

Triple somersault in regulating energy supply and demand

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- A discussion about aims and instruments
- A commodity tax
- A commodity subsidy
- Green Certificates
- White Certificates
- An externality tax
- Summary and conclusion

Multiple somersault ???

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Limit myself to electricity
The reasoning applies in mains also
for fossil fuels for end uses

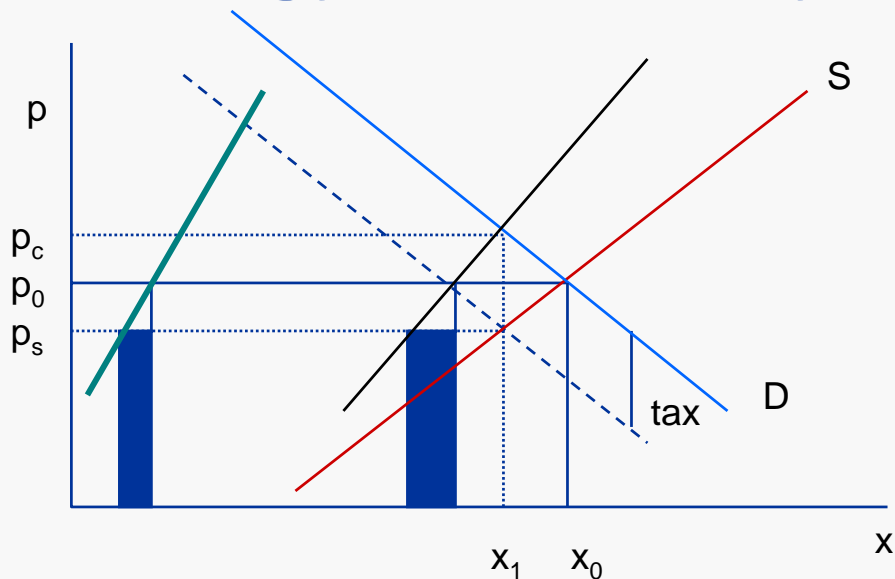
A discussion about aims and instruments

- A competitive market maximizes social surplus
 - **do not care** about income distribution effects
 - **do not care** about negative externalities
 - **do not care** about positive externalities
 - **Possible market failures**
- Negative externalities
 - Emissions
 - Nature intervention
 - Radiation
- Positive externalities
 - R&D
 - Learning by doing
- Market failures
 - Monopoly ?
 - Information, transaction cost?
- What about income distribution?
 - every commodity – everytime – **or adding up?**
- Public intervention
 - Instruments **as close to externality as possible**
 - ♦ One instrument – one aim ?
 - ♦ The adding up of instrument convention?

Externalities in the energy market-reminder

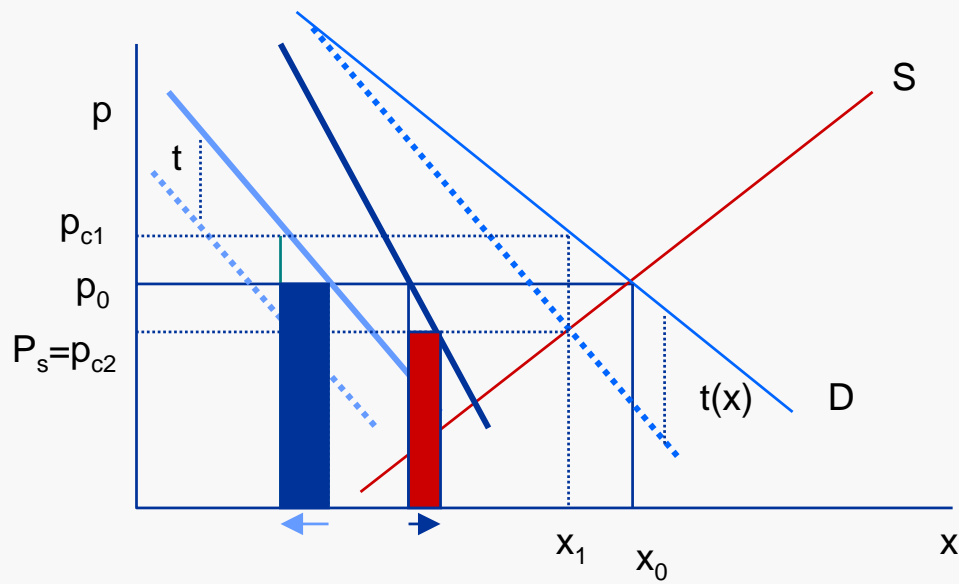
- Emission – mainly ?
 - Many small sources
 - ♦ the answer is to internalize the externality
 - taxes, permit prices -
 - DIRECT ON EMISSIONS
 - maximize information on possibilities
 - minimize total cost of regulation/maximize regulation at given cost
 - Cost efficiency – regulation efficiency
 - Few point sources
 - ♦ Regulation of emissions on source – minimize cost/maximize outcome
- Intervention in Nature
 - the answer is regulation – cfr few pointspecific sources
 - ♦ DIRECT ON INTERVENTION
- Scarcity-reliability
 - Market imperfections? Lack of derivative markets?
- Resource base expectations
 - Competitive outcome-hotellings rule, market power, expectations-technical change
 - Risk averter?
- The principal rule
 - Cost mimimization/outcome maximization/
 - ♦ The Control efficiency statement usually exaggerated in long term regulation issues

