11. Potato marketing in North Sumatra and an assessment of Indonesian potato trade[1]

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Introduction

Potato production in Indonesia has rapidly grown over the past several decades and Indonesia has become the largest potato producer in Southeast Asia. Between 1969-1995, potato production in Indonesia grew by an average of over 13 percent per year, more rapidly than any other country in the world. By the mid 1990s, total annual production exceeded 1 million tons. Most of the growth in production has come from an increase in potato planted area and secondarily from improvements in yield (Adiyoga, 1999).

Potatoes produced in Indonesia supply not only domestic consumption but also export markets. Exports of potatoes to other Southeast Asian countries, mainly to Malaysia and Singapore, grew rapidly throughout the 1980s and early 1990s peaked in 1995 and subsequently declined. Imports of potatoes especially potato products, also grew over this period but fell sharply after 1997. This paper examines the reasons for these changing patterns of trade in potatoes and potato products in Indonesia. Since most of the potatoes produced for export are grown in North Sumatra (Pasaribu, 1989; Ferrari, 1994), the potato marketing system in this province is given particular attention.

Understanding the patterns of trade and constraints to export will help identify ways to improve access to profitable export markets for Indonesian farmers. Specifically, in this study we: 1) describe the nature of current domestic and export potato marketing systems in North Sumatra, 2) diagnose constraints to the potato export marketing system in North Sumatra, 3) identify factors causing recent potato trade patterns in Indonesia, and 4) identify needs and opportunities for further improving Indonesia's trade in potatoes and potato products.

A rapid appraisal methodology (Holtzman et al., 1995) was used in the study. Two field visits to North Sumatra were made in April 2000 and January 2001 to conduct semi-structured interviews with key informants including farmers, small and large traders, wholesalers, and exporters. Interview topics included (i) marketing channels, (ii) marketing margins, costs, services, and profits, and (iii) potato quality and other possible constraints to exportation.

Interviews of potato importers in Singapore, a major import destination, were also conducted in November 2000 to identify constraints to importation and perceptions on the quality of Indonesian potatoes. Food safety inspectors in Singapore were also interviewed to determine whether phytosanitary regulations were constraints to potato importation from Indonesia. Secondary data were collected to assess trends in potato prices at the farm, wholesale and retail levels in North Sumatra and other major potato market centers.

Several hypotheses were forwarded to explain the changes observed in Indonesia's potato trade. A conceptual model was proposed to examine the factors that may explain the decline in potato exports in Indonesia since 1995. Using this model, a decline in exports could be caused by: (1) growth in domestic demand due to population growth, change in consumer

[1] This article is a summary of a longer report by the same title, which was published in 2001 as UPWARD Working Paper Series No. 7. For the full report, please contact the CIP office in Bogor, Indonesia, or the UPWARD office in Los Banos, Philippines.

preference or an increase in consumer expenditures; (2) a decline in domestic supply due to an increase in unit production costs or more profitable alternative crops; and (3) a decrease in the export price as a result of a fall in export demand, increase in global competition, or decline in marketing efficiency. This study evaluates each of these possible explanations for recent changes in Indonesia's potato trade.

Potato Marketing in North Sumatra

North Sumatra has become the second most important potato producing area in Indonesia after West Java, and accounts for about 25-30 percent of the total national potato production. Karo and Simalungun districts are the largest production centers and account for over 90 percent of all North Sumatra potato production. In 1991-1999, the average growth of potato production in North Sumatra was 7 percent per year, mostly due to expansion in the area planted to the crop. By the late 1990s, approximately 250,900 tons were produced annually on about 15,900 hectares in the province. The growth of potato-harvested area and yield contributed 8.7 percent and 6.2 percent to the production growth, respectively. The rate of growth in potato production declined in the latter part of the decade.

