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FRESH FISH CONSUMPTION IN SEMARANG INDONESIA

Dwisetia Poerwono

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FRESH FISH CONSUMPTION IN SEMARANG INDONESIA

by

Dwisetia Poerwono

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FRESH FISH CONSUMPTION IN SEMARANG INDONESIA

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DWISETIA POERWONO

January, 1990

Supervisor : Dr. Roslan A. Ghaffar
Faculty : Economics and Management

In Indonesia, the present role of fish in the daily diet is very small. This study is aimed at determining the nature and causes of the low consumption level of fish in Indonesia.

Using cross section data of 179 sampled households and 65 fresh fishmongers in the public markets, the results of this study show that in the retail outlets of fresh fish the market is efficient. Both fishmongers and consumers (households) in majority indicated that fresh fish is readily available in the market. The largest number of households bought fresh fish regularly at least once a week. Milkfish, Mullet, Tilapia and Tuna are the species usually purchased. The major problem when buying fresh fish is freshness of fish.

The acceptability of fresh fish varies among households, but in general, the relative acceptability index shows that chicken is preferred to fresh fish and beef, while milkfish is preferred to other fish and beef.

Two models have been used in this study for estimating the parameters of the freshfish demand system. First, logarithmic linear functions of demand system model -using OLS and second, Zellner's Seemingly Unrelated Regression (SUR) model.

The logarithmic linear function of demand system of fresh fish used in this study looks appropriate for estimating the demand for fresh fish. The symmetry restriction on this demand function is accepted. The Goldfeld-Quandt test applied to the data indicates heteroscedasticity is not a problem in this logarithmic demand system. Meanwhile Zellner's Seemingly Unrelated Regression (SUR) yield estimates which are asymptotically more efficient than those obtained by Ordinary Least Squares (OLS). So, the Seemingly Unrelated Regression have been applied in this study for estimating the demand function of freshfish.

With the exception of Tilapia, the findings of this study show that the demand for fresh fish is elastic with respect to its own price. The coefficient of own price elasticities ranged from -0.6756 to -2.2591. While the expenditure elasticities

are positive and significantly different from zero except for Mullet.

Based on the results of this study, consumption of freshfish can be enhanced if the following actions are also taken: improvement of the fish stall in public markets, promotion of fish consumption, provision of government subsidies on fuel for fishermen, provision of subsidies on fertilizer, pesticides and low interest credit scheme for fishfarmers.

Abstrak tesis yang dikemukakan kepada Senat Universiti Pertanian Malaysia sebagai memenuhi sebahagian daripada syarat untuk mendapatkan ijazah Master Sains

PENGGUNAAN IKAN SEGAR DI SEMARANG INDONESIA

oleh

DWISETIA POERWONO

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Penyelia : Dr. Roslan A. Ghaffar
Fakulti : Ekonomi dan Pengurusan

Peranan ikan dalam pemakanan harian di Indonesia adalah sangat kecil. Kajian ini dimaksudkan untuk mengetahui keadaan dan sebab rendahnya paras pengambilan ikan di Indonesia.

Kajian telah dibuat secara rambang dengan data kerat lintang yang melibatkan 179 isirumah dan 65 penjual ikan di pasar awam. Keputusan menunjukkan bahawa saluran pasaran runcit ikan adalah cekap (efisien). Penjual dan pembeli pada umumnya menyatakan bahawa ikan segar adalah mencukupi. Sebahagian besar dari pengguna membeli ikan segar secara teratur sekurang-kurangnya seminggu sekali, dan yang sering mendapat perhatian ialah ikan Pisangpisang (Bangus), Belanak, Tilapia dan Tuna. Didapati pula bahawa yang menjadi punca utama masalah pada pembelian ikan segar, adalah kesegaran ikan.

Penerimaan ikan oleh pengguna adalah didapati berbeda beda tetapi secara bandingan indeks penggunaan menunjukkan bahawa ayam adalah lebih digemari daripada ikan dan daging lembu, ikan Pisangpisang pula adalah jenis ikan yang paling digemari daripada jenis ikan yang lain ataupun daging lembu.

