

TOWARDS A DEMAND-SIDE RESEARCH AGENDA FOR SWEET POTATO IN PNG

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Current ACIAR Research on Sweet Potato in PNG focuses on the supply side



- ASEM/2003/010 – Farmer evaluation and multiplication of sweet potato varieties on the north coast of PNG
- CP/2004/071 – Reducing pest and disease impact on yield in selected PNG sweet potato production systems
- SMCN/2005/043 – Analysis of biophysical and socio-economic constraints to soil fertility management in the PNG Highlands (with a focus on sweet potato)

Do We Also Need A Demand-Side Research Agenda?



“It seems that agronomic research is usually predicated on the assumption that there is an unlimited market or at least an unsatisfied market at a price that will yield a reasonable or acceptable return to farmers; or that such a market can be created. Is this true for sweet potato.”

Quartermain (2005)

Current Situation about the Demand for SP in PNG



- Almost all is consumed as a subsistence crop and, perhaps only 1% - 2% is marketed.
- Consumption breakdown = 70% human, 30% livestock.
- Per capita human consumption in rural areas is 6 times that in urban areas
- It is by far the most important food crop in PNG accounting for 30% (by weight) and 10% (by value) of all food
- Almost all marketed SP is marketed *informally* (by grower-marketers) rather than by commercial wholesalers
- Marketing is perhaps 90% *local* and 10% *long distance*

Implications for Study of Demand-side research



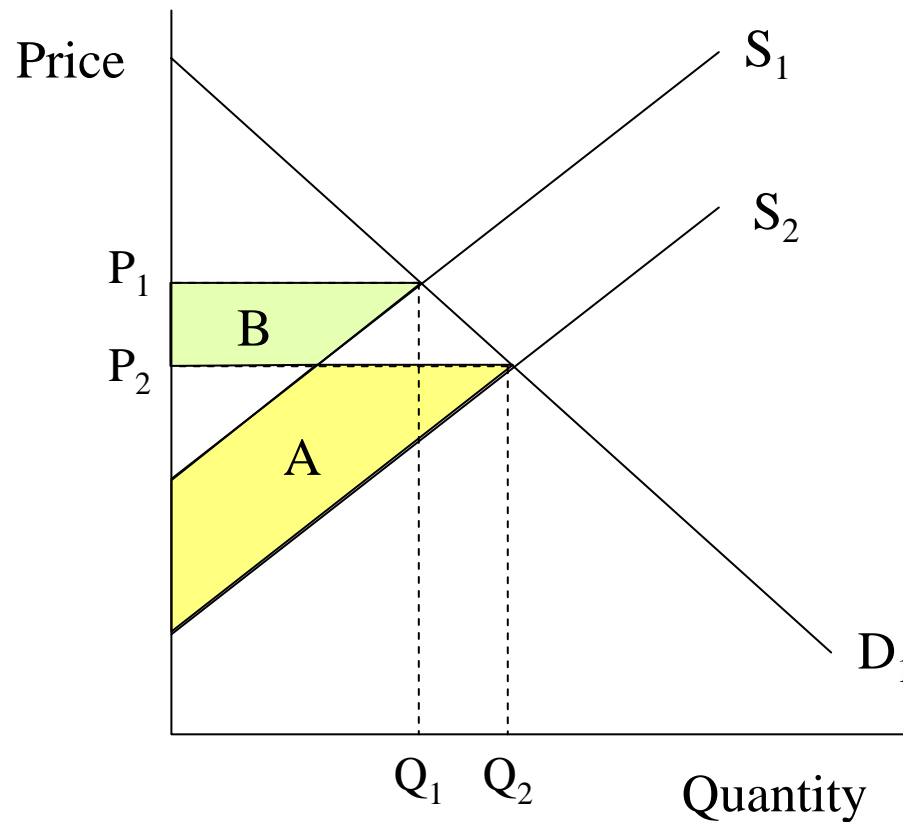
- The raw numbers suggest there is a case for studying consumer preferences of SP as a subsistence crop (human and livestock) – to produce a product that better meets subsistence requirements
- But in this paper I want to suggest a case can also be made for a research agenda based around marketed SP.