Energy commodity tax – (or subsidies?)

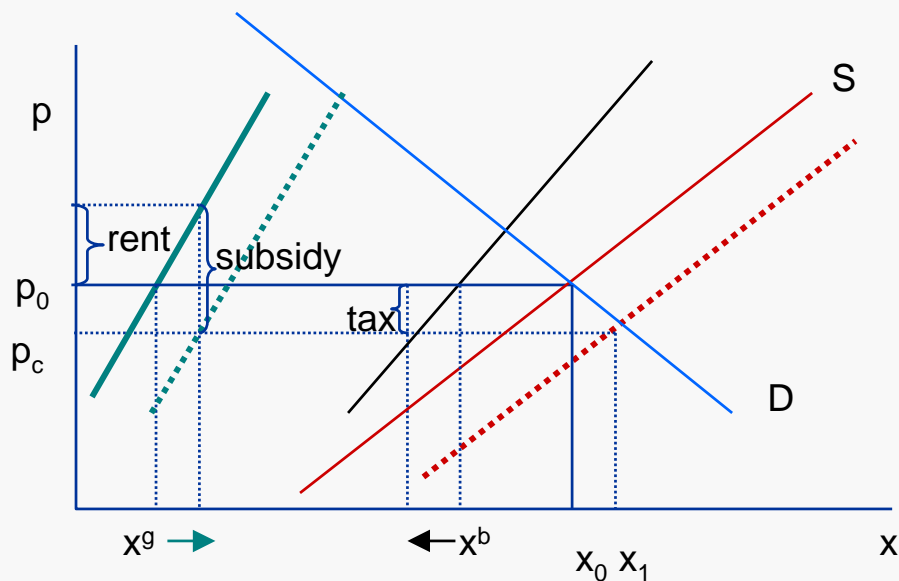


Supply side effects

Demand side effects.
Discriminate

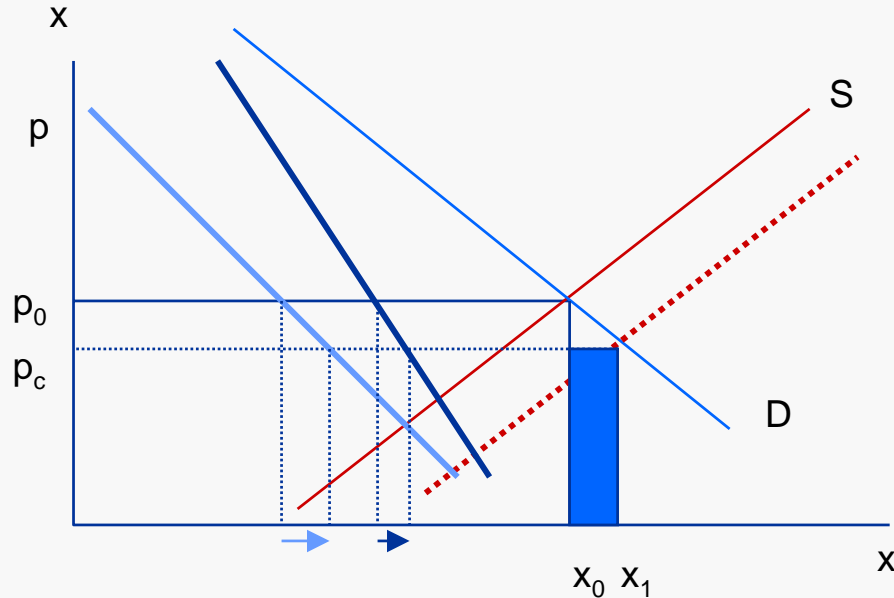


Energy subsidies – (or taxes?)

