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Rice mountain

Assessment of the Thai rice pledging program

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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

Outline

- 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

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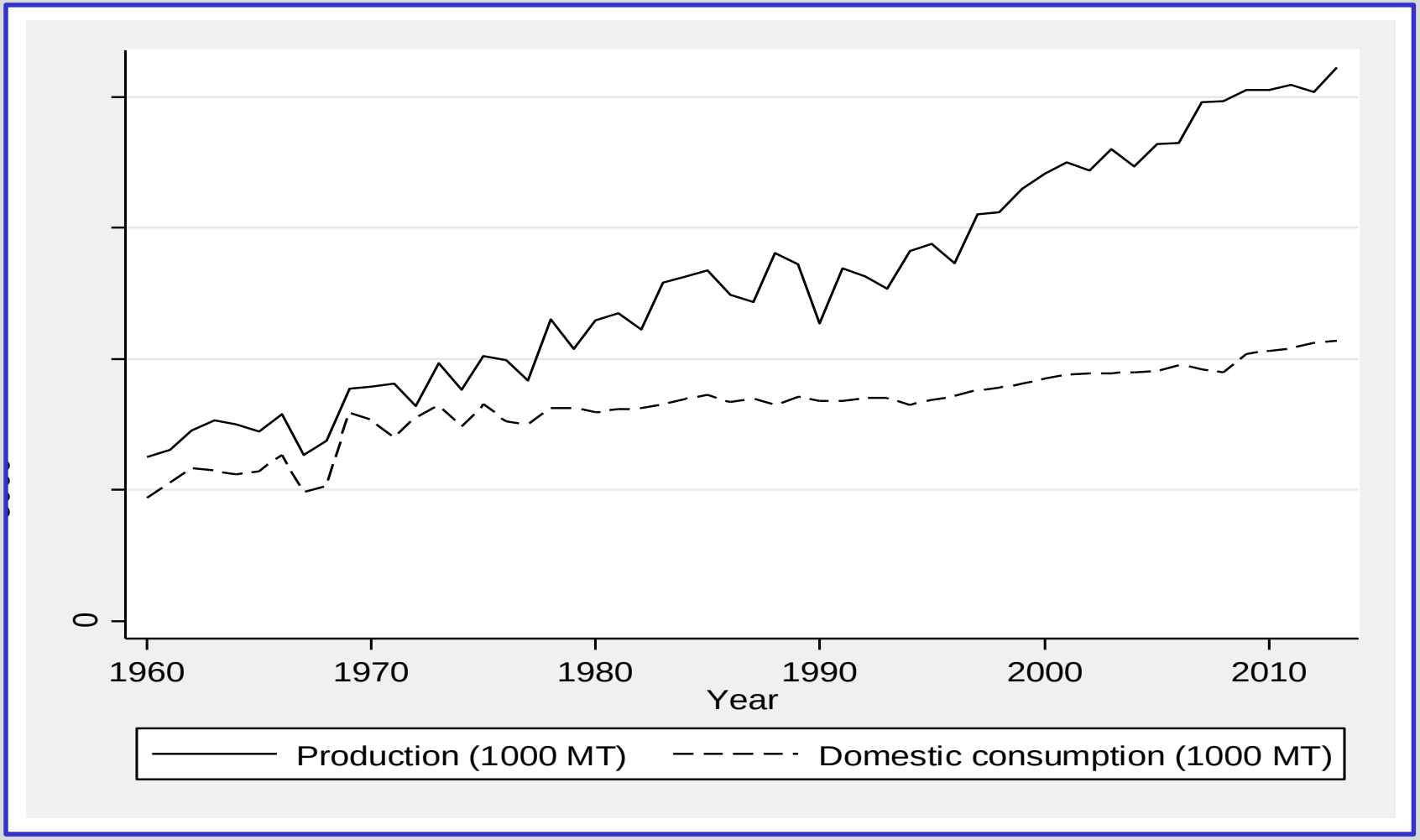
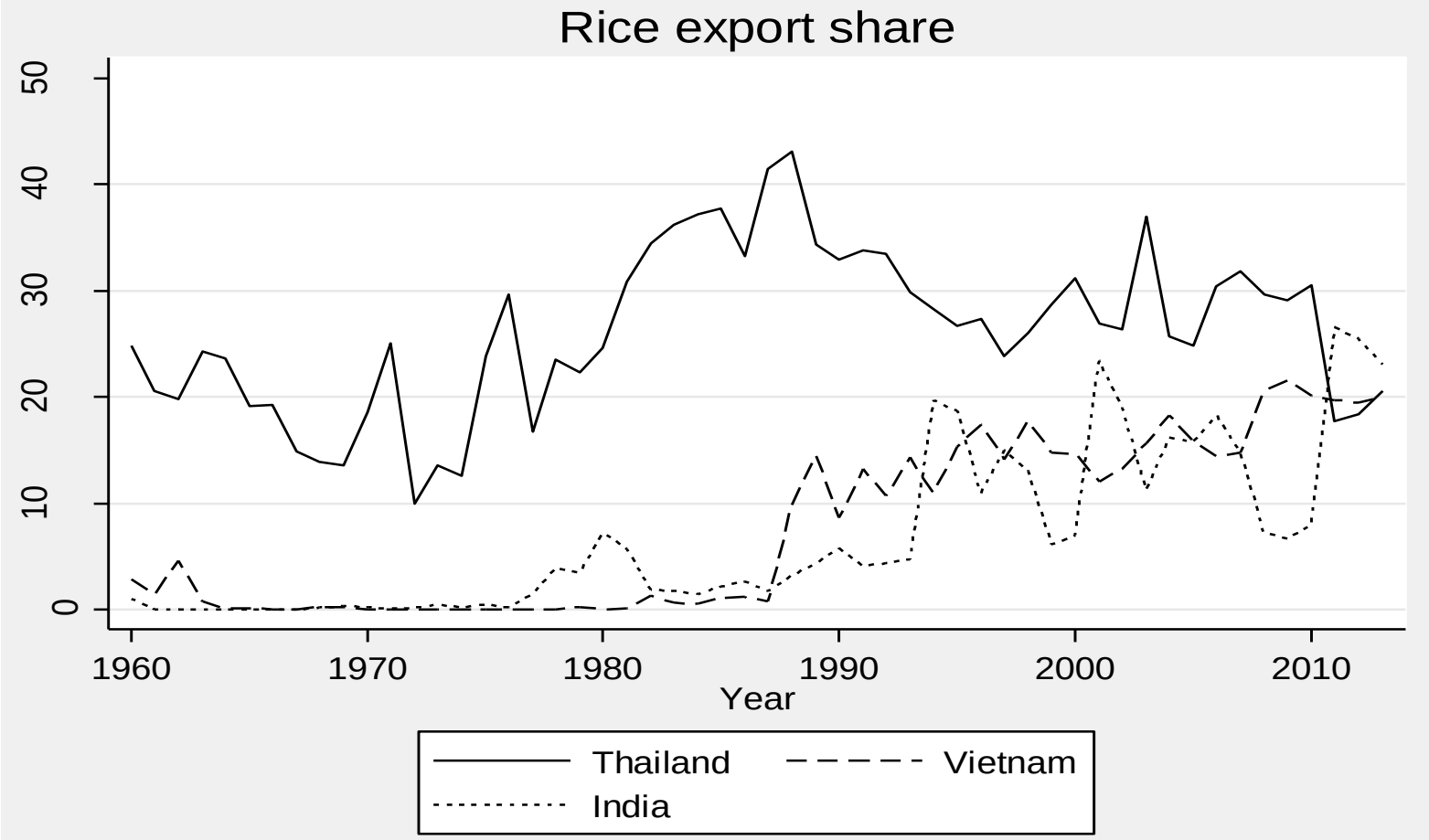
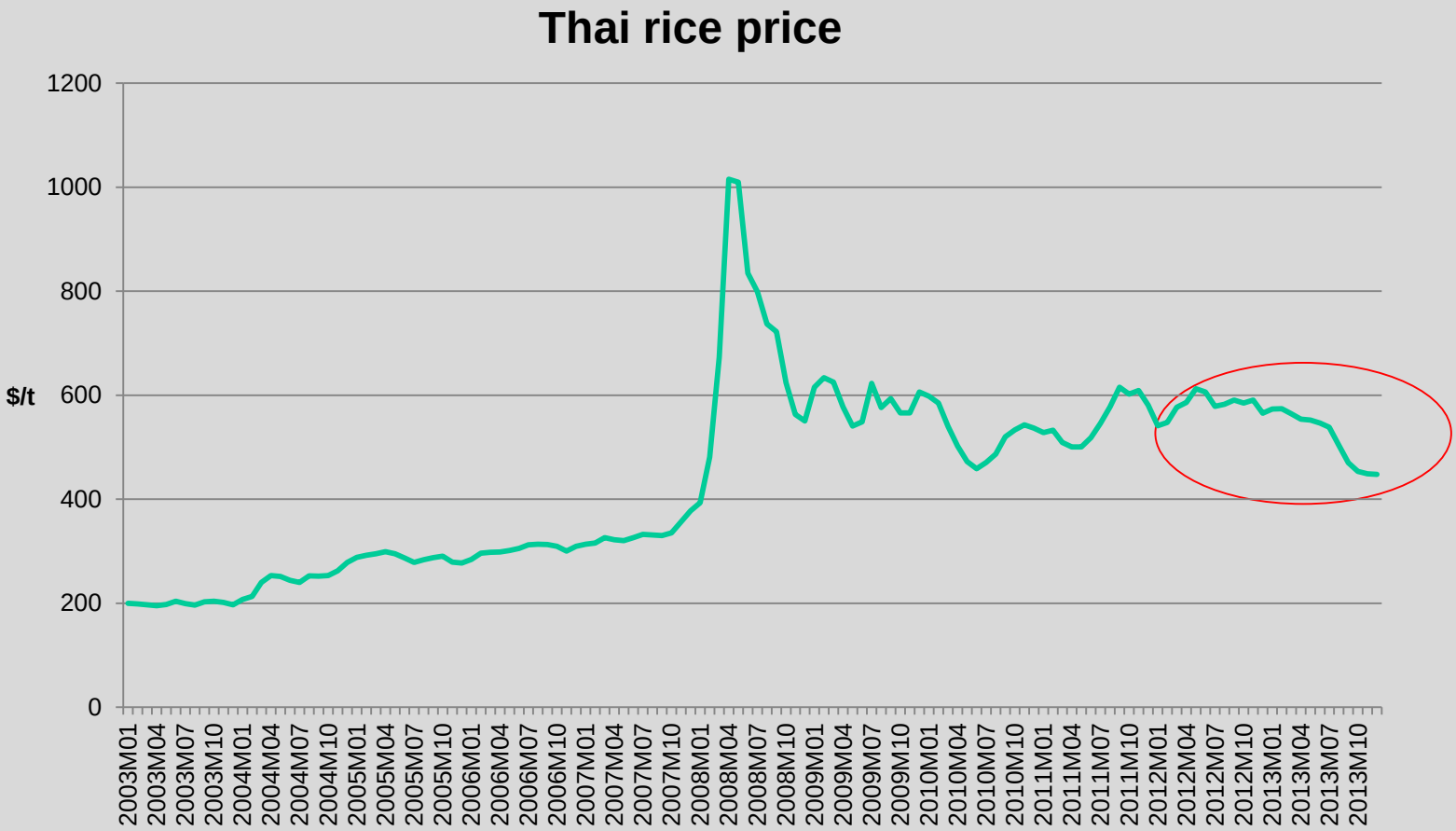
Production and consumption