Dua model telah digunakan dalam kajian ini, iaitu model logaritmic linear dengan OLS dan model Zellner's Seemingly Unrelated Regression (SUR).

Fungsi logarithmic linear bagi permintaan ikan segar yang telah digunakan dalam kajian ini didapati sesuai untuk digunakan di dalam membuat anggaran permintaan ikan segar. Ujian symmetry restriction telah dapat diterima manakala ujian Goldfeld-Quandt telah mengesahkan tiada masalah heteroskedastisiti yang ujud di dalam sistem penganggaran ini. Sementara itu model SUR menghasilkan taksiran yang lebih efisien dibanding taksiran yang diperolehi dari OLS. Oleh sebab itu, SUR digunakan dalam kajian ini untuk menaksir fungsi permintaan ikan segar.

Permintaan ikan segar, kecuali ikan Tilapia, adalah anjal harga dengan nilai pengkali keanjalan adalah di antara -0.6756 hingga -2.2591. Keanjalan perbelanjaan adalah positif dan berbeda secara nyata daripada 0 kecuali untuk ikan Belanak.

Berdasarkan hasil kajian ini, penggunaan ikan segar dapat ditingkatkan jikalau beberapa tindakan berikut juga dilaksanakan iaitu perbaikan tempat penjualan ikan di pasar awam, promosi pemakanan ikan segar, subsidi bagi minyak untuk nelayan dan pemberian subsidi baja dan ubat hama serta kredit bunga yang rendah untuk nelayan.

CHAPTER I

INTRODUCTION

Fishery and Indonesian Economic Development

Planning for economic development is a relatively new phenomenon in Indonesia. In fact during the first 20 years after getting independence in 1945, little attention was given to development planning. Planning for economic development became a matter of concern only after the New Order Government took over the running of the country. Following huge budget deficit and hyperinflation, development planning has become a major preoccupation for the New Order Government.

Like many other developing countries, Indonesia has a comprehensive Five Year Development Plan (FYDP) which was implemented beginning in 1969 as follow: Plan I (1969-1973), Plan II (1974-1978), Plan III (1979-1983), Plan IV (1984-1988) and fifth Plan (1989-1993). These plans consisted of programmes for project developments in each sector of the economy, which vary from physical infrastructures construction to non physical ones.

Todaro (1981) defined development as a multidimensional process involving the reorganization and reorientation of the entire economic and social systems. Additionally, in

multidimensional development process there are three major elements i.e: population growth, natural resources and accumulation of capital (Richard, 1973).

Fisheries, particularly the capture marine fisheries is one of the natural resources which can be categorized as renewable if it is developed and managed adequately. However, it is difficult to make precise determination of the potential fish resources in Indonesian waters. This is due to the limited amount of research conducted to assess the resource's magnitude and potential. The Directorate General of Fisheries (1984) estimated that only around 30 percent of the potential fisheries resources have been exploited.

With the establishment of the Exclusive Economic Zone in 1980, the total area of the sea under Indonesia's jurisdiction came to be about 5.8 million square kilometers. In addition, Indonesia has more than 200,000 ha of brackishwater ponds (Chong et al., 1984). Based on this big potential of fisheries resources, in general, the objective of fisheries development would be to contribute to general economic development in terms of providing food, foreign exchange and employment. The main objectives of fisheries development can be summarized as follows:

(1) to enable the attainment of better income and living standards for the small fishermen and fishfarmers and to enhance employment opportunities;

(2) to improve the productivity of fishermen and fishfarmers and at the same time to increase total fish production;

(3) to increase fish consumption, particularly among low income population groups;

(4) to increase exports and decrease imports of fisheries products, and

(5) to control the utilization and management of fisheries resources efficiently and effectively.

To accomplish these objectives, annual plans consisting of programmes for project developments have been carried out by the government.

The Fisheries Sector and the Indonesian Economy

Importance of Fisheries Sector

Although the fisheries sector contributes a relatively small share of Indonesia's Gross Domestic Product (GDP) it still makes an important contribution to employment and export earnings. Table 1 shows that the share of fisheries to the Gross Domestic Product decreased during 1967-1976. Eventhough there was relatively rapid growth of production, fisheries' share of Gross Domestic Product in 1977 to 1985 was rather stable.