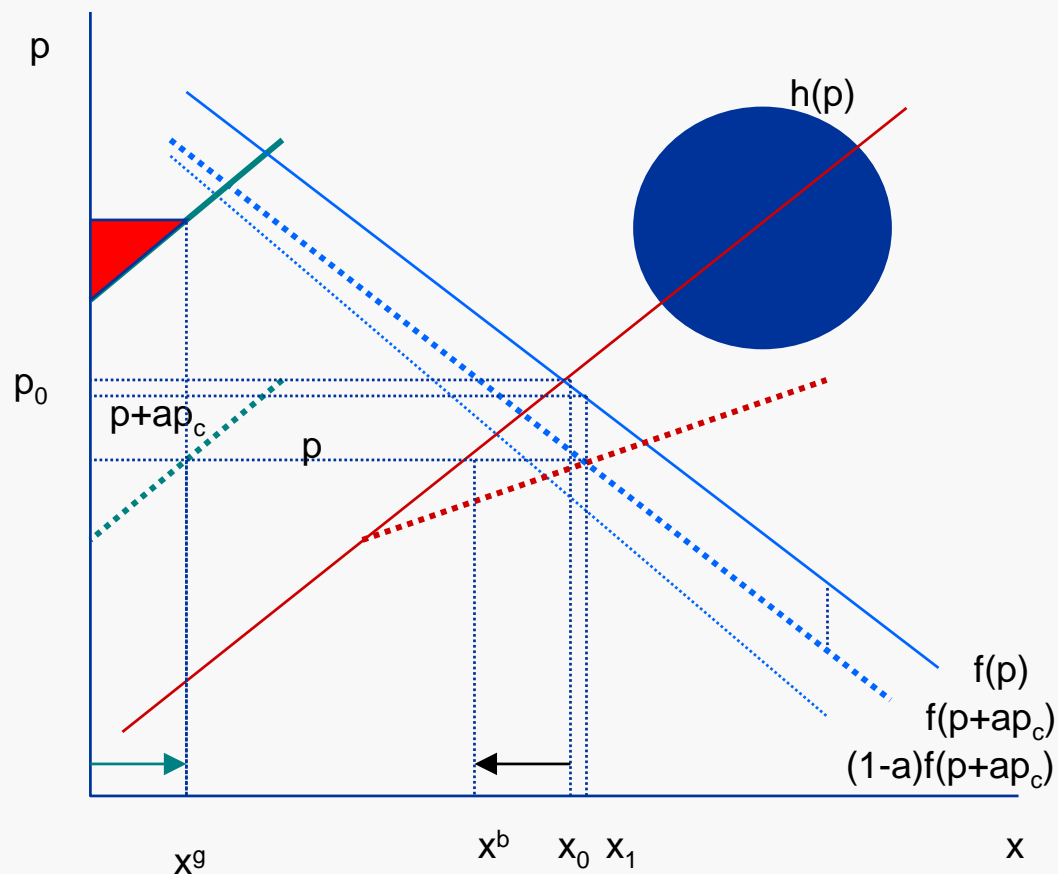


Demand side effects

Supply side effects



Green certificates – tax (and subsidies)