Declining export share



Falling export prices
2003-2013

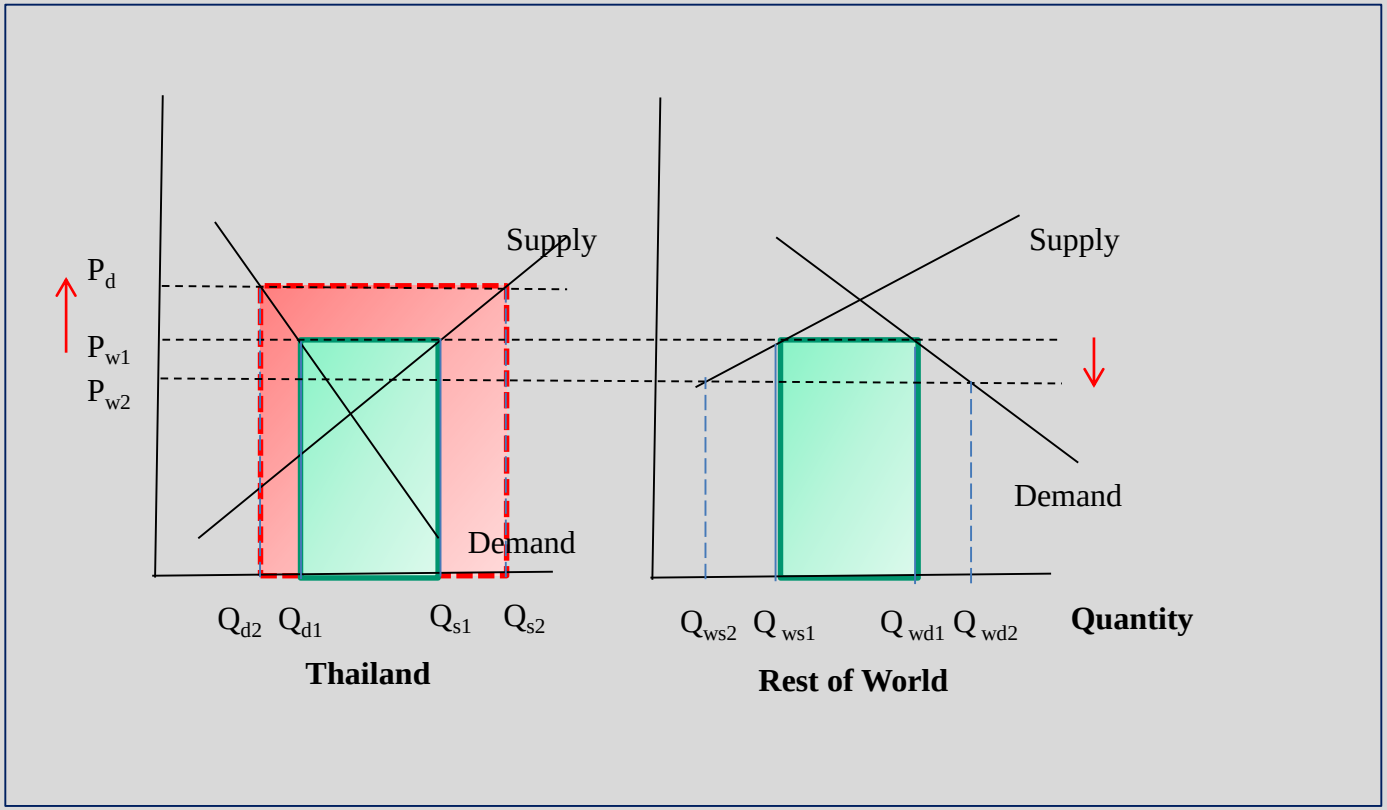


Rice, 5 percent broken milled white rice, Thailand nominal. Source IMF

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

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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 implications

- 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

  $E(P)= w_1P_{(t-1)} + w_2P_{(t-2)} + w_3P_{(t-3)}$

- 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

$t_i = -0.5 [\sigma^2_i/P^*_i (s_i (\eta_i - r_i) - \beta_i]$