External Costs of Poor Health

Health Economics
Fall 2018

Introduction

• Much of morbidity and mortality is caused by behavior
  – 50% of all deaths (tobacco, alcohol, driving, etc)
• Sometimes these behaviors only impact the individual making the decision
• Other times, the behavior can impact others
  – Financially
  – Health wise

Examples

• Obvious examples
  – Infectious diseases
  – Drunk driving
  – Second hand smoke
• Some not so obvious
  – Obesity or tobacco use increases costs of health insurance premiums for others
  – Your immunization reduces the chance that others will be infected

This section

• Examine in detail general topic of externalities
  – Define them
  – Why they are bad or good from an economic sense
  – How can we measure the size of welfare loss
• Show how taxes can be used to limit the social costs of an externality
This section

- Extended example: Do smokers and drinkers pay their way?
  - Alcohol and cigarette consumption generates externalities
  - They are also taxed at the local, state and federal level
  - Sum up the external costs of smoking/drinking
  - Compare to the revenues raised by taxes
  - Surprising results

- Excellent example of how economists look at problems

Before we start

- Basic review of the dead weight loss from externalities
- How taxes can internalize the costs of externalities

Consumer's Surplus

- Consumers continue to purchase so long as the value of the next unit is greater than price
- But all units priced the same
- Consumer's value the last unit at $P_1$
- For all units consumed up to $Q_1$, the value to the consumer exceeded price
- Area $A$ represents consumer's surplus

A $\equiv$ Consumer's Surplus
B $\equiv$ Revenues
Example

- Inverse demand curve
- \( P = 100 - 4Q \)
  - When \( Q = 0 \), \( P = 100 \)
  - When \( P = 0 \), \( Q = 25 \)
- Suppose \( P = 40 \), \( Q = 15 \)
- \( CS = \frac{1}{2} \text{Height} \times \text{base} \)
- \( REV = P \times Q \)

**Producer’s Surplus**

- In competitive market, market supply curve is the horizontal summation of firm’s marginal cost curve
- Height represents the amount firms must receive to sell the last unit
- Since this is the marginal cost curve, it also represents what it costs society to produce the last unit
- Difference between price received and the marginal cost of production is Producer’s Surplus
Demand: $P = 12 - 0.5Q$
Supply: $P = 2 + 0.3Q$

Graphing
- Demand
  - $Q = 0$, $P = 12$
  - $P = 0$, $Q = 24$
- Supply
  - $Q = 0$, $P = 2$

Externalities

\[ CS = 0.5H^*B \]
\[ = 0.5(6.25)(12.5) \]
\[ = 39.06 \]

\[ PS = (0.5)(3.75)(12.5) \]
\[ = 22.44 \]
Negative Externalities

• Pollution from a production process
• Noise from a nightclub near a residential neighborhood
• The person next to you during an exam has a cold
• Second hand smoke

Positive Externalities

• You get a flu shot. This reduces the probability others will get the flu as well. You do not get the entire benefit although you paid all the costs
• Your beautiful garden raises the value of your neighbor’s house
• Lojak:
  – Transmitted on car that can be used to locate a stolen vehicle
  – Reduced auto thefts in areas where it was introduced
  – Only a small fraction have Lojak. As a result, non-Lojak users benefit

Excess production and negative externalities

• Suppose production of the good generates externalities that are not reflected in costs of inputs (e.g., pollution)
• The true cost of producing the good is above the costs firms pay to produce
• Since firms are not paying all the costs of production, the ‘wedge’ between private costs and social costs encourages overproduction

Production externalities

• Perfectly competitive market. Supply Curve = marginal cost curve (MC)
• Not all costs of production are borne by the firm, e.g., pollution
• PMC = private marginal cost, the firm’s costs, therefore, the industry supply
• SMC = social marginal cost
• SMC > PMC for all Q
At market price $P_1$, firms are willing to sell $Q_1$ units. However, from a social standpoint, if all costs were paid by the firm, they would only be willing to supply $Q_2$.

