

Getting on The Map:

The Political Economy of State-Level Electricity Res

by

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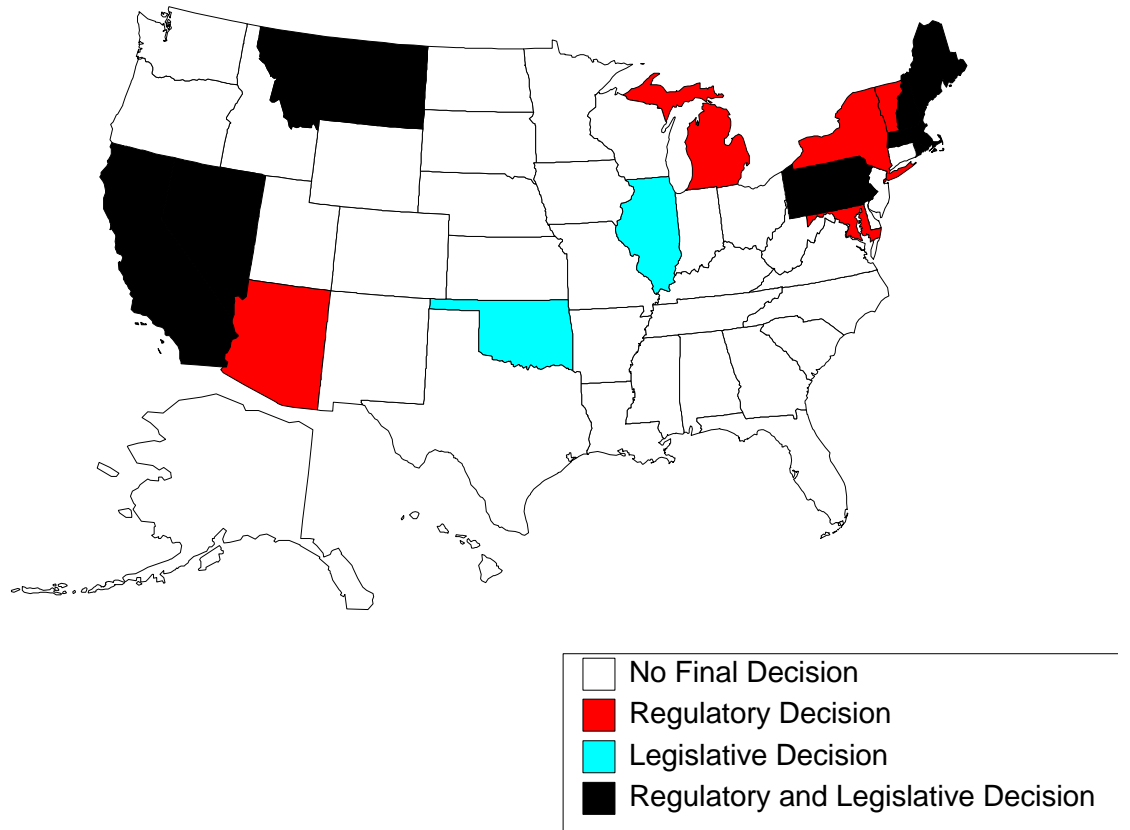
Resources for the Future

A Presentation to Third Annual POWER Research Conference
on Electricity Industry Restructuring

March 20, 1998

RETAIL WHEELING STATUS

January, 1998



Why is this research useful?

1. Inform debate over federal legislation:

- better understand how process might continue absent federal legislation
- identify potential inter-state externalities
- identify potential barriers to establishing competitive markets

2. Provide insights regarding potential political battles at implementation stage in the states

3. Explanations of state-level decisions in literature are incomplete

- White (1996) - long-run “price-gap” is *sole* explanation
- White’s theory fails to explain pro-competition actions in some states
- White ignores role of state legislatures

Definitions of The Dependent Variables

(Monthly data: 10/92 - 12/97)

Regulatory (PUC) Decisions (*exclude Nebraska, include D.C.*)

0. No Action

1. Consideration: formal inquiry,
informal discussions oriented toward p
recommendation, or

2. Decision:

issuance of pro-competition staff repor
final order with date, or
requirement of filings from utilities wi

Legislative Decisions (*exclude D.C.*)

0. No Action

1. Consideration: introduction of bill calling for study of
competition,
implementation of pilot program, or
adoption of retail competition

2. Decision:

governor signs bill mandating retail co
particular date

Political Economy and Independent Variable

Measures of Potential Gains (or Losses) to Relevant Interest

- Average Price Level
 - Consumers in high price states gain / IOUs lose
 - IOUs in low price states gain / consumers lose
 - High priced states attractive to new entrants
- Ratio of Stranded Cost to Equity
 - Absent recovery, measure of utility loss / consumer gain
 - Given recovery, could be measure of IOU gain
- Import Price Gap
 - [= $\text{Max}(\text{own price} - \text{lowest neighbor price}, 0)$]
 - Gains to consumers, losses to IOUs
- Export Price Gap
 - [= $\text{Max}(\text{highest neighbor price} - \text{own price}, 0)$]
 - Gains to IOUs, potential losses to consumers
- Standard Deviation of Average Utility Prices
 - Gains to customers of high price utilities
 - Losses to customers of low price utilities

Political Economy and Independent Variables (co

Measures of Interest Group Size or Strength

- Industrial customer share of utility revenue
- Muni and coop share of total generation
- Environmental constituencies: average LCV rating

Institutional Factors and Characteristics of Decision Making E

- Indicator if neighboring state has reached decision stage
 - could imply lower transactions costs if neighbor has a
 - could imply higher benefits from going to competitionhas advanced
- Dummy variable = 1 if PUC is appointed (versus elected)
- Dummy variable = 1 if Republican party has control o
of state legislature

Dependent Variables

Values for December 1997

Legislative Status	Regulatory Status		
	0: No action	1: Consideration	2: Decision
0: No action	1	5	0
1: Consideration	4	26	5
2: Decision	0	2	8
Total	5	33	13

Ordered Probit Analysis of Regulatory and Legislative Status as of December 1997

Question: What are important determinants of how far decision maker has progressed (stages 0, 1 or 2) as of December 1997?

