

ε Energy Elasticity Survey

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Outline

Why Important

Earlier Survey Work

New Work

Time Series Evolution

Survey Strategy

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Why Important?

Forecast P and Q

EIA/DOE

IEA

WEC

ConocoPhillips

ExxonMobil

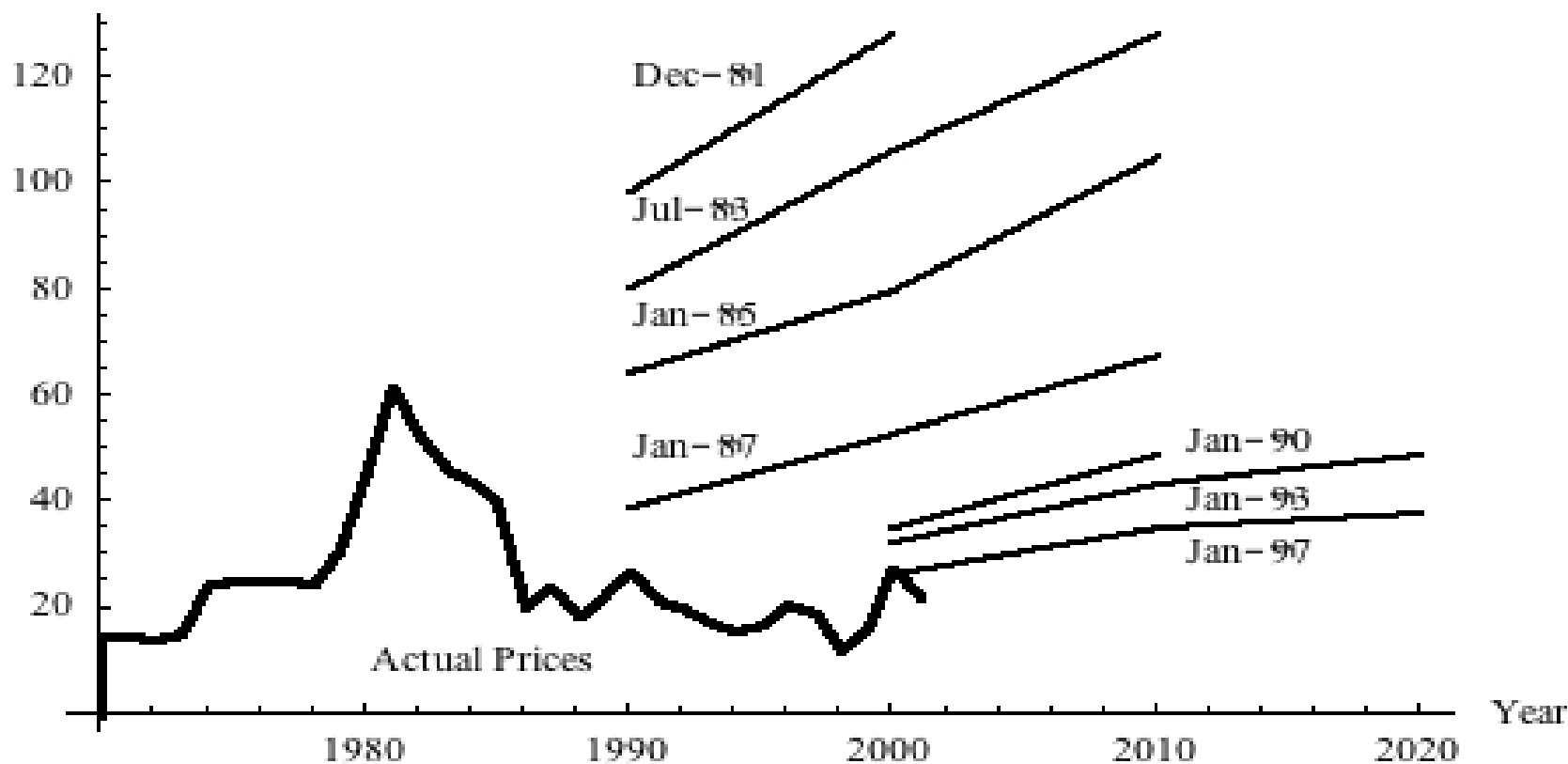
OPEC

SR, LR, Disruptions



Forecasting

2001 \$ per Barrel





Why Important?

