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Rice mountain

Assessment of the Thai rice pledging program

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Contributed paper at the 58th AARES Annual Conference,
Port Macquarie, New South Wales, February 4-7, 2014

Thai rice policy

- 50% price premium to local producers
- Large build-up of stocks
- Hoping to drive up world prices
- Prices fell instead
- Stocks deteriorate in quality

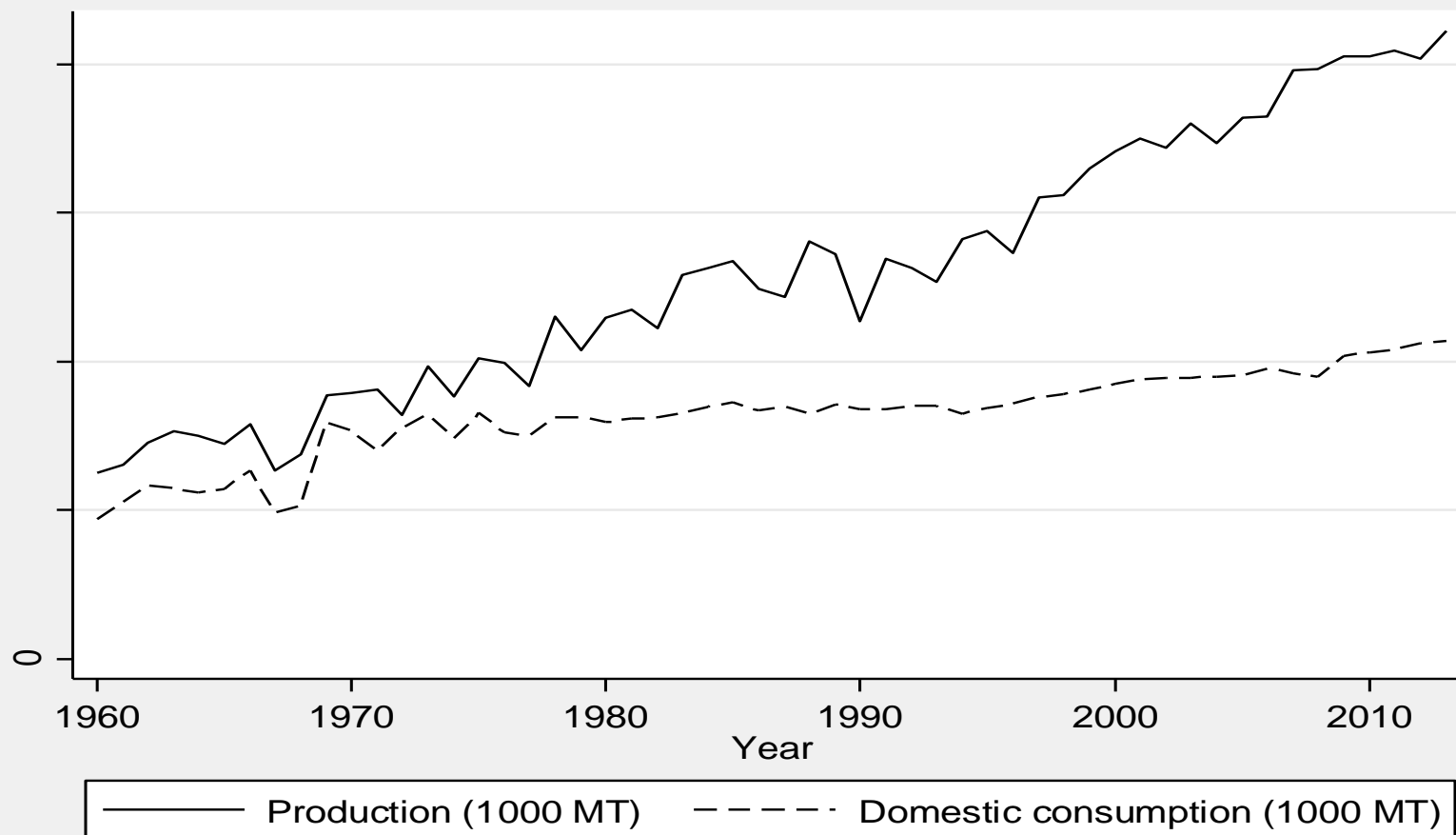
- The industry
- The policy
- Analytical framework
- Results
- Implications



