International Energy Transport Policies: Do They Matter?

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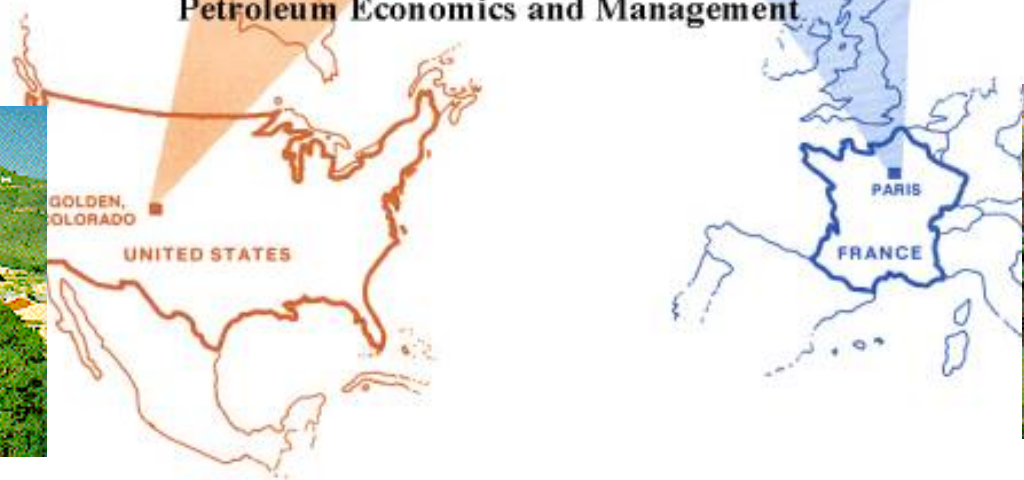

Project at EIA

Energy Information Administration
Official Energy Statistics from the U.S. Government

Office of Integrated Analysis and Forecasting

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Paper does not necessarily reflect the views of EIA

For completed draft

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business card - back ETP draft

Coming Attractions

Various policies affect transport fuel use

Gasoline and diesel for road use

1. Taxes and subsidies

2. Policies aimed at vehicles

gas guzzler taxes

cash for clunkers

café standards

feebates

biofuel/flex fuel policies

3. Transport and land use policies

Taxes and Subsidies

original purpose

- **revenue**
- **political popularity and development**
- **highway funding**

investigate changing policy

- **remove subsidy**
- **tax to fund highways**
- **raise tax to include externalities**