Independent variables influence propensity to move toward final action through a latent continuous variable:

$$(1) \quad Y_j^* = B'X_j + e_j$$

e_j is distributed standard normal

Probability we observe decision maker j in category i , where $i = 0, 1, \text{ or } 2$ is given by:

$$\Pr(Y_j = 0) = \Phi(m_0 - B'X_j)$$

$$(2) \quad \Pr(Y_j = 1) = \Phi(m_1 - B'X_j) - \Phi(m_0 - B'X_j)$$

$$\Pr(Y_j = 2) = 1 - \Phi(m_1 - B'X_j)$$

where Φ is the standard normal cc
and $m_1 > m_0$.

Results of Ordered Probit Analyses

Variable	Legislative Status		Regulatory Status	
	Coefficient		Coefficient	
Price	33.47	*	19.96	
Import gap	14.39		13.62	
Export gap	15.82		39.45	*
Stranded costs	.25		.58	*
Weighted S.D. of price	-31.12		71.40	*
Industrial share	-1.15		2.34	
Munis and coops	-.61		-3.76	**
Republican control	-.03			
PUC appointed			-.03	
LCV rating	-1.01		.52	

Note: * denotes significance at the 10% level;
 ** denotes significance at the %5 level.

Average Effects of One-Standard Deviation Changes in Independent Variables on Estimated Probabilities of Status

		Average Probability Status = 0	Average Probability Status = 1
Legislative Status	Sample Data Predicted Probabilities	.10	.70
	Increase Price by .02	.03 (-.07)	.59 (-.11)
Regulatory Status	Sample Data Predicted Probabilities	.08	.66
	Increase Export Gap by .012	.04 (-.04)	.60 (-.04)
	Increase Stranded Cost Ratio by .929	.04 (-.04)	.59 (-.04)
	Increase weighted S.D. of price by .007	.04 (-.04)	.60 (-.04)
	Increase Muni/coop share by .217	.19 (.11)	.67 (.03)

Duration Analysis Method

Method used to look at unemployment and determinants of lengths of spells.

Look at process of transitioning through the stages we've identified.

Hazard function $I_j(t)$ represents random process determining when agent transitions to next stage.

In discrete time:

$$(3) \quad I_j(t) = \frac{\Pr(T_j^* = t)}{\Pr(T_j^* \geq t)} \text{ where } T_j^* \text{ is time of exit}$$

The survival function (probability agent hasn't transitioned yet) is:

$$(4) \quad S_j(t) = \exp\left(-\sum_{s=0}^t I_j(s)\right)$$

Cox proportional hazard model implies:

$$(5) \quad I_j(t) = \exp(B' X_j) \cdot I_0(t)$$

where $I_0(t)$ is baseline hazard function common to all observations.

Duration Analysis of Transition from Legislative Status 0 (No Action) to 1 (Consideration)

Variable	Coef.		ΔX	Multiplicative Effect of ΔX on hazard rate	Expected # before Co given ΔX 43.2 n
Price - .037	48.46	**	.020	2.64	34.8
Import gap	-7.60				
Export gap	32.32	*	.012	1.47	39.5
Stranded costs	.45	**	.929	1.53	39.2
Weighted S.D. of price -.011	-43.62				
Neighbor = 2 last month	-.60				
Industrial share - .26	-3.78				
Munis and coops - .246	.51				
Republican control	-.003				
LCV Rating	-.49				

Note: * denotes significance at the 10% level; ** denotes significance at the %5 level.

Note: The baseline case sets all independent variables equal to 0.

Note: ΔX is a one standard-deviation change in the dependent variable

Duration Analysis of Transition from Regulatory Status 0 (No Action) to 1 (Consideration)

Variable	Coef.		ΔX	Multiplicative Effect of ΔX on hazard rate	Expected hazard rate before Consideration given ΔX 62.3 n
Price - .037	2.67				
Import gap	41.78	**	.012	1.56	53.5
Export gap	6.01				
Stranded costs	.13				
Weighted S.D. of price -.011	56.87	*	.007	1.52	55.2
Neighbor = 2 last month	.77				
Industrial share - .26	-.25				
Munis and coops - .246	-3.64	**	.22	.52	80.0
Republican control	.26				
LCV Rating	-.81				

Note: * denotes significance at the 10% level; ** denotes significance at the %5 level.

Note: The baseline case sets all independent variables equal to 0.

Note: ΔX is a one standard-deviation change in the dependent variable

Summary of Results of Preliminary Duration Analysis of Later Stages

- Legislators are moving faster from the consideration stage to the decision stage in states with high prices relative to neighbors.
- Pressure from environmental constituencies slows down legislative transition from consideration to decision stage.
- Regulators in states with high prices appear to become more responsive to pressure from consumers at later stages.
- Regulators also appear to be responding to pressure from industrial customers and low price utilities to make a final decision in favor of retail competition.
- Appointed PUCs appear to move more slowly than elected PUCs to the final decision stage.

Conclusions

- In general, interest groups whose interests coincide with efficiency-enhancing policies appear to prevail.
- High prices and high stranded costs push legislators and regulators to move toward competition.
- Regulators are responsive to in-state variation in price while legislators are not.
- Access to profitable export markets also has positive effect on decision to consider or adopt competition.
- We find no evidence of inter-state externalities affecting decisions.
- So far, the right states appear to be “on the map.”