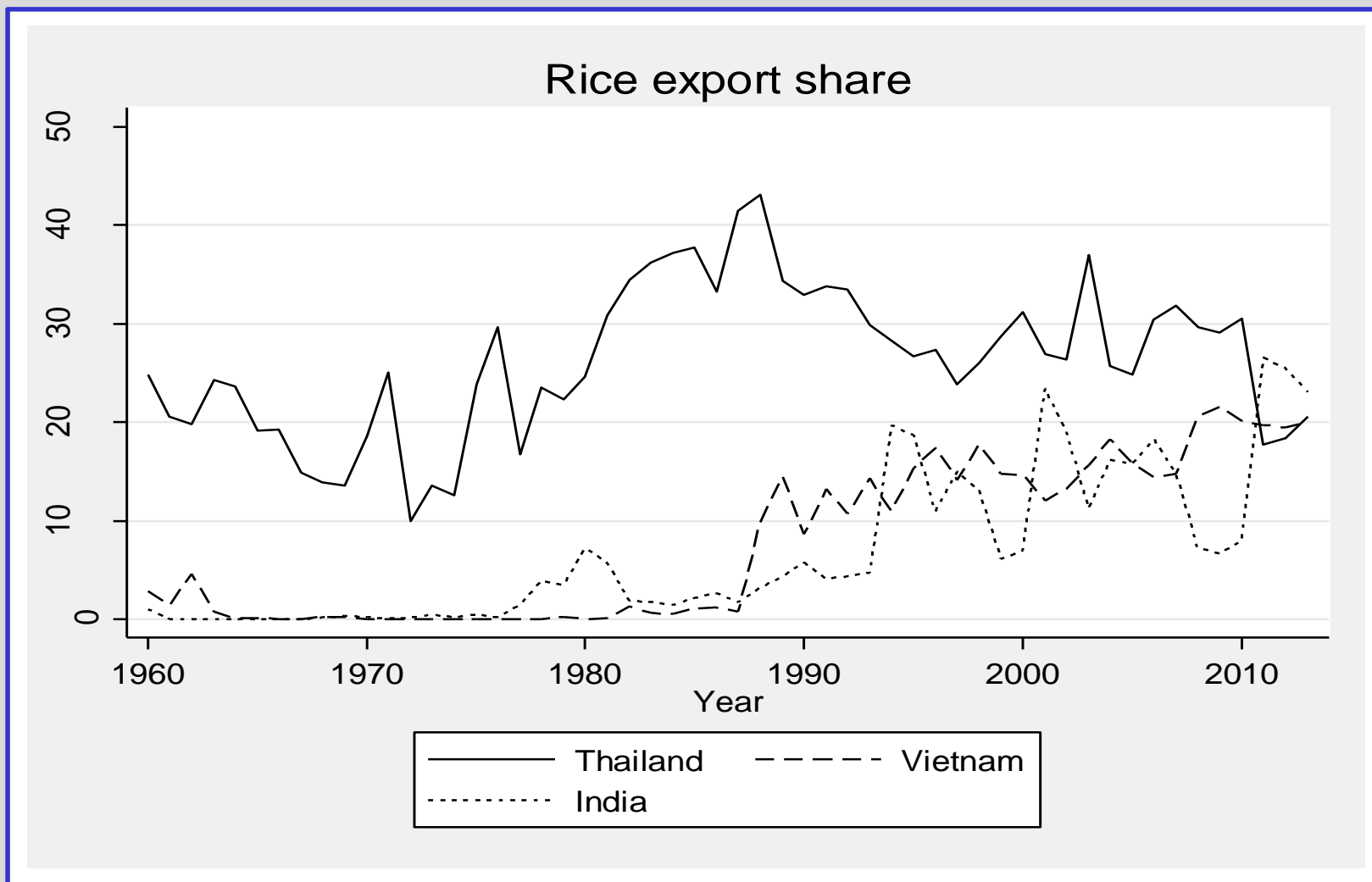
The industry

Production (kt)	20,262
Imports (kt)	200
Exports (kt)	10,647
Consumption (kt)	10,300
Ending stocks (kt)	5,615
Prices \$/t	486