Compute Tax or Subsidy

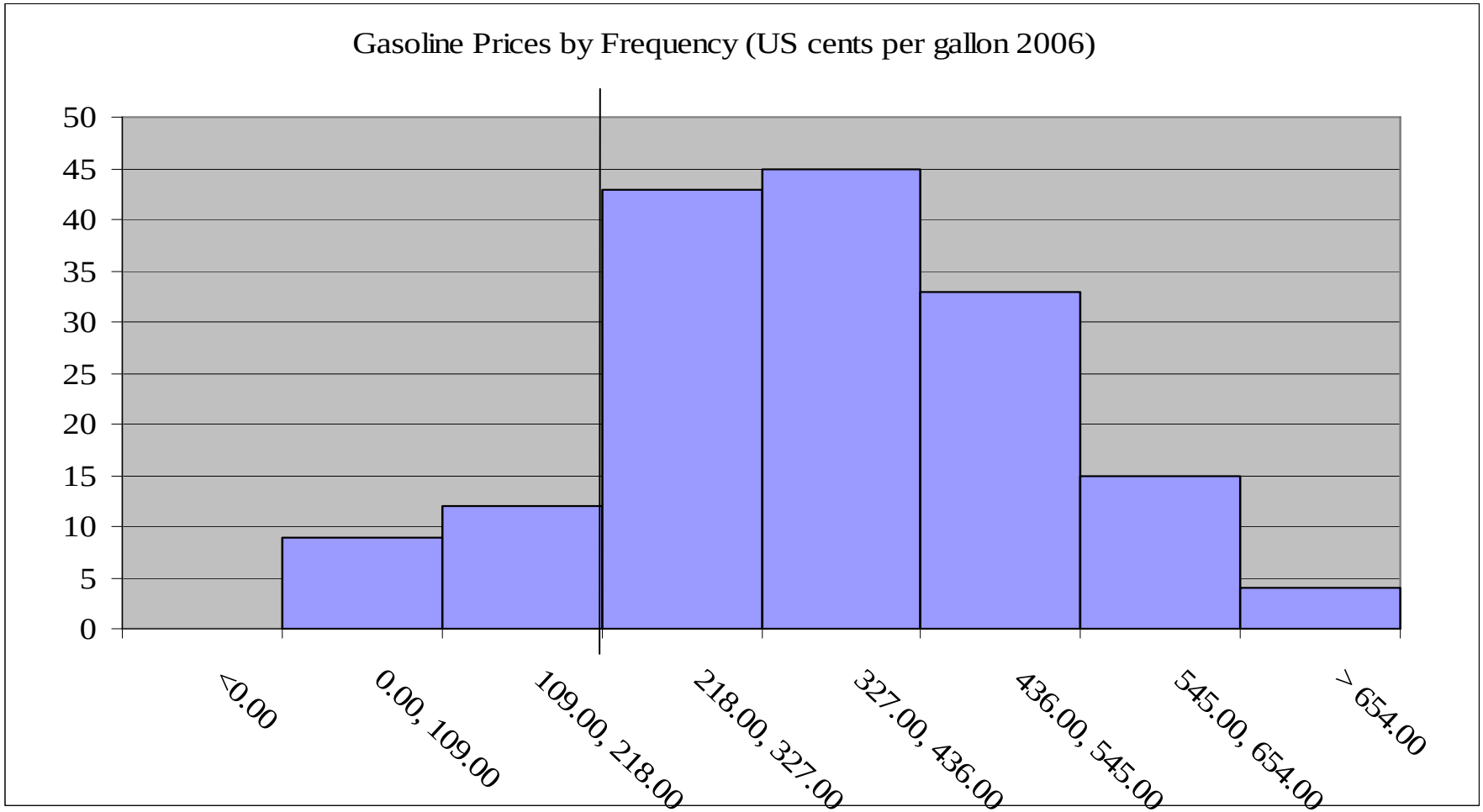
IEA reports for some

Retail Price - Reference Price where not available

