysis of markets where response to income growth is especially rapid.

Studies relating to food consumption have been conducted on the national level (time series) and household level (cross-section). No previous studies of Indonesian food consumption have attempted to group households to describe market segments. As a result, little information exists on the demand parameters for household groups.

1. 2. Objectives

The objectives of this study are (i) to investigate factors affecting households food consumption patterns in Urban Java using cross-section data from the 1990 National Socio-economic Survey, (ii) to estimate expenditure elasticities for different household groups, and (iii) to discuss the implications for New Zealand meat and dairy product export opportunities in Indonesia.

1. 3. Thesis Outline

This thesis consists of eight chapters. A review of the literature on food demand studies is undertaken in Chapter II. The Engel function and model specification is presented in Chapter III. Chapter IV discusses the data handling and construction issues. The cluster analysis and Engel functions for all food, rice and vegetables are discussed in Chapter V. Chapter VI presents Engel functions for meat and milk. Chapter VII provides a discussion of expenditure elasticities from this study and other studies. Finally the conclusions and recommended areas for further study are addressed in Chapter VIII.