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### **Rice mountain** Assessment of the Thai rice pledging program

#### **Risti Permani and David Vanzetti**

The University of Adelaide and Australian National University

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## 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

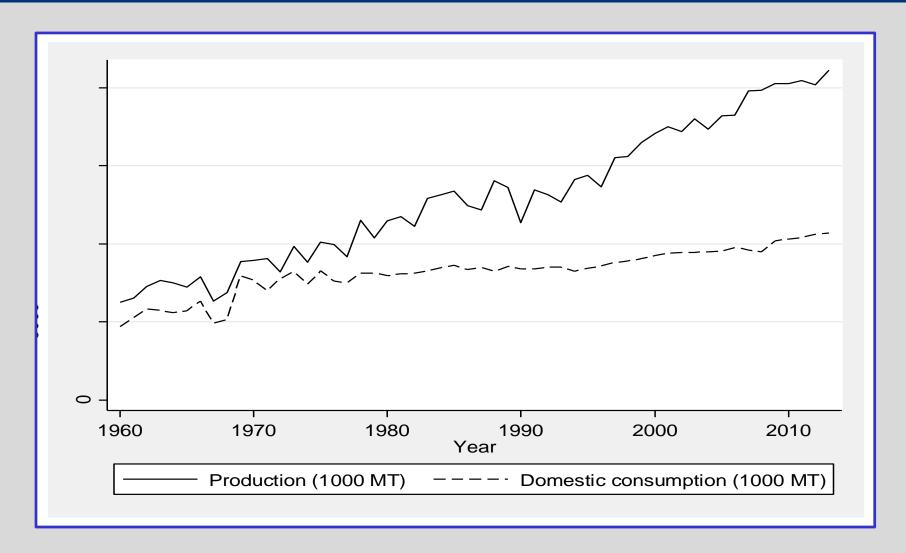
Production (kt) Imports (kt) Exports (kt) Consumption (kt) Ending stocks (kt) 20,262 200 10,647 10,300 5,615

Prices \$/t

486

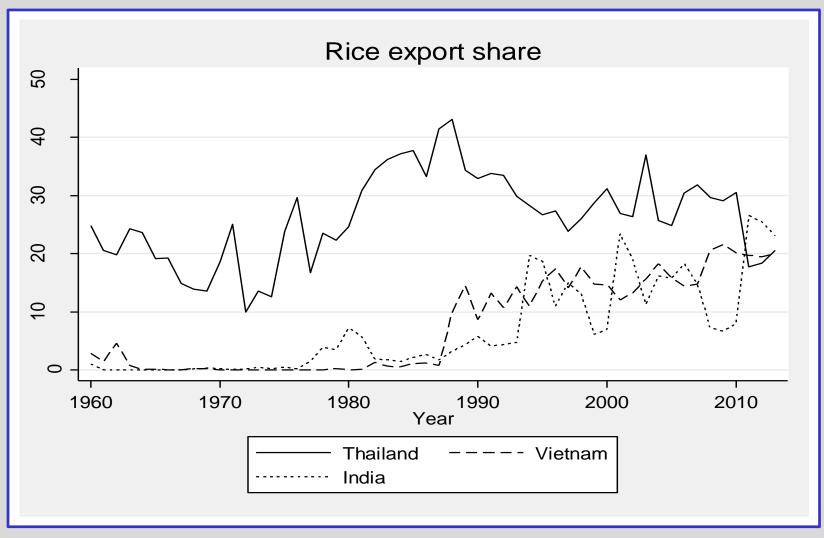


### Production and consumption





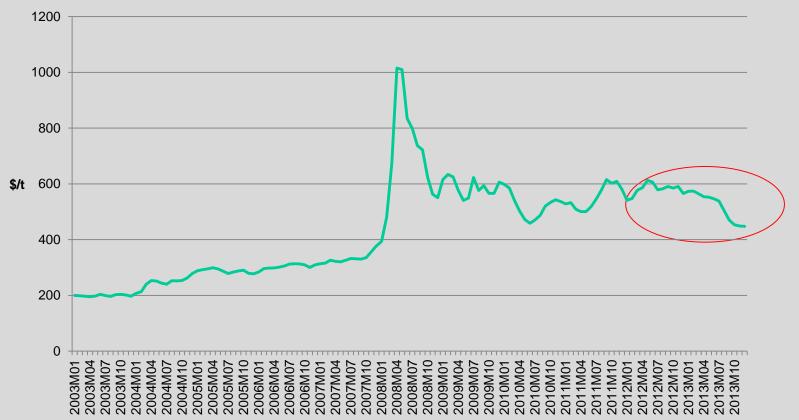
### **Declining export share**





# Falling export prices 2003-2013

#### Thai rice price



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



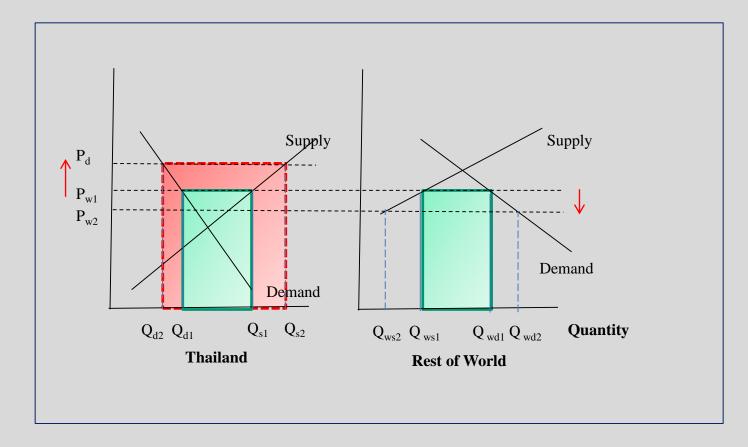
## Analytical framework

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





### **Domestic floor price**





**Government options** 

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





		Baseline	Pledging Stock scheme purchase		Stock sell-off	Producer support	
Output	kt	20.3	22.7	23.0	22.5	20.3	1
Consumption	kt	10.3	9.4	9.3	9.5	10.3	$\downarrow$
Exports	kt	10.0	13.2	3.7	18.5	10.0	Ŷ
Stocks - private	kt	2.8	0.0	-	1.1	2.8	$\downarrow$
Stocks – Govt	kt	2.8	2.8	30.0	2.8	2.8	1



#### **Price effects**

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



#### Welfare change

		Pledging scheme	Stock purchase	Stock sell- off	Producer support	
Consumer surplus	\$b	-2.4	-3.0	-2.2	-	Ŷ
Producer surplus	\$b	5.1	6.6	4.8	3.1	$\downarrow$
Govt revenue	\$b	-3.8	-5.2	-5.4	-3.1	1
Speculative profits	\$b	0.3	2.9		_	$\downarrow$
Welfare	\$b	-0.8	-9.9	1.7	-0.0	$\uparrow$



- 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<sup>b</sup>
- 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 Pw



#### **Stockholding equations**

Private

 $EPS = \rho(E(P)-P) + OPS$ where  $\rho = (1-f-g)\sigma$  S/P

Government

EGS-OGS =  $\lambda$ (Pmin-P) if P<Pmin =  $\lambda$ (Pmax-P) if P>Pmax = 0 if Pmin>P>Pmax



#### **More equations**

#### Market clearing D-S+OPS+OGS-EPS-EGS=0

Welfare W=CS + PS + GR

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