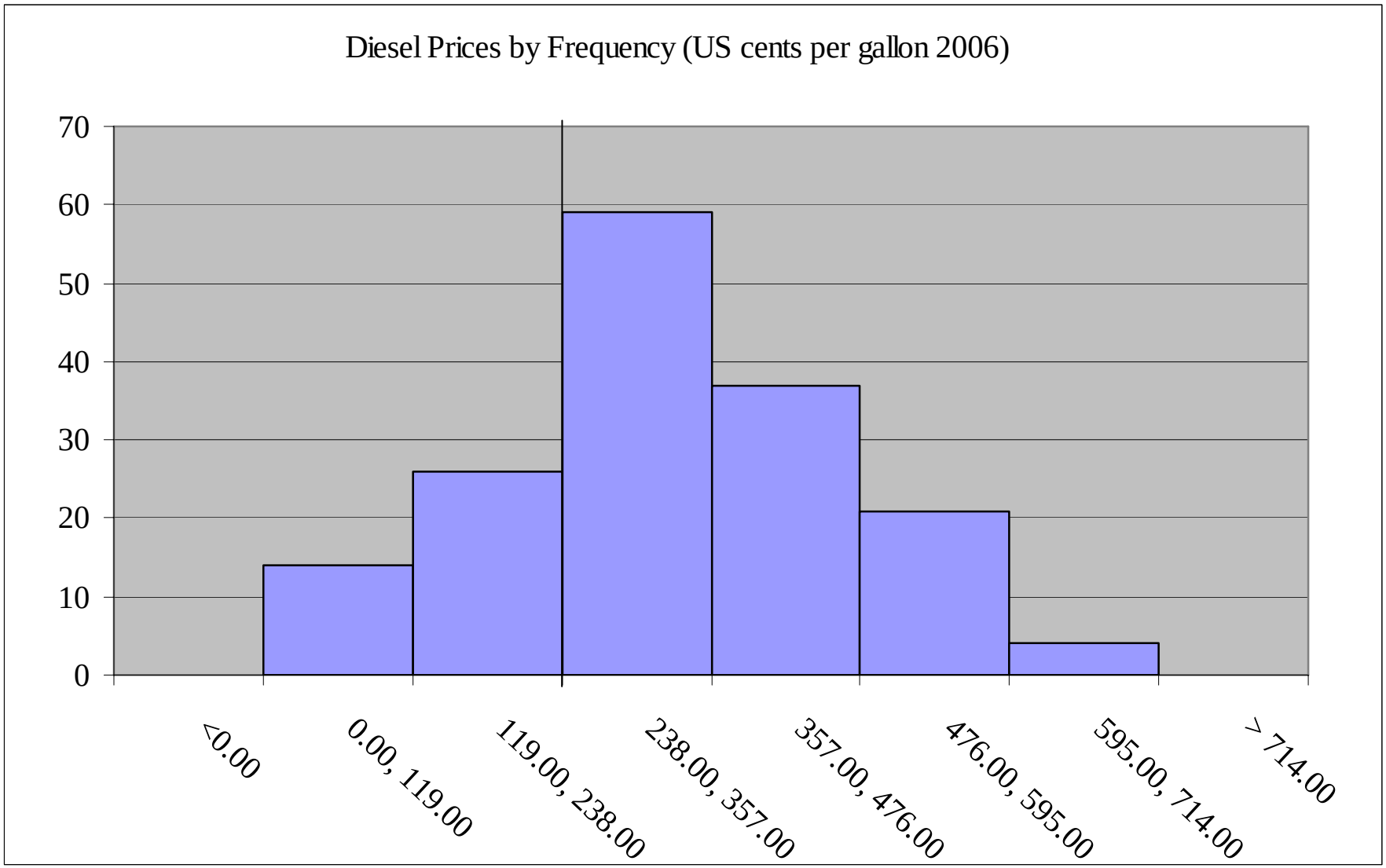
- **Singapore**
- **New York Harbor**
- **Rotterdam**
  - **+ distribution margin**
  - **computed from countries where tax available**