Production and consumption

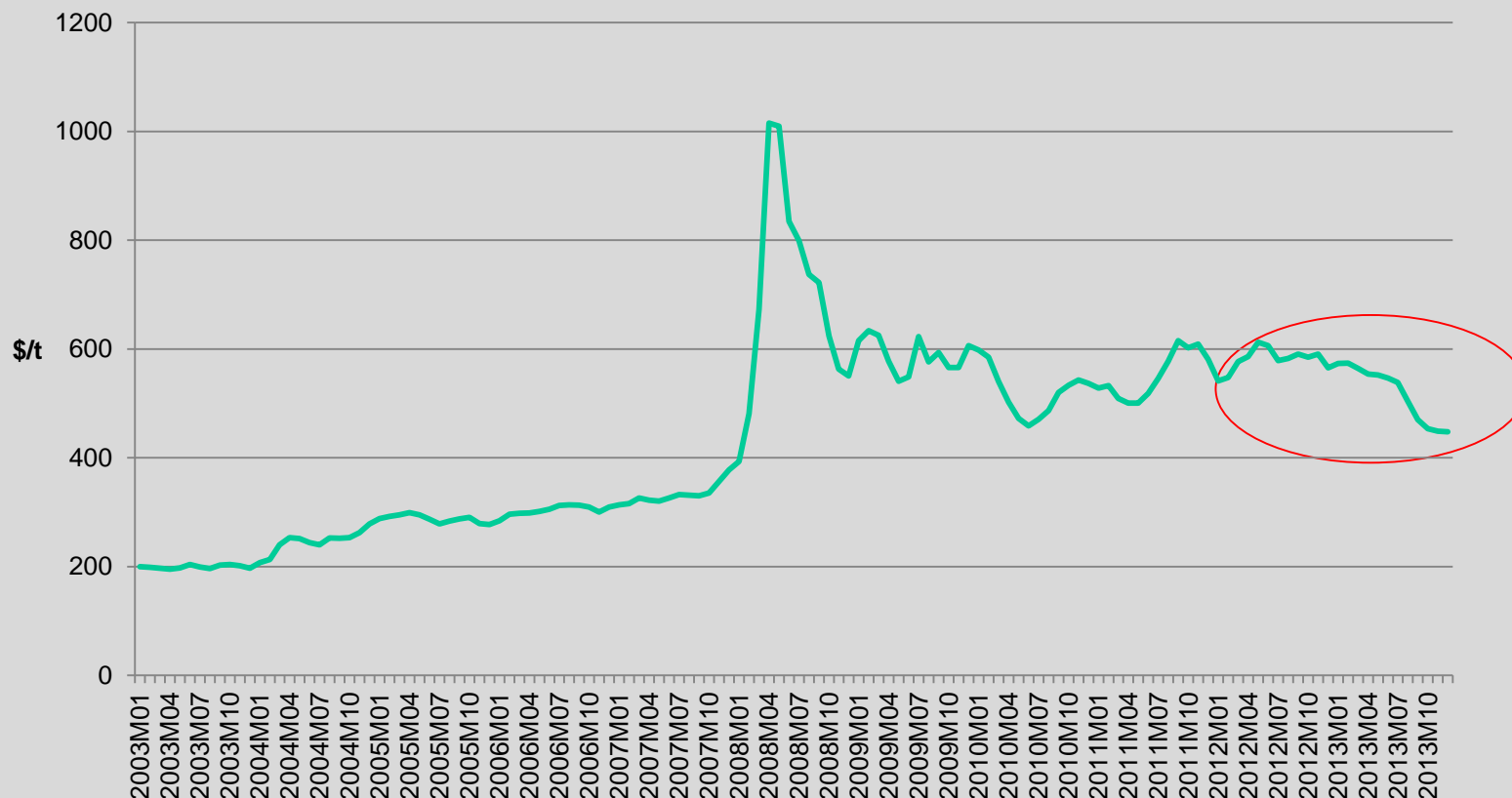


Declining export share



Falling export prices 2003-2013

Thai rice price



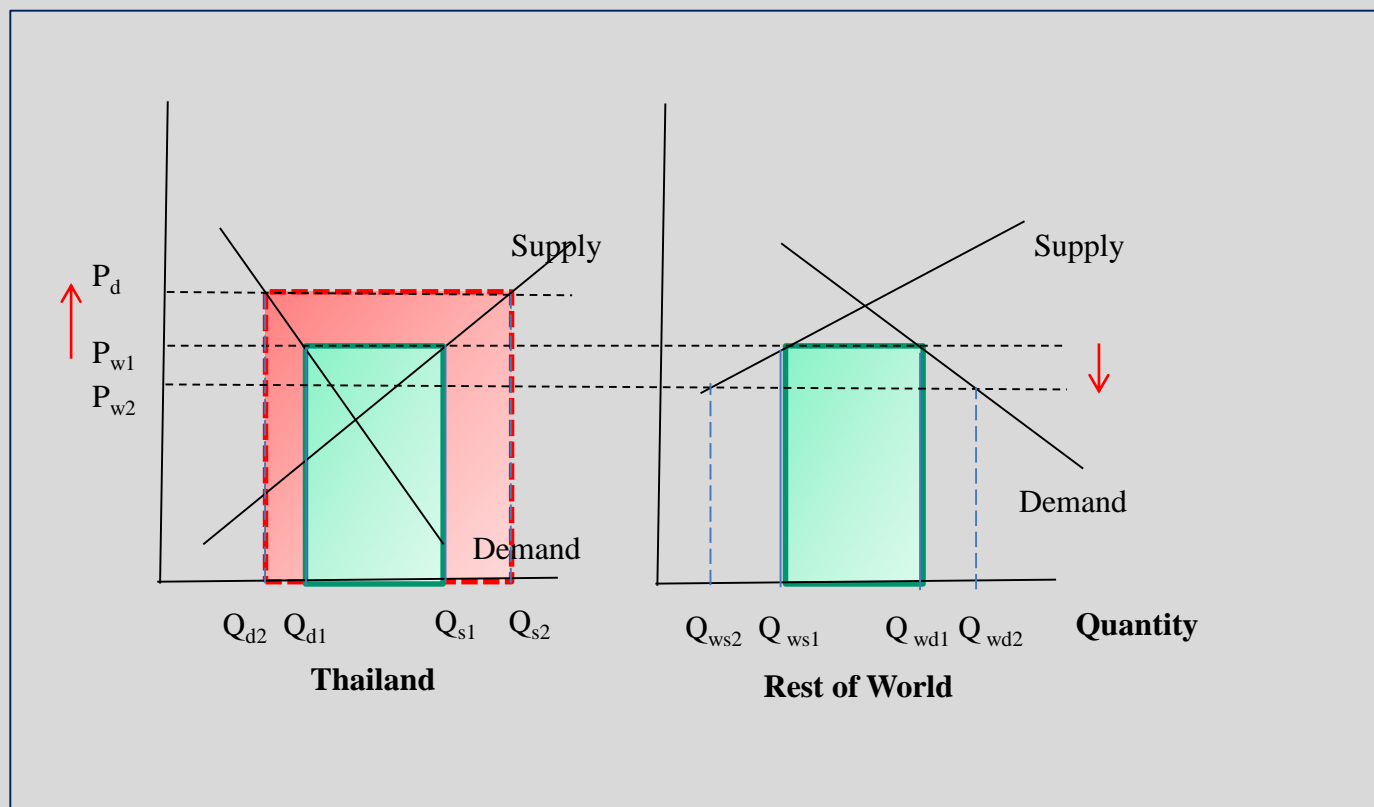
Rice, 5 percent broken milled white
rice, Thailand nominal. Source IMF

Analytical framework

- Single commodity partial equilibrium model
- Non-linear
- Ten regions
- Dynamic
- Stochastic
- Stocks, private and public



Domestic floor price



- Pledging scheme

50% increase in floor price

- Stock purchase

Government buys 10 mmt over each of three years.

- Stock sell-off

Government sells 18% of current stock per year over five years

- Farmer income support

Decoupled cash transfers to poor farmers

Results

		Baseline	Pledging scheme	Stock purchase	Stock sell-off	Producer support
Output	kt	20.3	22.7	23.0	22.5	20.3
Consumption	kt	10.3	9.4	9.3	9.5	10.3
Exports	kt	10.0	13.2	3.7	18.5	10.0
Stocks - private	kt	2.8	0.0	-	1.1	2.8
Stocks – Govt	kt	2.8	2.8	30.0	2.8	2.8

Price effects

		Baseline	Pledging scheme	Stock purchase	Stock sell-off	Producer support
Domestic price	\$/t	567	805	870	792	567
World price	\$/t	520	505	555	497	520