The Case for a Demand-side Research Agenda on Marketed SP?



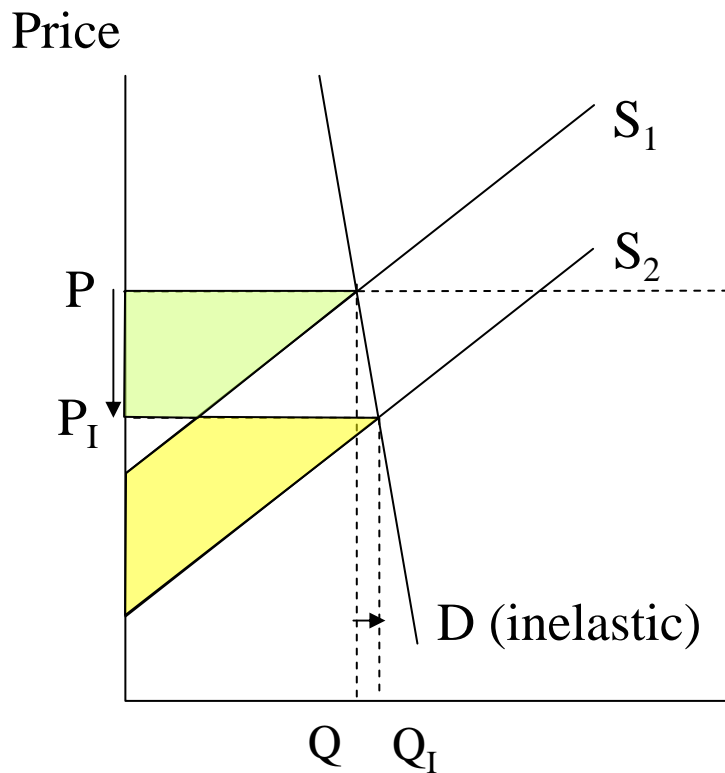
- Even though marketed SP might only account for 1% to 2 % of total production this could still amount to 50,000 tons
- As a marketable crop it is an important potential source of cash income for low-income rural households
- The importance of marketed SP is likely to increase in the future with growing urbanization
- B/C analysis is likely favourable for such research

Economic Gains to Farmers of Supply Side Research Through its Effect on Increasing Marketed SP