Potato marketing: A general view

Because of its geographic location, potatoes from North Sumatra can be easily marketed in the local and regional markets and also in Singapore and Malaysia. Basically, potato marketing in North Sumatra is an institutionalized service to bridge the movement of potatoes from producers to consumers. Government intervention in potato marketing is mainly limited to providing physical infrastructure, such as roads and market centers. Potato trade is primarily in the hands of private enterprises, although traders and exporters are required to register with government authorities for a license to market potatoes. These conditions may imply that potato-marketing system in North Sumatra, like in other potato production centers, largely operates under the forces of supply and demand.

Problems that may occur in a system are usually due to: (a) producer characteristics – large scale vs. small scale, in relation to the potato volume sold, (b) crop characteristics – perishability, (c) demand patterns – seasonality, (d) marketing system complexity – inefficient flow of information, insufficient physical facilities, and low financial capacity of the market participants. For the producers, price instability may discourage crop intensification and hinder adoption of new technologies, while for the consumers; it may influence the consumption patterns and push consumers to switch to other foods.

Potato market structure and prices

Marketing outlets for potatoes basically include local, regional and export markets. Data from the North Sumatra Regional Trade Office show that 48 traders are registered as regional potato traders. These traders are responsible for bringing products to local consumers in potato-deficit districts and cities in North Sumatra. In practice, however, these traders do not only market potatoes, but also cabbages, tomatoes, carrots and leafy vegetables. Like the regional traders, the exporters do not specialize in the export of potatoes but also include important vegetables in their portfolio.

Based on the existing number of potato traders and exporters in North Sumatra, low barriers to entry, and the homogeneous nature of the locally grown potatoes; the market structure for potatoes in North Sumatra can be categorized as competitive. Changes in government licensing policy reduced barriers to entry and increased competition among traders and exporters. Marketing costs and profits do not appear to be excessive, and product losses during marketing appear to be low.

Price fluctuation is a source of uncertainty that confronts potato growers. As negotiations and trade take place between buyers and sellers, potato prices may change from week to week, from day to day, and even within the trading day. Domestic prices are also influenced by international prices and exchange rates.

The possibility of year-round production means that the average duration of storage for table potatoes is short (1-2 weeks) and seasonal prices are relatively stable. Prices are somewhat below the annual average during the main harvest season between January and April.

Potato marketing channels

Marketing channels facilitate the flow of potatoes from producers to consumers. A variety of well established although informal marketing channels exist in North Sumatra for the distribution and sale of potatoes in both the domestic and export markets. Figure 1 (4 in text) shows the main marketing channels for potato in North Sumatra. Aside from the growers themselves, the participants in potato marketing activities are the assembly traders, commission agents, regional traders, exporters, wholesalers, and retailers. In this case, government agencies play a supportive role, such as collecting and publicizing market information, issuing licenses to traders, and generally regulating fair trading practices.

Brastagi and Medan are the two most important market centers for potato in North Sumatra. Brastagi serves as an important assembly point in the potato marketing system. Medan is an important consumer market for potato and a transshipment point for potato export.

Table 1 (5 in text) shows that exporters handle the highest percentage (35.8 percent) of potato supply, specifically to the final places of destination of Singapore and Malaysia. In the domestic market, there are two types of wholesalers: those who reside in the production center of Brastagi (rural wholesalers) and those who operate in the urban market center of Medan (urban wholesalers). Moreover, the proportion of potato supply handled by wholesalers in Brastagi (28.2 percent) is much higher than that handled by wholesalers in Medan (8.4 percent). This may imply that wholesalers in Brastagi are mainly involved in assembling potatoes, while wholesalers in Medan are primarily engaged in distributing them.

Potato marketing margins

Potato marketing margin measures the share of the final potato selling price that is captured by a particular agent in the marketing channel, and includes costs and sometimes, additional net income.

Potato price variability in North Sumatra is higher at the farm gate level than at the wholesale and retail levels. Meanwhile, the variation in gross marketing margin is higher than that of potato prices at the farm, wholesale, and retail levels. Thus, traders face as much or more uncertainty in profit margins as farmers. This indicates that traders behave as price-takers and do not have much power to establish prices in their favor.