Economy - Energy Interactions

how does energy track the business cycle

China and US consumption in 2004

feedback from energy to economy

subsidies

development

save jobs

£

Why Important?

Analyze Policy?

Tax

Environment

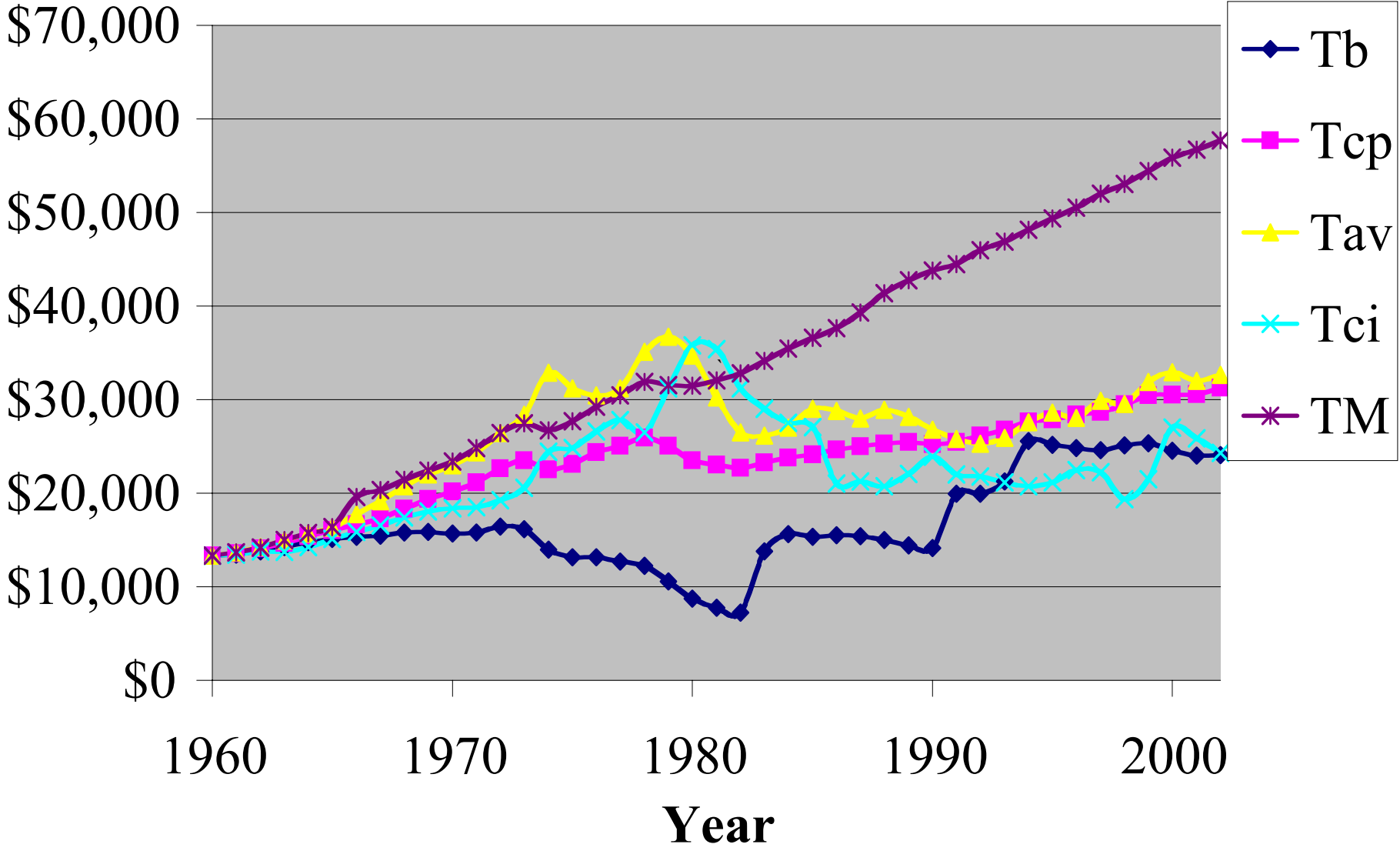
Raise revenues

general revenues

highways

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US Highway Trust Fund Taxes Revenues Under Various Tax Regime



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Earlier Survey Work?

