

Discussion on the Research Paper

# “The Social Cost of Thailand’s Transportation Fuel Pricing Policy”

1

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This paper analyzes the economic impacts of the transportation fuels' price distortion in Thailand between 2011-2015.

### Key issues affected the market in this period:

- Diesel price subsidy & Alternative fuel policy
- The great flood (2011)
- The 1st-car buyer scheme (2011-12),
- Global oil price crash (2015-)
- Gradual energy price reform (2014-)

### ➤ Main focus

1. Quantify economic inefficiency (DWL) of price distortion
2. How much does this tax and subsidy affect fiscal constraints?
3. Alternative policies to achieve 2 objectives
  - (i) Encourage consumers to substitute towards gasohol
  - (ii) Alleviate consumer's burden by making Diesel cheap

### ➤ Estimation strategy

1. Estimate price elasticities of demand using the AIDS model
2. Calculate the efficient price  
Efficient price = private cost + social cost

Cost of importing & refining

Cos of carbon, local pollutants, congestion & accidents

3. DWL from over- and under-consumption due to price distortions

# Demand Elasticities

## Octane 95

Variable	P(Regular 95)	P(Gasohol 95 E10)	P(Gasohol 95 E20/E85)
Q(Regular 95)	-2.28**	2.88**	-0.60
Q(Gasohol 95 E10)	0.62***	-1.67***	1.05***
Q(Gasohol 95 E20/E85)	-0.30	2.43***	-2.13***

*Large own-price elasticities, but much smaller for Diesel*

*Close substitutes among Octane 95*

## All Gasoline

Variable	P(Octane 95)	P(Octane 91)	P(Diesel)
Q(Octane 95)	-1.08**	0.68	0.40**
Q(Octane 91)	0.97*	-1.21**	0.25
Q(Diesel)	0.12	0.05	-0.17**

**How to tackle price asymmetry & many factors affected the fuel market in this period?**

The estimated elasticities are relatively large compared to prior studies ... *Consumers are recently more responsive to price changes.*

**Consumer recently becomes more price elastic. Can we just interpret this way?**

TABLE 3: Price elasticities of gasoline and diesel, selected studies

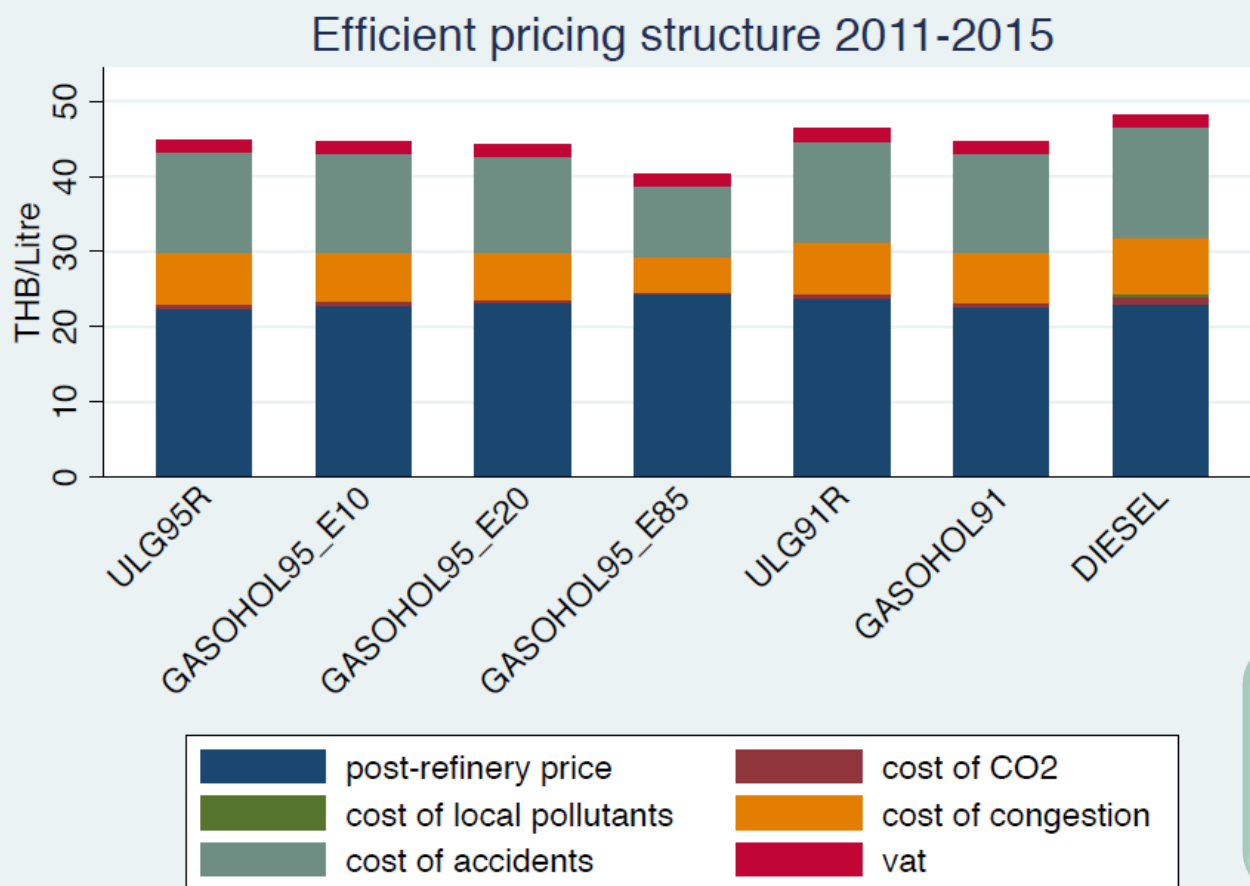
Study	Fuel Type	Own-price elasticity	Period
Koomsup et al. (2014)	Octane 91	-0.53	2002 - 2013
	Octane 95	-1.15	2002 - 2013
	Diesel	-0.68	2002 - 2013
Kansuntisukmonkol (2007)*	Benzene	-1.39	1993 - 2006
	Diesel	-1.07	1993 - 2006
Vikitset (2008)	Gasoline	-0.43	2002 - 2004
	Diesel	-0.35	2002 - 2004
Brons et al. (2008)	Gasoline	-0.34 (short-run)	various
	Gasoline	-0.84 (long-run)	various

