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Tuna price statistics in Japan

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Abstract

Upon (informal) requests to investigate the situation of tuna price statistics in Japan through e-mail communications among the IOTC-WPTT community, we collected such information and summarized available statistics.

Contents

1. Introduction
2. Methods and results
3. Discussion
   3.1 General
   3.2 Remarks to use tuna price statistics

Acknowledgements

References

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1. Introduction

Tuna fisheries are driven by market incentives, hence economic behaviors of fishers would normally cause them to target fish on higher priced species which thus affect also CPUE (Sakagawa, 1987; Nishida and Fluharty, 1999). Because of this tendency, there have been occasional discussions on the affects of the Japanese tuna prices over the Generalized Linear Model (GLM) analyses for the CPUE standardization in the past IPTP and IOTC meetings (Anon, 1998 and 2000). Hence in these meetings, it has been recommended to consider incorporating ‘tuna price’ as one of factors in the GLM or other statistical analyses.

In addition Article V.II.d of the IOTC Agreement states that one of the functions and responsibilities of the Commission is "to keep under review the economic and social aspects of the fisheries”.

Under such backgrounds in this information paper we investigated available tuna price data, explained the situation and list available information.

2. Methods and Results

We collect information mainly from Department of Statistics, Secretariat Office, Ministry of Agriculture, Forestry and Fisheries, Government of Japan (MAFF-DS).

Table 1 shows the results. Most basic tuna price (fresh & frozen) data are daily local statistics available in more than 200 fishing ports for nearly 45 years since 1961 ([A] in Table 1). Tuna species covered in these statistics (in maximum case) are southern bluefin tuna (SBT), northern bluefin tuna (Pacific & Atlantic) (BFT), yellowfin tuna (YFT), bigeye tuna (BET), swordfish (SWO), skipjack (SKJ) and striped marlin (STM). Prices of SBT and BFT are normally combined.

Original daily data are managed by the local Governments and we don’t know if they are computerized, but it is assumed that some of the data have been digitized. Local Governments are requested to report to these daily price statistics including other non-tuna species to the MAFF-DS. Then MAFF-DS make monthly & annual official statistical bulletins. For tuna price data, they make three types of bulletin, i.e., prices for 6-10 cities (monthly), for 42-51 landing ports (monthly) and for 203 or 248 (annual) ([B], [C] and [D] in Table 1 respectively). According to MAFF-DS, the data from 1961-1999 are still in analogue (hard copy) forms but those after 2000 have been digitized and they are available at the MAFF-DS. MAFF-DS list price data in most recent one year in their web-site.

Based on the local & central Government statistical bulletins ([A]-[D]), various tuna prices data have been complied and digitized or listed in the web-sites as shown in [E]-[I] in Table 1.

Table 1

3. Discussion

3.1 General

Generally most of the fresh tuna are consumed at high rank restaurants, while the frozen tuna is sold at supermarkets. However, when there is a shortage of the fresh tuna, fresh tuna prices rapidly increase and the cost of frozen tuna will also increase. Although the market of the fresh tuna and frozen tuna is different, there is some degree of the positive relation between the prices (Nishida *et al*, 2005). In this relation, the fresh tuna is a leader of the price as they are always higher and need to be quickly sold. But for the frozen tuna, they can be used to control the quantity of the tuna in the market as they are frozen and can be kept for a fairly long period in the deep freezers.

Similarly the import tuna prices are also led by the fresh (then frozen) tuna price (Izawa, 2003), which are managed by Ministry of Economy, Trade and Industry (formally Ministry of International Trade and Industry).

Thus when we use tuna prices data in Japan, for example, for the GLM analyses we need to use the fresh (and/or frozen) tuna price data because they are the leader (representative) of the Japanese price statistics and we don't need to use the import tuna price data.

We now understand the tuna prices are available nearly for 45 years since 1961 and the recent data have been digitized (1991-2005). Hence we need to some small project if we need to computerize the historical tuna price data (1961-1990) in the analogue (paper) format.

3.2 Remarks to use tuna price statistics

When tuna price data are used in numerical and/or statistical analyses, for example, for the CPUE standardization by GLM, following remarks are important:

- Use fresh and/or frozen tuna prices as the representative tuna price statistics in Japan.
- As tuna prices are different among cities (or landing ports) in Japan, try to use tuna prices in major 6-10 cities to represent average situation (refer to Nishida and Izawa, 2005).
- Apply the inflator to standardize tuna prices using consumer price indices (CPI) (refer to Nishida and Izawa, 2005).
- Apply the exchange rates (US$-Japan yen) to standardize tuna prices (Izawa, 2003).