The firm overproduces the good since they do not pay all the costs of production.

At $Q_1$, the firm receives $P_1$ but it costs society $MC_3$ to produce.

Market output $(P_1, Q_1)$

At $Q_1$, $SMC_1 > P_1$

Costing society more to produce than is transacted in the market.

Social optimum $(P_2, Q_2)$
Social Costs of Overproduction

- Notice that as one moves from Q₂ to Q₁
- Society is spending an extra d + b + c on additional resources
- Consumers are however enjoying b + c in additional welfare
- The difference is area d, the deadweight loss of overproduction
- If there ever is a ‘wedge’ between what it costs to produce a good and what people are paying for it, there will be a deadweight loss

What about negative consumption externalities?

- Start with a standard downward sloping demand for a good – the private marginal benefit
- Consumption of the good however has health/financial costs to others (e.g., second hand smoke or drunk driving)
- Private Marginal Benefit > Social Marginal Benefit

At Q₁, people value the last unit at P₁
- However, not all costs of the good are paid by the consumers
- The SMB is SMB₁ which is lower than price
- If people had to pay all the costs of the good (forget how they will do it for now), they would consume a lot less
- Therefore, there is over-consumption of the good
Internalize the Externality

- Per unit tax on output — Pigouvian taxes
- "Excise tax"
- For every unit sold, charge consumers $t in a tax
- The excise tax will shift down the demand curve by an amount equal to the tax
- Remember, the Y (price) axis is the price transacted between buyers and sellers, does not reflect true cost

\[ D = S \text{ at } (P_1,Q_1) \]

- At this point
- Costs society and extra \( a+b \) to produce
- Society only receives an extra area \( b \) in benefits
- Difference (area \( a \)) is the deadweight loss of over production
- Again notice the wedge between value of marginal good and the price of the product
  - The marginal cost of producing the last unit is \( P_1 \)
  - The SMB is however only \( SMB_2 \)

With tax of \( t \) per unit

\[ \text{Excise tax of } t \text{ per unit} \]

With tax of \( t \), retail price must fall to \( P_1 - t \) in order for demand to stay the same
• Vertical axis, amount transacted between buyers and sellers
• Without excise tax, at price $P_1$, people willing to consume $Q_1$
• With a tax of $\$t/unit, price paid to sellers would have to fall to $P-t$ in order to demand $Q_1$
  – Pay $P_1t$ to firm
  – Pay $t$ to government
  – Pay $P_1t + t = P_1$ in total

Example

• Inverse demand: $P = PMB = 20 - Q$
• Inverse SMB: $SMB = 20 - 2Q$
• Inverse Supply: $P = 2 + Q$
• Market outcome
  – Supply = demand
  – $20 - Q = 2 + Q$
  – $Q = 9$
  – $P = 2 + Q = 11$

• Social optimum
  – Supply = Social Marginal Benefit
  – $2 + Q = 20 - 2Q$
  – $Q = 6$
  – $P = 2 + Q = 8$
• What tax should be charged to obtain the social optimum?
• Want output to be $Q = 6$. 
• Must choose a tax rate that reduces demand to 6
• People will demand $Q=6$ if $P_d=14$
  – $PMB = 20 - Q$, so when $P=14$, $Q=6$
• Suppliers will supply 6 if $P_s=8$
• $P_d$ is inverse demand
• $P_s$ is inverse supply
• With a tax, demand falls to $P_d-t$ and we equate $P_d-t=P_s$
  so $t=P_d-P_s$
• Therefore, $t=P_d-P_s=14-8 = 6$

Can show a per unit tax on suppliers can also solve externality problem
• Per unit tax will shift up supply curve by an amount $t$
• Vertical axis is amount transacted between buyers/sellers
• Without tax, at price $P_1$ producers willing to supply $Q_1$.
• When tax is imposed, suppliers receive a price, then pay $t$ back to the government
• In order for supply to stay at $Q_1$ with a tax, their price must rise to $P_1 + t$
• At $P_1$, firms were willing to supply $Q_1$.
• With an excise tax, in order for firms to supply $Q_1$, the price must increase to $P_1 + t$.
  - Firm receives $P_1 + t$.
  - Pay the government $t$ in taxes.
  - Net $P_1$.
• Therefore, an excise tax will shift the supply curve up by the amount of the tax.