$$D=f(p+ap_c)$$

$$D^g=af(p+ap_c)$$

$$D^b=(1-a)f(p+ap_c)$$

$$S^g=g(p+p_c)$$

$$S^b=h(p)$$

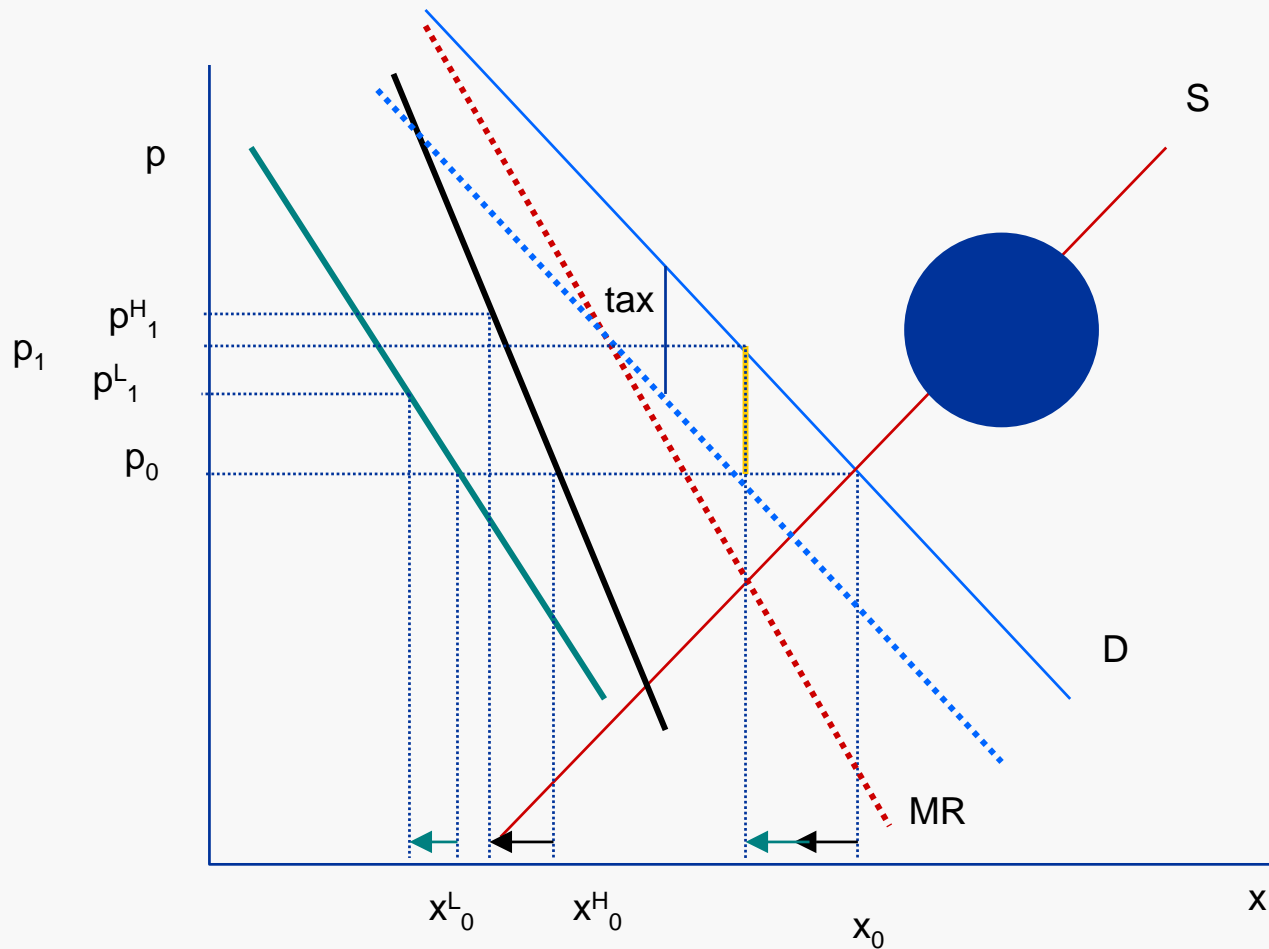
p ↓

p_c ↑

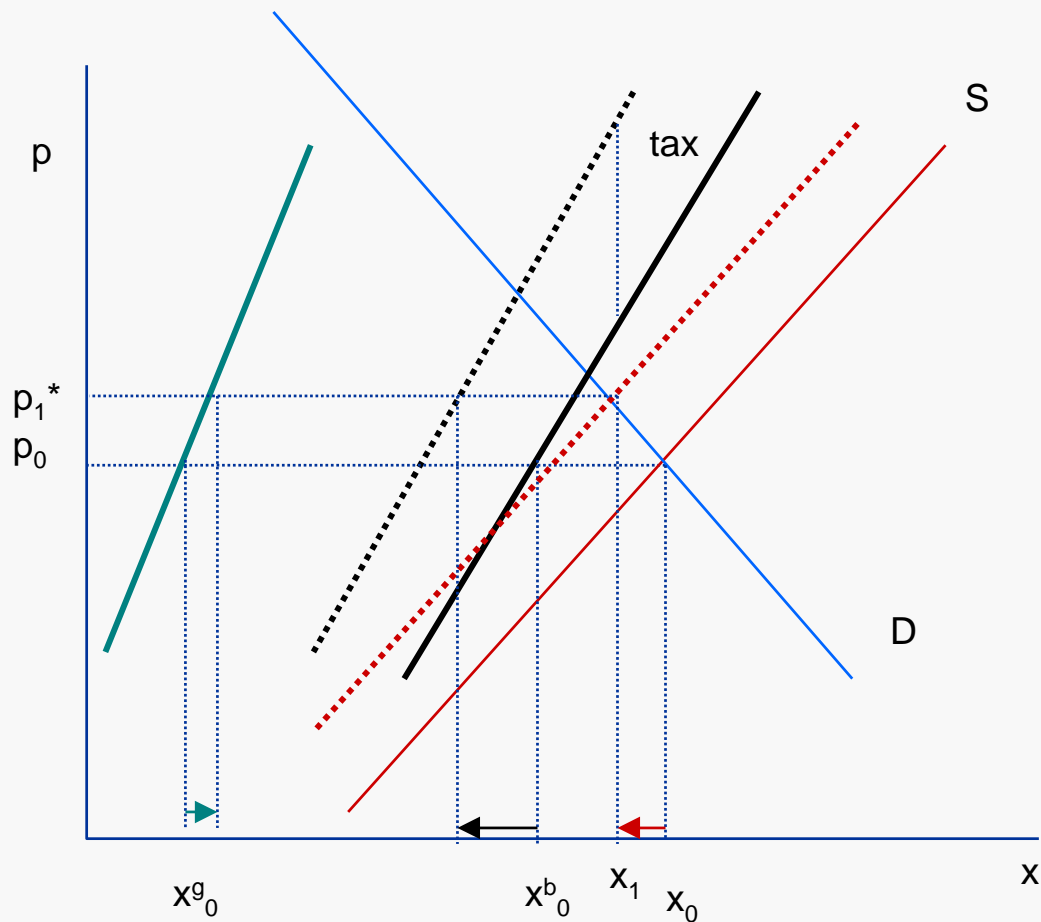
a ↑

$p+ap_c$?

White certificates – tax, subsidy and permit



An externality tax – or a permit price



Summary of effects

	Energy tax	Energy Subsidy	Green Certificates	White certificates	Externality "tax"
Supply side effects	Lower willingness to pay for energy – why?	Increased supply – who decide of what? What is dignified? ??	Subsidy of green – what is green? ??? classification	Lower willingness to pay for energy why?	Lower willingness to pay for black energy Positive
	Reduced energy prod – all kinds - why?	Lower energy price – "tax" on alternatives - +	lower energy price – "tax" on alternatives - +	Reduced energy prod – all kinds negative	Increased willingness to pay for alternatives Positive
Demand side effects	Energy tax – reduced energy use - why?	Lower energy price – increased demand not wanted?	tax element reduces energy demand BUT subsidy element overrides -?	Energy tax – lower demand why?	Enger price increase – lowers demand as a consequence
	Exemptions – lower energy market price – subsidy – increased energy use – why?		lower energy price – increased demand ??	Redistribution of initial burden – demand effects? why?	
Externality	Somewhat-not efficient I - negative	Somewhat-not efficient III - partly	Somewhat – not efficient III	Somewhat – not efficient I	Efficient IV Positive
Other effects	Distribution effect - wanted ?	Distribution effect not wanted	Distribution effect not wanted	Distribution effect wanted?	Distribution effect according to cost Positive
	Fiscal -obvious	Fiscal burden obvious	Internalised in the market - +	R&D on the consumer side? positive? Why?	R&D on alternatives Positive
	R&D through prices positive	Fostering R&D directly – indirectly through prices - positive	Fostering renewables directly – indirectly through prices +		R&D on the consumer side – cfr increased price Positive
		Budget control positive	Who pays – budget control? negative		Income distribution unwanted-main obstruction