\* refers to Kansuntisukmongkol and Tangkitvanich (2007)

**Need more intuitions why the estimations are relatively large?**

# Welfare Loss from Supoptimal Pricing

➤ Efficient prices



*Efficient prices are greater than 40THB/Litre*

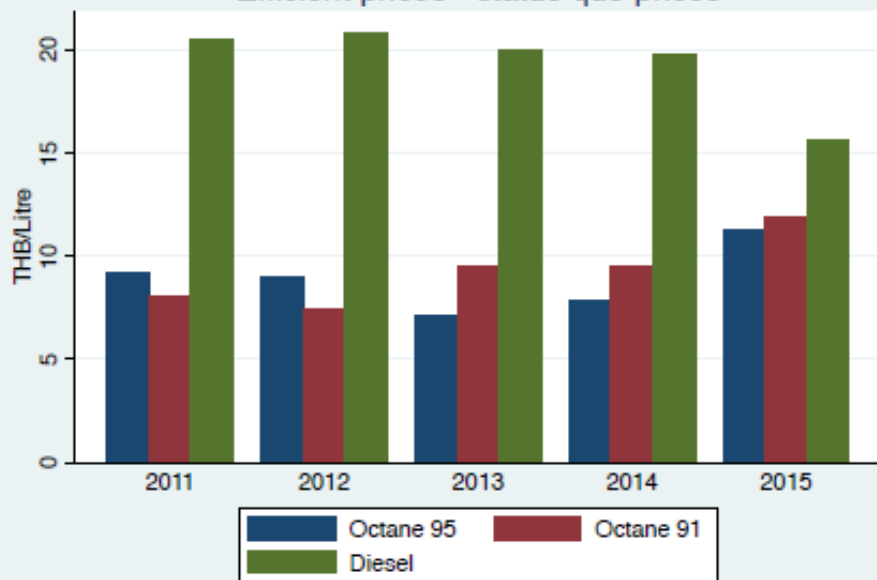
*Private costs account for 60-70%*

**Efficient prices depend much on how to quantify the social cost in Thailand**

# Welfare Loss from Supoptimal Pricing

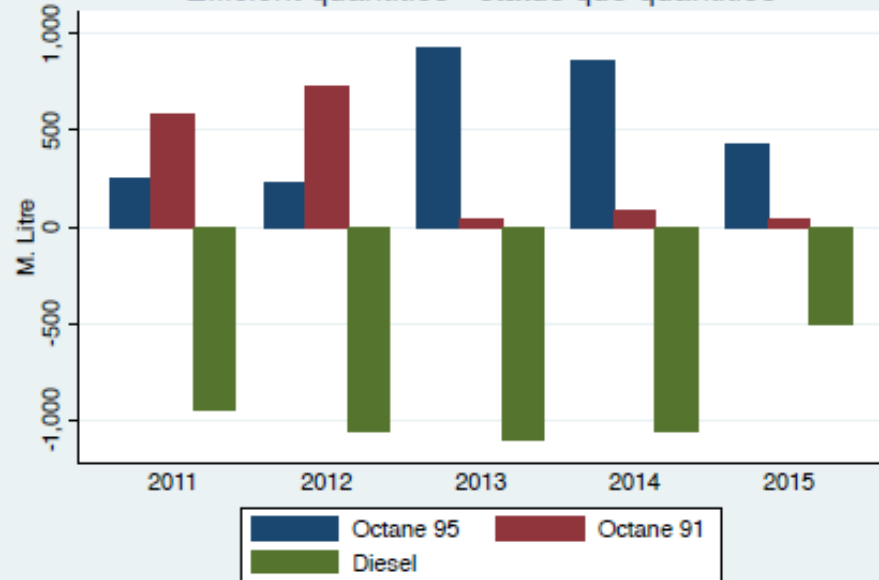
➤ Efficient Consumption: All Gasoline Group