Example
• Demand: $P_d = 20 - 2Q$.
• PMC: $P_s = 2 + Q$.
• SMC: $P_{smc} = 2 + 2Q$.
• Market output: $P_s = P_d$.
  - $20 - 2Q = 2 + Q$.
  - $Q = 6$, $P = 8$. 

Graphs illustrating supply and demand with excise tax.
• Social Optimum: \( P_d = P_s \)
• \( 20 - 2Q = 2 + 2Q \)
• \( Q = 4.5, P = 11 \)

• At the Market output, \( Q = 6 \), so \( SMC = 14 \)

• Demand: \( P_d = 30 - .3Q \)

• PMC: \( P_s = 2 + 0.1Q \)

• SMC: \( SMC = 2 + .2Q \)

• Social optimum
  • \( P_d = SMC \)
  • \( 30 - .3Q = 2 + .2Q \)
  • \( 28 = .5Q \)
  • \( Q = 56, P = 13.2 \)

• Market equilibrium
  • \( P_d = P_s \)
  • \( 30 - .3Q = 2 + .1Q \)
  • \( 28 = 0.4Q \)
  • \( Q = 70, P = 9 \)
What is the optimal tax?
- Want $Q = 56$, the social optimal
- People will demand 56 when their price is 13.2
- What price will encourage firms to supply 56?

Firms will receive $P + t$, but they have to give $t$ back to the government.
- $P = 2 + .1Q = 2 + .1(56) = 7.6$
- When firms receive 7.6, they will supply 56.
- Therefore $13.2 - 7.6 = 5.6$ (tax)

Excises taxes on poor health
- Alcohol and cigarettes are taxed at the federal, state and local level
- Some states sell liquor rather than tax it (VA, PA, etc.)
- Most of these taxes are excise taxes -- the tax is per unit
  - Rates differ by type of alcohol, alcohol content
  - All cigarettes taxed the same
- Revenues from cigarette taxes in 2016
  - $17$ billion at state and local level
  - $14$ billion at Federal level
  - $8.0$ billion in Master Settlement Payments
Current Cigarette Excise Tax Rates

- **States**
  - Low: MO ($0.17), VA ($0.30), GA ($0.37)
  - High: NY ($4.35), CT ($4.35), RI ($4.25)
  - Average of $1.75 across states
- **Federal**: $1.0066/pack
- **State+local**
  - Chicago ($6.16), NYC ($5.85), Juneau ($5.00)

Federal Taxes on Alcohol

- **Beer**
  - $18/31 gallon barrel or $0.05/12 ounce can
- **Wine**
  - $0.21/750ml bottle for 14% alcohol or less
  - $0.31/750ml bottle for 14 – 21% alcohol
- **Liquor**
  - $13.50 per 100 proof gallon (50% alcohol), or, $2.14/750 ml bottle of 80 proof liquor

State taxes on Alcohol

- **Beer**
  - High: $1.29/gallon Tennessee
  - Low: $0.06/gallon (WI and MO)
- **Wine**
  - High: $3.17/gallon KY
  - Low: no tax in PA, VT, WY, UT, MS
- **Spirits**
  - High: $35.22/gallon Washington
  - Low: $0.00/gallon (WY, NH)

NYC

- **Cigarettes**
  - Local + state + federal = 1.50 + 4.35 + 1.01 = $6.86 per pack
  - One carton of cigarettes costs $68.60 in taxes
- **Case of wine**
  - state + federal = 0.059 + 0.21 = $0.269 per bottle
  - $3.23/case
  - Would need to buy 21 cases of wine to pay the same tax as one carton of cigarettes
Do taxes reduce consumption?

