Economic Justification of Weights and Measures Programs
Programs

• Device Inspection
• Package Inspection
• Price Accuracy
• Weighmaster
• Petroleum
Traditional Value Measure

Program Cost/Population = Cost per person to provide the service

Assumes benefit > cost
San Bernardino
Traditional Measure

• 1,971,000 people
• $2,014,000 program cost

$1.02/person
Who benefits from short measures

- Businesses selling
- Government when not the consumer
- Dieters
Who benefits from excess measures

• Businesses buying
• Consumers
Quantifying the impacts

• Population Involved
• Amount of Goods Purchased
  • Value of goods
  • Per Capita Income
• % Spent on Goods
  • Size of Error
Our Focus: Common Items

• Gasoline
• Produce
• Meat
• General Merchandise
Assumptions

• Overall market place error should be zero
  • Consumption patterns are uniform
  • No change in use from inaccuracies
Gasoline 1cu inch short/gallon

- County Population 1,971,000
- Gasoline sold in California 14,400,000,000 gal.
  - Per Capita Consumption 450 gallons
    - Price per gallon $3.75
    - Error $1/231=0.004329

1971000 x 450 x $3.75 x .004329 = $14,398,525
Additional Gasoline Required

• $1,971,000 \times 450 \times 0.004329 = 3,839,607$ gallons

• Additional Gas Tax paid = $691,129

• Additional Sales Tax paid = $1,187,878

• Government benefits by $1,879,000 when consumers shorted by 1 cu. in./gal.
1 oz/gal shortage

• 1971,000 x 450 x $3.75 x .0078125 =
  • $25,984,900

The general public identifies more with ounces than cubic inches!
FOOD: Produce

• 221 ounces of produce/person/week
  • 1,971,000 population
• $0.80/lb average price (5 cents/ounce)
  • 1/8 ounce per lb. error (0.0078125)

221 \times 52 \times 1,971,000 \times 0.05 \times 0.0078125 =

$8,847,900$
Food: Meat

- 56 ounces/person/week
- 1/8 ounce error/lb.
- $3.00/lb. ( $0.1875/ounce)

$$56 \times 52 \times 1,971,000 \times 0.1875 \times 0.0078125 = 8,407,500$$
General Merchandise

- $24,262 per capita income
- 30.7% spent on taxable goods
- 1 in 200 items overcharged (0.5%)
  - 10% price overcharged
  
  \[ 24262 \times 0.307 \times 1,971,000 = \$14,680,860,000 \]

Less taxable gas sales = $11,310,450,000 spent

\[ \$11,310,450,000 \times 0.005 \times 0.1 = \$5,655,000 \]
Weighmaster

• Shipping costs
• Bulk Commodities
• Highway safety and repair
Petroleum

• Economic benefit of signage
  • Product Quality
Economic benefit of signage

- Consumer choice of purchase location based on price
- $0.01 price differential for 10% of purchases

886,950,000 gallons x 10% x $0.01 = $886,950 saved
Petroleum Product Quality

Assumes one grade level difference

- Gallons Sold: 886,950,000
- Price per gallon: $0.10/gallon
- Error Rate: 1%

Lost Value = 886,950,000 x $0.10 x .01 = $886,950
Program Benefits to Public

- Gasoline $25,984,900
- Meat $8,407,500
- Produce $8,847,900
- Taxable Sales $5,655,000
- Fuel Quality $886,950
- Signage $886,950

Total $50,669,200
Economic Justification

• Program Cost $1.02/person vs

• Return $25.71/person

This is an incomplete but conservative estimate!
Additional Economic Justification

The amount of money saved from eliminating shortages in meat and produce, $17,255,400, when spent on taxable goods generates $1,337,300 in sales tax.

This is 66% of the program cost
Additional Economic Justification

• $17,255,400 spent at businesses with 1/3 going for employees.
  • Pay Levels $20,000; $25,000; $35,000 and $45,000.
    • Each level with a 1 to five ratio.

• Results in 268 jobs!
Additional Economic Justification

• State income tax on these jobs would be approximately $63,000
• Sales tax from these people’s spending generates $135,100.
Additional Economic Justification

• Taxes on the amount saved by ensuring meat and produce isn’t shortweight totals $1,535,400

• This is all generated by changing expenditures from non-taxed to taxed!
Economic Justification

• $2,014,000 program cost
• Less $1,535,400 in additional taxes
Net government expenditures = $478,600

Program Cost = $0.25/person
Program benefits = $25.71

• 103/1 Benefit to Cost Ratio in San Bernardino
  • Plus 268 jobs!