Efficient prices - status quo prices



(A) Difference from the efficient prices

Efficient quantities - status quo quantities



(B) Difference from the efficient quantities

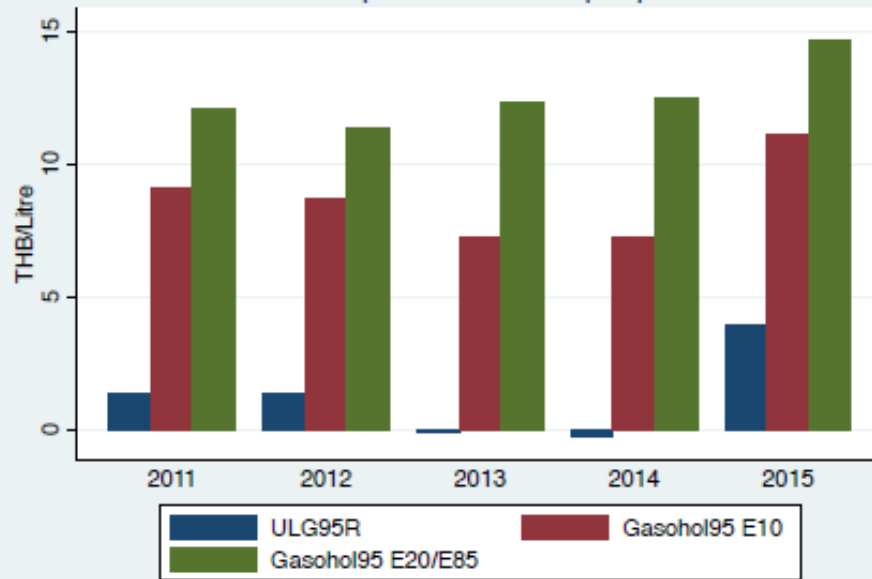
*Among all gasoline, Diesel is the most under-priced.*

**Efficient consumption depend much on how efficient prices are calculated**

# Welfare Loss from Supoptimal Pricing

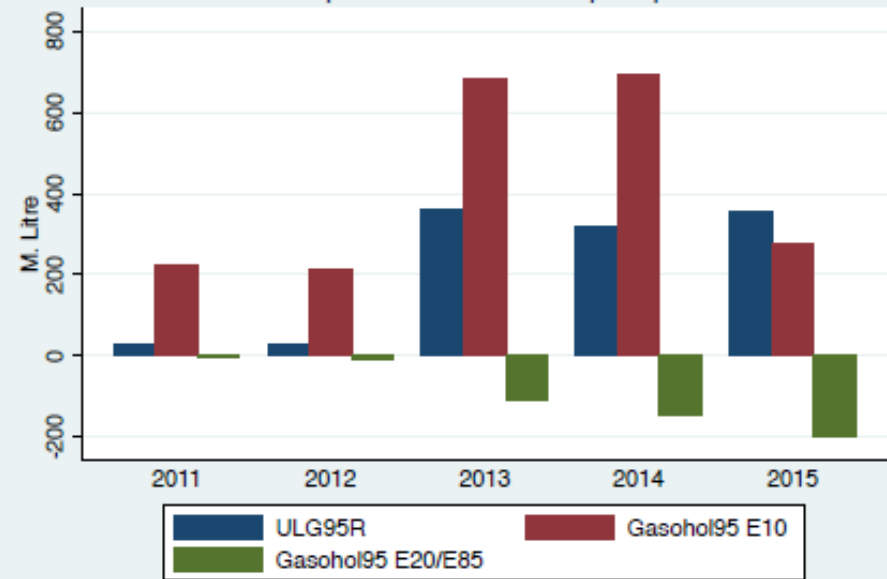
► Efficient Consumption: Octane 95 Group