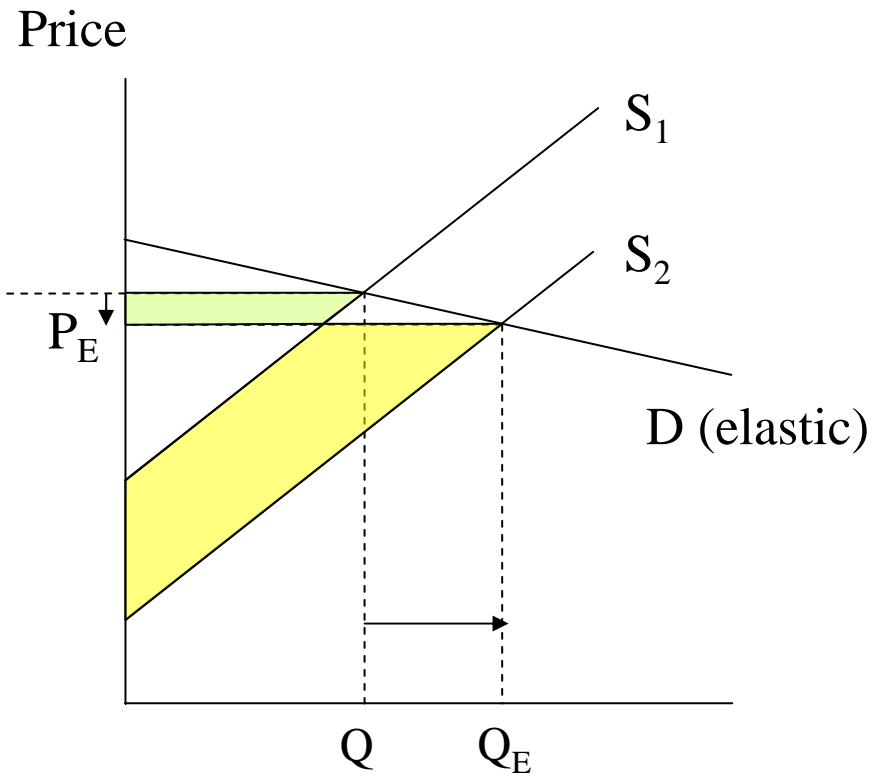


Economic gain to farmers = A - B

Economic Gains from Supply-side Research and the Elasticity of Demand



Inelastic Demand



Elastic Demand

A Crude Estimate of the (Cash Income) Gains to Farmers from Supply-Side Research



Assumptions:

1. Initial marketed quantity (prior to research) = 50,000 tons
2. Initial (local) market price = 0.50 Kina/kg
3. Elasticity of supply = 1.0
4. Supply-side research increases production by 20% at any given price

Estimated Annual Gain in Cash Income to Farm Households

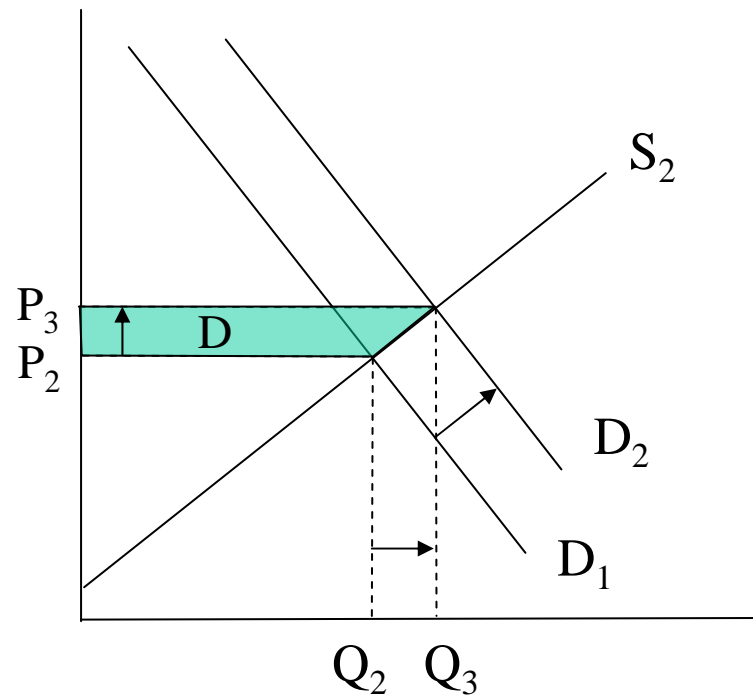
- 0.3 million kina if elasticity of demand = -0.1
- 1.1 million kina if elasticity of demand = -0.4
- 2.4 million kina if elasticity of demand = -1.5

In Focusing on the Demand Side What Can Be Done?



- Increase Consumer Demand
- Improve the operational efficiency of the marketing chain

Effects of Increasing Consumer Demand



Crude Estimate of the (Cash Income) Gains to Farmers of Increasing Consumer Demand



Assumptions

1. Initial marketed quantity (prior to research) = 50,000 tons
2. Initial (local) market price = 0.50 Kina/kg
3. Elasticity of supply = 1.0
4. Elasticity of demand = -0.4
5. Supply-side research has already increased production by 20% at any given price
6. Demand-side research increases consumer demand by 20% at any given price