Gasoline Prices

130 countries



Diesel Prices

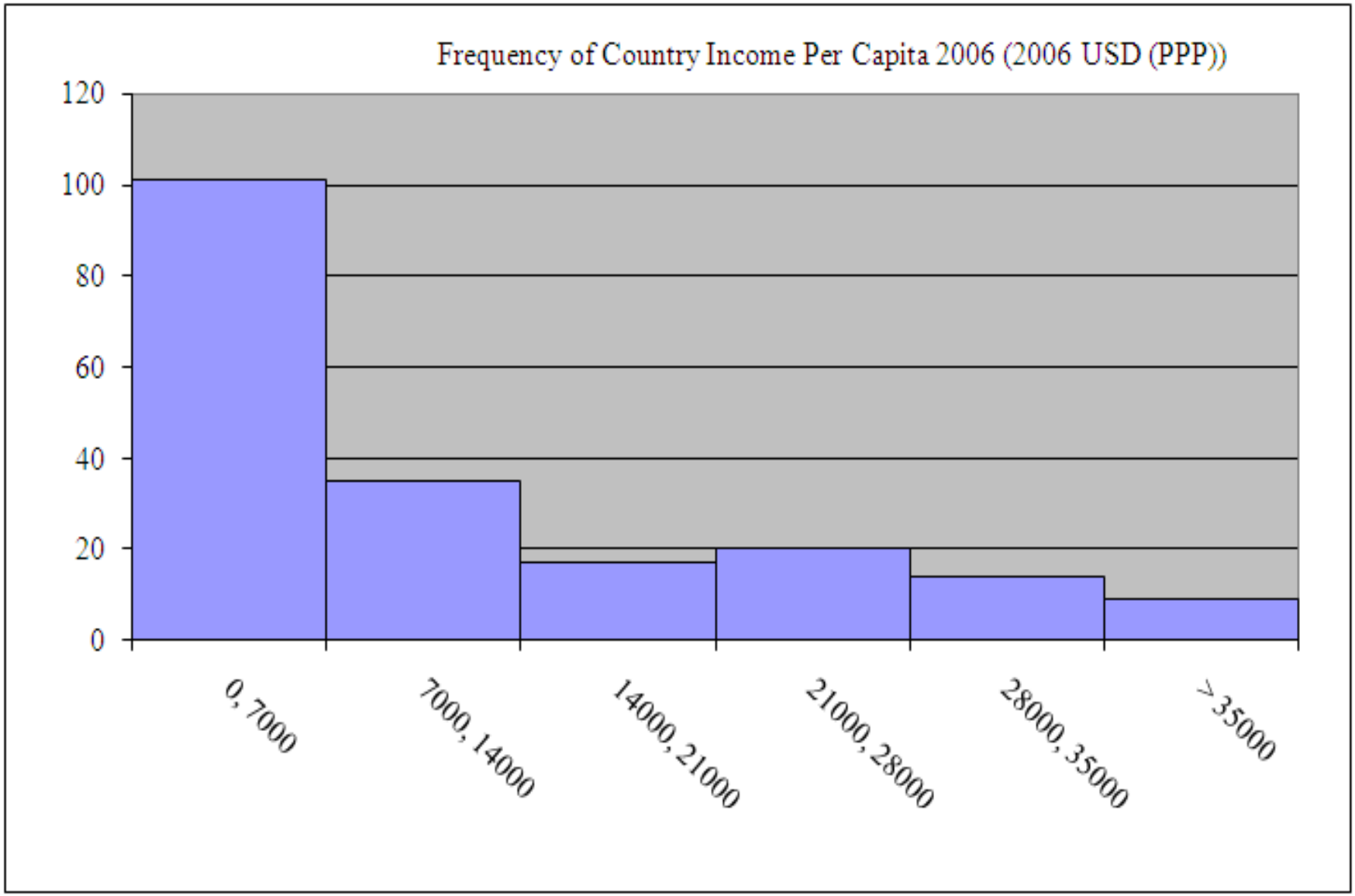


Develop Elasticities

One year affect

- **static models**
- **95 countries for gasoline**
- **56 countries for diesel**
- **fill in for rest**
  - **look at differences by price and income**

Frequency Distribution of Sample Income



Gasoline

	Y<10000	10000<Y<20000	Y>20000	Fcrit=	2.53
P<100	-0.15	-0.11	-0.22	F(4,58)	33.35
100<P<250	-0.22	-0.24	-0.22		
P>250	-0.26	-0.32	-0.33		

Diesel

D	Y<15000	Y>15000	Fcrit=	2.64
P<250	-0.22	-0.13	F(4,39-4)=	13.87
P>250	-0.38	-0.27		