In the local market in North Sumatra; marketing costs are highest at the retail level, but retailers also earn the highest profit margin. Interviews revealed that a relatively high farmers' share of the marketing margin does not guarantee that potato growers will earn profits. This may imply that when the price is low, the risk of experiencing the loss is seemingly much higher for potato growers than potato traders.

The main destination countries for potatoes exported from North Sumatra are Singapore and Malaysia. Some shipments have been made to Hongkong, Japan, Brunei, Taiwan, and Myanmar, but these shipments are small and irregular.

The main port of embarkation for potatoes exported to Singapore and Malaysia is Belawan in North Sumatra. Exporters follow standard procedures to ensure proper documentation of their shipment. Some exporters, however, claim that there is an informal channel for exporting undocumented shipment of potatoes to Singapore and Malaysia.

In the export market, total marketing margin for potatoes is quite high at approximately 45 percent of the selling price to importers. Out of this, 24 percent is profit margin and 21 percent represents marketing costs. The biggest expenses in marketing costs are charges for freight and shipping containers. Since charges for freight and container are in US$, marketing margin is sensitive to changes in exchange rates.

Potato Trade in Indonesia

In recent years, North Sumatra accounted for more than 90 percent of Indonesia's total potato exports, almost entirely in the form of table potatoes for the fresh market (Table 1). A small quantity of potato seed and processed products were recorded as exports, but these were most likely re-exports of potatoes that were previously imported. Nearly all of Indonesia's potato exports are destined for either Malaysia (about 70 percent of total exports) or Singapore (30 percent of total exports).

By contrast, most potato imports were in the form of processed products (Table 2). About 71 percent of the total potato imports in 1994-2000 were frozen French fries, mostly originating from North America. Other processed potato products, such as starch and flakes used in food processing, accounted for another 15 percent of the potato imports during this period. Most of these imports came from European countries.

Seed potatoes, which mostly come from the Netherlands, are the third most important category of imports during 1994-2000. Table potatoes accounted for only a small part of total imports.

This shows that there are two distinct 'markets' for potato in Indonesia, i.e. fresh table potatoes supplied from local production and processed potato products supplied mainly through imports. Frozen French fries are the most important imported potato product. With the Indonesian economic crisis, the demand for imported French fries declined sharply.

According to importers, price remains the most important factor in determining where they source their potatoes. In recent years, Chinese and Dutch exporters have been able to offer potatoes at lower prices than Indonesian exporters. This has been the principal reason for the loss of market share by Indonesia, according to the Singapore traders who were interviewed. Indonesia is a relatively high cost producer of potatoes but enjoys some advantages over temperate or other Southeast Asian countries. Its competitive advantage over temperate countries is its ability to provide a year-round supply. Its proximity to Singapore and Malaysia is also a major advantage because of lower transportation costs, timely delivery, and freshness of product.

Singapore enforces strict pesticide residue limits on fresh fruits and vegetables, and shipments that do not meet standards are rejected. Although pesticide use on potatoes is relatively high in Indonesia, the issue of excessive pesticide residue has so far not been a constraint to exporting potatoes. No shipments from Indonesia to Singapore have been rejected for this reason.

Indonesia's potato markets are increasingly integrated with regional and global potato markets. Indonesian potato exporters face competition from Europe, China, and Australia/New Zealand in regional trade of fresh table potatoes. Potato prices faced by Indonesian farmers are influenced by global supply and demand conditions and currency exchange rates.

The principal reasons for the decline in potato exports from Indonesia in 1995-1998 were rapid growth in domestic demand and increased competition from other exporters, especially China and the Netherlands. The fall in consumer purchasing power and the devaluation of the rupiah as a result of the current economic crisis in Indonesia reduced domestic demand for potatoes and improved Indonesia's export competitiveness. These findings have implications for future directions of Indonesian potato trade.