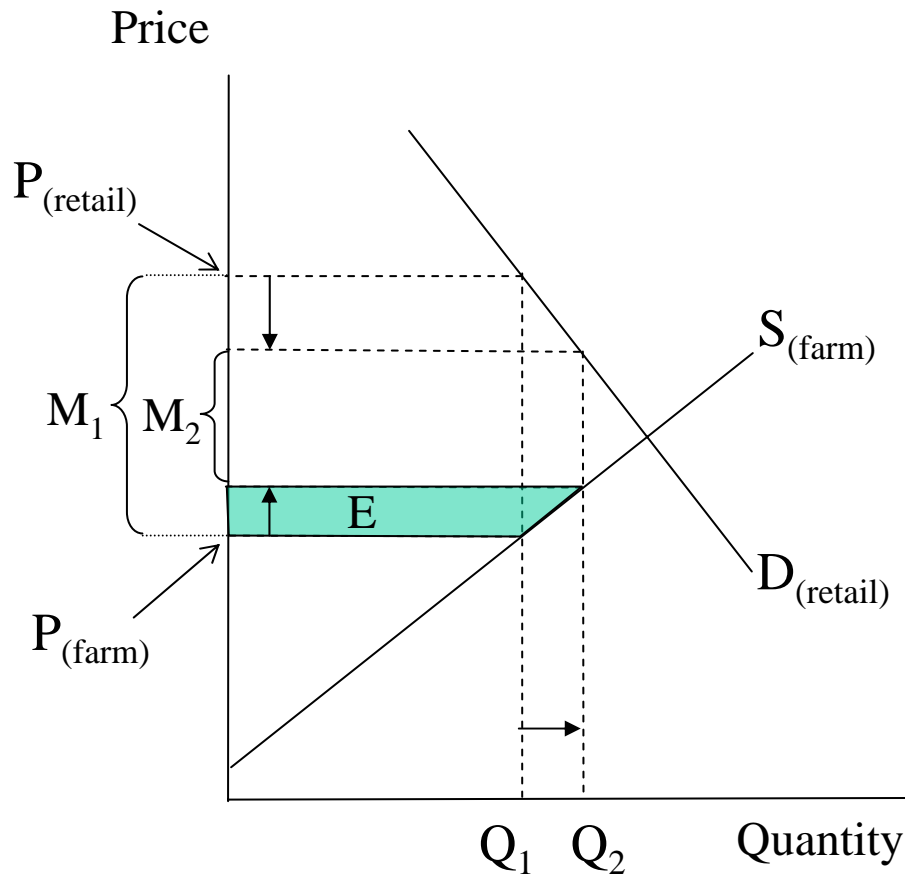
Estimated Annual Gain to Farm Households

3.5 million kina

Factors that Increase Consumer Demand

- **Exogenous Factors**
 - Increasing population
 - Changing consumer income
 - Increasing relative price of substitutes in consumption
- **Endogenous Factors**
 - Improving the quality characteristics (physical and non-physical) of marketed SP
 - New product development

Improve the operational efficiency of the marketing chain



Factors that Improve the Operational Efficiency of the Supply Chain



- **Improving local marketing**
 - Post-harvest activities (handling, storage and transportation)
 - Local market facilities
 - Law and order issues
- **Improving long-distance marketing**
 - Vertical coordination of supply chain
 - Post-harvest activities (handling, storage and transportation) – including compensation claims on sea transport
 - Urban market facilities
 - Law and order issues

Ideas for Discussion of a Demand-Side Research Agenda



1. Collection of basic data to improve our understanding of current situation and hence where biggest payoff is likely to be (e.g. total marketings of SP, quantities marketed locally/long distance)
2. Improve the understanding of consumer preferences for SP as a subsistence crop (human and livestock) and select cultivars that better meet these preferences
3. Assess the constraints and opportunities for improving the *local* (informal) marketing system for SP.
4. Assess the constraints and opportunities for improving the *long distance* (informal) marketing system
5. Develop SP for the market with improved quality characteristics (physical and non-physical) that better meet customer requirements – could include branding and promotion (e.g. “Highland Fresh”)
6. Explore the technical aspects and demand potential for new (value added) processed products made from SP in an integrated process of New Product Development.