Welfare change

		Pledging scheme	Stock purchase	Stock sell- off	Producer support	
Consumer surplus	\$b	-2.4	-3.0	-2.2	-	↑
Producer surplus	\$b	5.1	6.6	4.8	3.1	↓
Govt revenue	\$b	-3.8	-5.2	-5.4	-3.1	↑
Speculative profits	\$b	0.3	2.9		-	↓
Welfare	\$b	-0.8	-9.9	1.7	-0.0	↑

- Policy failed because:
 - Storage is expensive (17%)
 - Competing exporters (Vietnam and India) responded
- Govt stocks crowd out private stocks
- Benefits leak to foreign consumers
- Decoupled targeted income support preferred



The End

Model equations

- Demand

$$D = aP^b$$

- Supply

$$S = cE(P)^d$$

- Expected price

$$E(P) = w_1 P_{(t-1)} + w_2 P_{(t-2)} + w_3 P_{(t-3)}$$

- Price linkage

$$P = t + e P_w$$

Stockholding equations

- Private

$$EPS = \rho(E(P)-P) + OPS$$

$$\text{where } \rho = (1-f-g)\sigma S/P$$

- Government

$$EGS-OGS = \lambda(P_{min}-P) \text{ if } P < P_{min}$$

$$= \lambda(P_{max}-P) \text{ if } P > P_{max}$$

$$= 0 \text{ if } P_{min} > P > P_{max}$$

Market clearing

$$D-S+OPS+OGS-EPS-EGS=0$$

Welfare

$$W=CS + PS + GR$$

Risk aversion

$$t_i = -0.5 [\sigma_i^2/P_i^* (s_i (\eta_i-r_i) - \beta_i)]$$