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(Unlisted references will be provided upon request to the first author)

Table 1 Situation of tuna price statistics in Japan (as of July 2005)

	[A]		[B]	[C]	[D]		[E]	[F]	[G]	[H]	[I]
type of the data	BASIC & ORIGINAL DATA daily tuna price (fresh & frozen)		Average tuna whole sale price (fresh and frozen)								
species	SBT&NBT, YFT, BET, ALB, SWO, SKJ, STM (Max)		SBT&NBT, YFT, BET, ALB, SWO, SKJ, STM (Max)				SBT&NBT, YFT, BET, ALB, SWO, SKJ, STM (Max)	SBT&BFT, YFT, BET	SBT&BFT, YFT, BET	SBT&BFT, YFT, BET	YFT & BET
time unit	day		month	month	annual		month	day	annual	annual	month
duration	1965-		1965-	1965-	1961-		1996-2005		1990-2000	1990-2000	1980-99
locations (Japan)	local fishing ports (more than 200)	report to MAFF to make national official statistics [B] , [C] & [D}	6-10cities/sites (Tsukiji, Osaka, Yokohama, Nagoya, Kyoto, Kobe and others) (10 in recent years)	42-51 landing ports (51 in recent years)	248 fishing ports (203 in recent years)	[E]-[I] are based on [A]-[D]	42 landing ports	Tokyo	10 cities	42 landing ports	10 cities
sources or web-site	local (prefectual) governmemt (fishereis newspapers)		Monthly Statisticcal bulltin on Fishery Commodities' Distribution		Annual Statistical bulltin on Fishery Commodities' Distribution		http://swr.ucsd.edu/fmd/sunee/fishlexv/jexv.htm		http://www.geocities.jp/tunadata/stat/index.html		to be contributed to the IOTC
created (compiled) by	local (prefectual) governmemt		Ministry of Agriculture, Forestry and Fisheries (MAFF) (Japan)				NOAA/NMFS (USA)		tuna database (Arata Izawa) (Japan)		Tom Nishida & Arata Izawa (Japan)
A(analogue) or D(digital) data	A (some for D?)		A(1964-95) D(1996-)	A(1964-95) D(1996-)	A(1961-95) D(1996-)		partially D (Table format)		D(MS excel)		D(MS excel)
1961	A				A						
1962	A				A						
1963	A				A						
1964	A				A						
1965	A		A	A	A						
1966	A		A	A	A						
1967	A		A	A	A						
1968	A		A	A	A						
1969	A		A	A	A						
1970	A		A	A	A						
1971	A		A	A	A						
1972	A		A	A	A						
1973	A		A	A	A						
1974	A		A	A	A						
1975	A		A	A	A						
1976	A		A	A	A						
1977	A		A	A	A						
1978	A		A	A	A						
1979	A		A	A	A						
1980	A		A	A	A						D
1981	A		A	A	A						D
1982	A		A	A	A						D
1983	A		A	A	A						D
1984	A		A	A	A						D
1985	A		A	A	A						D
1986	A		A	A	A						D
1987	A		A	A	A						D
1988	A		A	A	A						D
1989	A		A	A	A						D
1990	A		A	A	A				D	D	D
1991	A		A	A	A				D	D	D
1992	A		A	A	A				D	D	D
1993	A		A	A	A				D	D	D
1994	A		A	A	A				D	D	D
1995	A		A	A	A				D	D	D
1996	A		A	A	A		D (internet)		D	D	D
1997	A		A	A	A		D (internet)	D (internet)	D	D	D
1998	A		A	A	A		D (internet)	D (internet)	D	D	D
1999	A		A	A	A		D (internet)	D (internet)	D	D	D
2000	A		D	D	D		D (internet)	D (internet)	D	D	
2001	A		D	D	D		D (internet)	D (internet)			
2002	A		D	D	D		D (internet)	D (internet)			
2003	A		D	D	D		D (internet)	D (internet)			
2004	A		D	D	D		D (internet)				
2005	A		D	D	D						