Demand for Energy US

Demand for Transportation Fuels

Demand for Energy in Developing Countries

Cross Elasticities of Natural Gas

Update

Other Industrial Countries

S Table: Range of U.S. Energy Price and Income Elasticities

	Price Elasticities		Income Elasticities	
	Psr	Pir&Plr	Ysr	Yir&Ylr
E	-0.09/-0.52	-.04/-1.75	--	.27/1.14
E-r	-0.15	-.37/-.66	1.17	.08/1.45
E-i	-0.09/-0.66	.23/-.99	--	.69/1
E-ii	0/-1.09	0/-1.10	--	0.89
E1	-0.05	-.61/-1.31	--	--
E1-r	0.57/-0.97	+.77/-2.2	-.02/.93	-.09/1.64
E1-c	0/-.82	+3.36/-4.74	-.45/.26	-21.12/1.39
E1-i	0.06/-1.03	+17.4/-3.55	.01/.28	-1.01/1.44
E1-ii	-0.03/-1.51	-.11/-2.5	-.1/.82	.25/1.63

S Table: Range of U.S. Energy Price and Income Elasticities

	Price Elasticities		Income Elasticities	
	Ps_r	P_{ir}&P_{lr}	Y_{sr}	Y_{ir}&Y_{lr}
Ng	--	-.03/-.49	--	.62/.79
Ng-r	0.02/-0.88	+1.86/-3.44	.01/.44	.06/.80
Ng-c	-0.16/-0.37	1.92/-2.68	-.33/.3	-2.19/1.95
Ng-e	--	-.1/-1.89	--	--
Ng-i	-0.26/-0.63	.71/-5.28	.13/.78	.46/3.08
Ng-ii	-0.08/-1.63	-.12/-10.0	.14/1.74	.32/4.46
C-e	--	-.12/-.9	--	--
C-i	-0.02/-1.62	+.08/-1.12	--	--
C-ii	-0.84	-.28/-2.52	--	--

Table: Range of U.S. Energy Price and Income Elasticities

	Price Elasticities		Income Elasticities	
	Psr	Pir&Plr	Ysr	Yir&Ylr
O	-0.04/-0.25	-.25/-.94	--	0.31/1.13
O-r	-0.1/-0.59	-.62/-3.5	-.08/.21	-.28/2.28
O-c	-0.07/-0.19	-.3/-3.5	0.2	4.39
O-e	--	-.08/-3.11	--	--
O-i	-0.13/-0.21	-.08/-.44	--	--
O-ii	-0.28/-0.58	-.36/-4.05	--	--
O-ntr	.03/-.19	.1/-2.35	.03/0.38	.82/1.47
G	0/-0.36	.00/-1.99	.09/0.65	.09/1.22
J	--	-.1/-.39	--	.07/.68
O-t	0/-0.14	0/-.92	--	.63/1.1
VMT	.10/-.22	-0/-.33	-.07/.39	-0.2/1.09
MPG	.00/.01	.03/.21	--	--

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New Work

Still Large Variation

Methodology

Simple - Static, Koyck

Translog, Logit, Generalized Leontief

Time Series

Engle and Granger - Nobel Prices

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Evolution of Time Series

ARMA

ARMAX

VAR

Stationarity

Cointegrated

Error Correction



Survey Strategy

Online Searchable Data Base

Old Studies

New Studies

Criteria to Evaluate Studies

Research Agenda

What we know

What we want to know