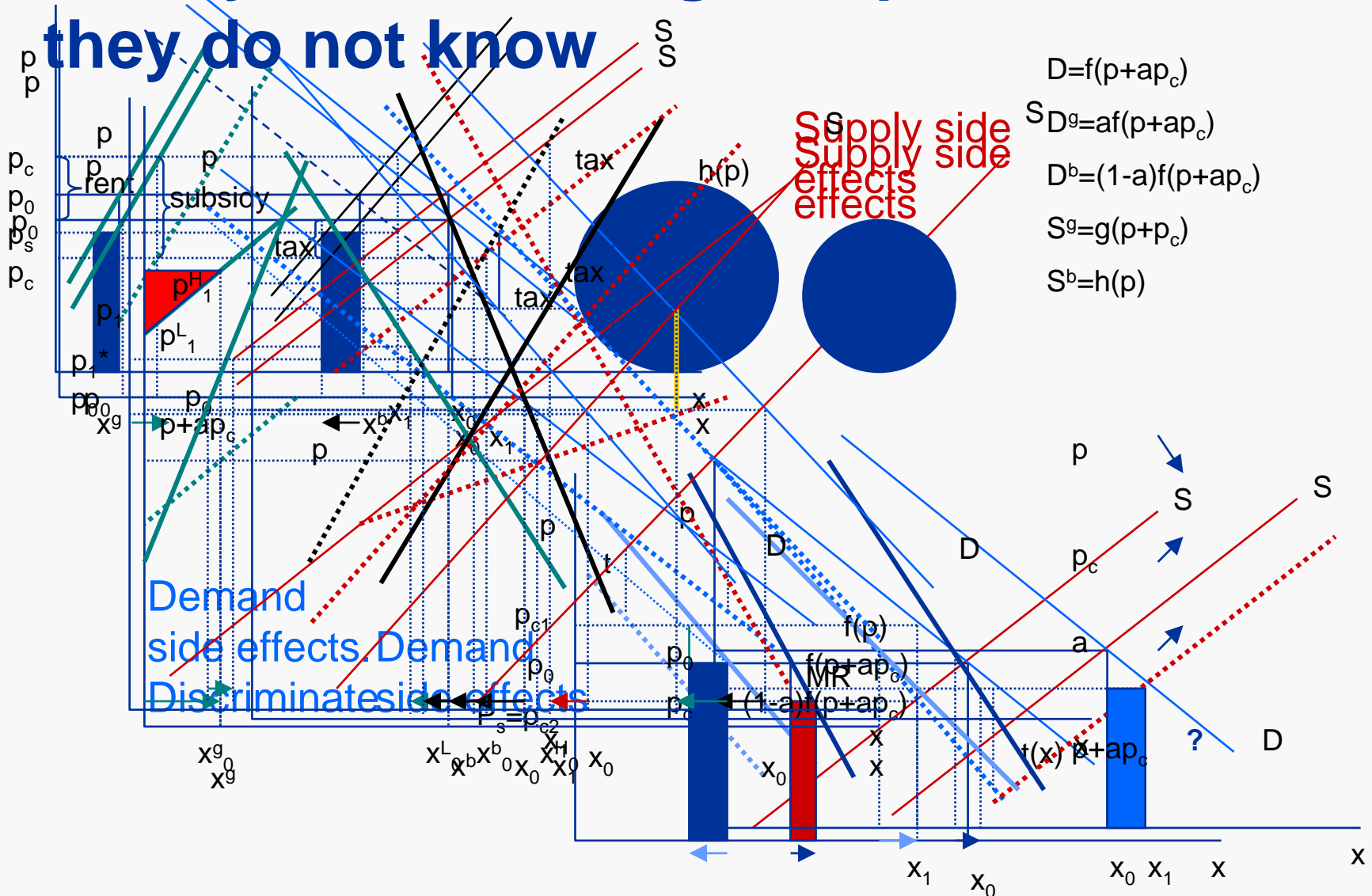
The target and the instrument

- Reduced energy demand ? WHY?
 - Scarcity
 - ◆ the market and Hotellings rule – price increase
 - ◆ market failure – internalize the cost
 - tax on consumption
 - regulate extraction
 - Externality
 - ◆ internalize the cost
 - mostly on extraction
 - nothing on consumption?
- Why not that simple?
 - the main obstruction
 - ◆ we do not like taxes – we like to keep our money
 - ◆ we do not like subsidies because of budget consequences
 - ◆ we do not like the income distribution effects
 - ◆ shorts term cost is to high

The consequence – a mix of instruments

- nobody knows the total sign of taxes and subsidies
- nobody knows the efficiency losses
- nobody knows the total income distribution effects
- nobody knows the total transaction costs
- the rent seeking possibilities increases
 - consumers suffers
 - professionals gain
 - more profitable to rentseek than to produce
- A large arena for research on instruments
- A large arena for waste of money

Conclusions – inefficiency, chaos, waste of money – rentseeking -the poor suffers-but they do not know



Suggestion !

Instrument Reform.....

Focus on externalities
to increase efficiency

But

will it happen?