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Table 1. Composition of Indonesian potato exports, 1994-2000

Quantity (1000 t)

Year	Total	Table	Seed	Frozen	Other Processed
1994	89.12	88.92	0.04	0.15	0.00
1995	103.05	102.94	0.03	0.08	0.00
1996	79.75	79.68	0.00	0.07	0.00
1997	36.76	36.76	0.00	0.00	0.00
1998	31.25	31.20	0.02	0.02	0.01
1999	33.26	32.27	0.13	0.84	0.02
2000	30.68	30.23	0.09	0.28	0.08
Average	57.70	57.43	0.04	0.21	0.02
% of total	100.0%	99.5%	0.1%	0.4%	0.0%

Value (million US$)

Year	Total	Table	Seed	Frozen	Other Processed
1994	14.08	13.88	0.01	0.19	0.00
1995	18.22	18.12	0.01	0.09	0.00
1996	15.09	15.02	0.00	0.07	0.00
1997	8.43	8.43	0.00	0.00	0.00
1998	5.96	5.89	0.00	0.08	0.00
1999	6.72	5.80	0.09	0.83	0.00
2000	4.62	4.46	0.03	0.09	0.04
Average	10.45	10.23	0.02	0.19	0.01
% of total	100.0%	97.9%	0.2%	1.8%	0.1%

Price (US$/t)

Year	Total	Table	Seed	Frozen	Other Processed
1994	158	156	173	1,243	
1995	177	176	407	1,129	
1996	189	188	2,046	987	
1997	229	229	531	5,000	
1998	191	189	44	3,154	248
1999	202	180	646	991	107
2000	151	148	383	319	480
Average	185	181	604	1,832	278

Source: Biro Pusat Statistik (a), various annual issues. Exports include:

SITC Code
- 5410100 potatoes, seed
- 5410900 potatoes, fresh other than seed (table potatoes)
- 5469100 potatoes, frozen
- 5611000 potatoes, sliced

Table 2. Composition of Indonesian potato imports, 1994-2000

Quantity (1000 t)

Year	Total	Table	Seed	Frozen	Other Processed
1994	9.86	0.33	0.87	6.58	2.08
1995	13.40	0.31	0.78	9.72	2.59
1996	17.22	0.89	1.21	11.83	3.29
1997	27.63	2.04	0.90	23.06	1.63
1998	9.71	0.68	0.36	6.92	1.74
1999	24.14	3.18	6.12	6.48	8.36
2000	19.82	4.57	1.26	10.41	3.59
Average	17.40	1.71	1.64	10.71	3.33
% of total	100.0%	9.9%	9.4%	61.6%	19.1%

Value (million US$)

Year	Total	Table	Seed	Frozen	Other Processed
1994	6.45	0.16	0.87	4.20	1.21
1995	12.08	0.42	0.82	8.80	2.04
1996	16.62	0.44	0.99	11.72	3.47
1997	26.87	1.50	0.86	22.96	1.54
1998	6.48	0.34	0.26	4.78	1.10
1999	9.59	0.96	1.94	4.21	2.48
2000	11.89	1.44	0.68	7.69	2.09
Average	12.85	0.75	0.92	9.19	1.99
% of total	100.0%	5.9%	7.1%	71.5%	15.5%

Price (US$/t)

Year	Total	Table	Seed	Frozen	Other Processed
1994	654	494	1,008	639	580
1995	901	1,363	1,040	905	787
1996	965	491	817	991	1,055
1997	972	739	959	995	943
1998	667	502	728	690	628
1999	397	301	317	649	297
2000	600	314	538	739	582
Average	737	601	772	801	696

Source: Biro Pusat Statistik (b), various annual issues. Imports include:

SITC Codes	5410100	potatoes, seed
	5410900	potatoes, fresh other than seed (table potatoes)
	5469100	potatoes, frozen
	5661100	potatoes, frozen, airtight container
	5661900	potatoes, frozen, other container
	5676100	potatoes, not frozen, airtight container
	5676900	potatoes, not frozen, other container
	5611000	potatoes, flakes
	59213110	potato starch, for baking, packs ≥ 30 kg
	59211390	potato starch, for baking, other packs
	59213990	potato starch, other