Forecast New Consumption

P_1 = price original

P_2 = price after tax or subsidy change

β = elasticity at new price

Assume supplier pays none of tax

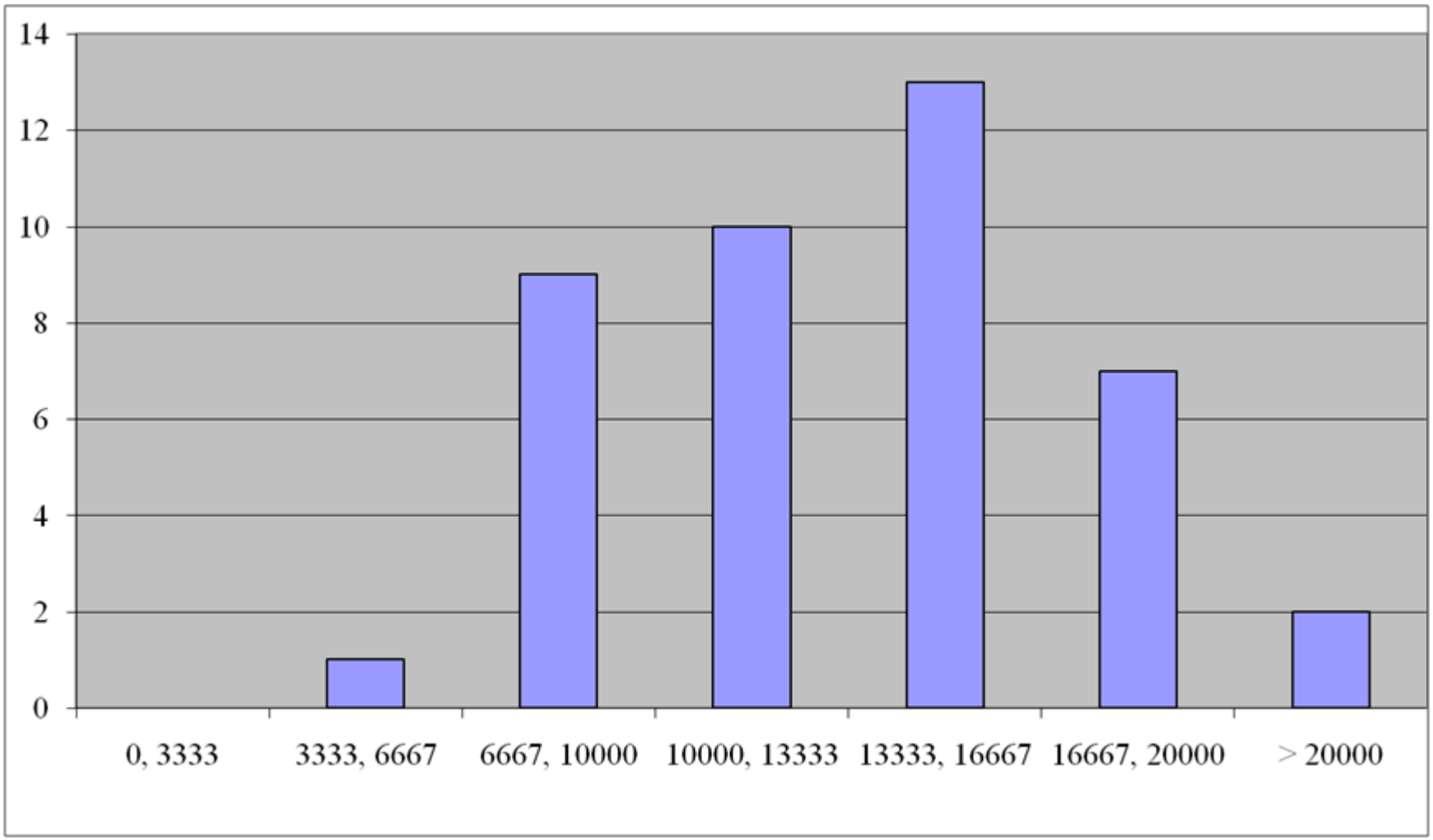
$$Q_2/Q_1 = (P_2/P_1)^{\beta}$$

Results for Five Cases

	G	D
Case 1 Raise all subsidized gasoline to production cost	-2.6%	-3.1%
Case 2. Leave subsidies but remove all taxes	9.3%	5.4%
Case 3. Include indirect road costs for all countries	1.7%	0.8%
Case 3. Include indirect road costs for all countries	-4.7%	-3.8%
Case 5. Raise taxes so gasoline cost 712 and diesel cost 674	-28.8%	-19.9%

Transport and Local Land Use Policy

44 cities (energy consumption in vehicle transport)



Log Model City Data Energy Consumption Tranport

Variable	lnY					$\bar{R}^2$	R^2
Parameter	0.397					0.261	0.279
P value	0.000						
Variable	lnPg	lnY				$\bar{R}^2$	R^2
Parameter	-0.611	0.332				0.316	0.349
P value	0.001	0.002					
Variable	lnPg	lnY	lnDens			$\bar{R}^2$	R^2
Parameter	-0.362	0.337	-0.362			0.538	0.570
P value	0.010	0.000	0.000				

Future Work

Plenary Session

- **Energy Economist**
- **Transport Economist**
- **Urban Land Planner**

Interdisciplinary Research to Educate Policy Makers

Log Preferred – 130 countries
Gasoline Demand

Variable	LY/pop			$\bar{R}^2$	R^2
Parameter	1.041			0.711	0.714
P value	0.000				
Variable	LPg	LY/pop		$\bar{R}^2$	R^2
Parameter	-0.475	1.058		0.771	0.775
P value	0.000	0.000			
Variable	LPg	LY/pop	L%Urb	$\bar{R}^2$	R^2
Parameter	-0.456	0.951	0.411	0.777	0.782
P value	0.000	0.000	0.036		

Conclusions

Increasing taxes and reducing subsidies would help

- **Need large and increasing to have large effects**

Elasticities

- **price - threshholds**
- **may increase with income**
- **may increase with price**

Urban Transport and Land Use Policies

- **important energy policies**
- **seem more important than price**