Table 1

The Fisheries and Agriculture Sector as Percentage of Gross Domestic Product (GDP) at Current Market Prices, 1967-1985 (Rp billion)

Years	Total GDP	Agriculture	Percent of GDP	Fisheries	Percent of GDP
1967	848	454	53.5	54	6.3
1968	2097	1069	50.9	75	3.5
1969	2718	1339	49.2	101	3.7
1970	3340	1575	47.1	112	3.3
1971	3672	1646	44.8	116	3.1
1972	4564	1837	40.2	114	2.4
1973	6753	2710	40.1	134	1.9
1974	10708	3497	32.6	179	1.6
1975	12643	4003	31.6	191	1.5
1976	15467	4812	31.1	215	1.4
1977	19033	5906	31.0	328	1.7
1978	22746	6706	29.4	393	1.7
1979	32025	8996	28.1	575	1.8
1980	45446	11290	24.8	803	1.7
1981	54027	13643	25.2	912	1.6
1982	59633	15668	26.2	1053	1.7
1983	73697	17696.2	24.0	1220.1	1.6
1984	87535.5	20617.3	23.5	1373.1	1.5
1985	96066.4	22649.6	23.5	1556.6	1.6

Source: Central Bureau of Statistics, Indonesia.

The fisheries sector is an important source of employment, providing jobs for 1,347,000 marine fishermen, 444,000 inland open water fishermen and 1,509,400 fishfarmers in 1987 (Table 2). In addition to giving jobs for more than three million fishermen and fishfarmers, it is believed that the sector provides employment to hundreds of thousands of persons in fish processing, handling, transport and marketing as well as in related industries that support the sector (accurate data are not available). By looking at the data from 1976 to 1987, the total number of fishermen and fishfarmers has been increasing at an average annual rate of 6.1 percent. It should be noted that 3 million persons is equivalent to about 5 percent of Indonesia's total labour force. These figures imply that the productivity of fisheries sector is quite low, that is 5 percent of the labour force producing about 1.6 percent of the Gross Domestic Product. As a comparison, the whole agricultural sector (including agriculture, forestry, wild-life and fishery) which absorbed 54.65 percent of total labour force has a contribution of 24 percent of Gross Domestic Product. At the same time 14.8 percent of the total labour force in the trade sector produced about 15.5 percent of the Gross Domestic Product.

Indonesia's foreign exchange earnings from the fisheries sector have grown rapidly from US$7.0 million in 1970 to US$480.0 million in 1987 (Table 3). This rapid growth was due

Table 2

Number of Fishermen and Fishfarmers, 1976-1987

Year	Marine Fishermen	Open Water Fishermen	Fishfarmers	Total
1976	994 169	482 562	745 892	2 222 623
1977	811 512	402 021	609 571	1 823 104
1978	831 865	330 760	664 195	1 826 820
1979	888 997	315 484	827 139	2 031 620
1980	970 731	411 663	849 121	2 231 515
1981	1 104 649	445 776	963 432	2 513 857
1982	1 170 864	439 605	997 069	2 607 538
1983	1 226 643	424 726	1 089 749	2 741 118
1984	1 294 472	438 953	1 150 294	2 883 719
1985	1 286 448	434 290	1 282 095	3 002 833
1986	1 317 300	439 100	1 391 100	3 147 500
1987	1 347 000	444 000	1 509 400	3 300 400

Sources: Fisheries Statistics of Indonesia, Directorate General of Fisheries, Various issues

Table 3

Export Volume and Export Value of Fisheries Product, 1970-1987

Year	Volume ('000 mt)	Value (US$ million)
1970	20.1	7.0
1971	30.8	19.0
1972	41.2	34.9
1973	52.2	68.2
1974	55.0	92.3
1975	40.7	89.2
1976	54.4	131.4
1977	57.5	163.0
1978	63.5	193.4
1979	68.3	236.8
1980	78.7	226.4
1981	75.2	225.4
1982	88.1	253.6
1983	87.4	251.5
1984	75.7	248.0
1985	84.4	259.4
1986	107.3	373.9
1987	125.8	480.0

Sources: Central Bureau of Statistics, Indonesia