Efficient prices - status quo prices



(A) Difference from the efficient prices

Efficient quantities - status quo quantities



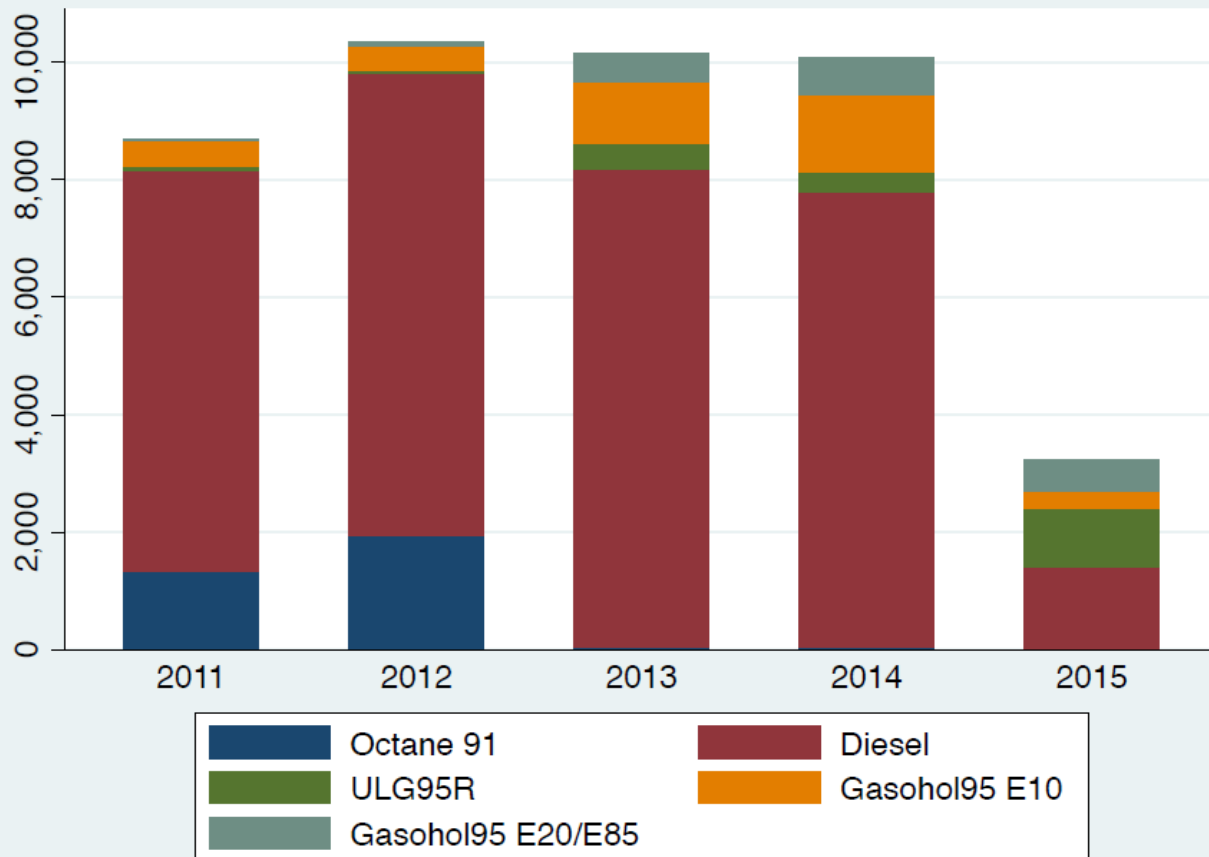
(B) Difference from the efficient quantities

*Within this group, Gasohol 95 E20/E85 is the most under-priced.*



# Welfare Loss from Supoptimal Pricing

Deadweight Loss (DWL)



Majority comes from Diesel

DWL is 42.5 Bn.THB over 2011-2015

1. Robust?

2. Underestimated?

- fiscal burden
- cross subsidy LPG & NGV

**Quick calculation:**

- Monthly diesel use 1,700 m.litres (2012)
- Excise tax on diesel cut from 5.305 to 0.005 THB/litre
- Tax loss is over 100 Bn.THB per year!



# 3. Policy Recommendations

## ► An alternative to achieve 2 objectives

1. Set the retail prices equal to the efficient prices  
*by collecting excise tax or a corrective tax equal to the marginal social cost (MSC)*
2. The price discount for gasohol should be large enough to jump start the gasohol market  
*but not too high to induce excessive consumption and distortion in other markets*
3. The price discount should be removed once the market is established

## ► The short-run and long-run strategies

Short  
-run

- Collecting excise tax at MSC
- Redistribute to low-income group & logistic sector

Long  
-run

- Gradual phase out subsidy
- Corrective tax to improve mass transit
- Mode shift

**1. Proper Timing:** the gradual energy reform since end 2014 & more fwd-looking policy

**2. Future work:** extend to cross subsidy in LPG & NGP prices



10

# End of Discussion