- Law of demand
  - Fundamental result of micro economic theory
  - Consumption should fall as prices rise
  - Generated from a theoretical model of consumer choice
- Thought by economists to be fairly universal in application
- Medical/psychological view – certain goods not subject to these laws

Starting in 1970s, several authors began to examine link between cigarette prices and consumption

- Simple research design
  - Prices typically changed due to state/federal tax hikes
  - States with changes are ‘treatment’
  - States without changes are control

Near universal agreement in results
- 10% increase in price reduces demand by 4%
- Change in smoking evenly split between
  - Reductions in number of smokers
  - Reductions in cigs/day among remaining smokers

Results have been replicated
- in other countries/time periods, variety of statistical models, subgroups
- For other addictive goods: alcohol, cocaine, marijuana, heroin, gambling

Taxes now an integral part of antismoking campaigns

- Key component of ‘Master Settlement’
- Surgeon General’s report
  - "raising tobacco excise taxes is widely regarded as one of the most effective tobacco prevention and control strategies."
- Tax hikes are now designed to reduce smoking
• By the end of 1996
  – 9 states with cigarette excise taxes of $0.50
  – only 3 states with taxes in excess of $0.75/pack.
• By the end of 2002
  – 24 states had taxes of $0.50 or more
  – 13 states having a tax of a dollar per pack or more.
• Today
  – 18 states with taxes >= $2/pack
  – 32 states with taxes >= $1/pack
$S_{ijt} = 1$ if person $i$, state $j$, year $t$ smokes
$= 0$ otherwise

$C_{ijt} = \text{cigs/day for } S_{ijt} = 1$

For everyone:

$S_{ijt} = \alpha_i + \text{tax}_j \theta_i + x_{ijt} \beta_i + u_{ijt} + \lambda_{ijt} + \epsilon_{ijt}$

If $S_{ijt} = 1$

$C_{ijt} = \alpha_2 + \text{tax}_j \theta_2 + x_{ijt} \beta_2 + u_{ijt} + \lambda_{ijt} + \epsilon_{ijt}$

$x_{ijt} = \text{demographic controls}$
$u, \lambda = \text{state and year effects}$

Generating an Elasticity

$Q = \Pr(S = 1) \times C$
where $C = \text{Cigs} | S = 1$

$$\frac{\partial Q}{\partial \text{tax}} = \frac{\partial \Pr(S = 1)}{\partial \text{tax}} C + \frac{\partial C}{\partial \text{tax}} \Pr(S = 1) = \theta C + \theta_2 \Pr(S = 1)$$

$$\xi_j = \frac{\partial Q}{\partial P} \left( \frac{P}{Q} \right)$$

$Q = f(P(\text{tax}))$

$$\frac{\partial Q}{\partial \text{tax}} = \frac{\partial Q}{\partial P} \left( \frac{\partial P}{\partial \text{tax}} \right)$$
Generating an Elasticity

\[ \xi_p = \frac{\partial Q}{\partial \pi} \left( \frac{P}{Q} \right) \left( \frac{\partial P}{\partial \pi} \right) \]

\[ Q = \Pr(S = 1)C \]

\[ \xi_p = \left( \theta_1 P / \Pr(S = 1) \right) \left( \frac{\partial P}{\partial \pi} \right) / \left( \frac{\partial \Pr(S = 1)}{\partial \pi} \right) \]

\[ \xi_p = \left( \theta_1 P / \Pr(S = 1) \right) + \left( \theta_2 P / C \right) \left( \frac{\partial P}{\partial \pi} \right) / \left( \frac{\partial \Pr(S = 1)}{\partial \pi} \right) \]

**Table 7**

OLS Estimates of UPC-Level Real Retail Price Equation, IRI Data 2001-2006

<table>
<thead>
<tr>
<th>Covariate</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real tax ($/pack)</td>
<td>0.993</td>
<td>0.987</td>
</tr>
<tr>
<td></td>
<td>(0.089)</td>
<td>(0.079)</td>
</tr>
<tr>
<td></td>
<td>[0.938]</td>
<td>[0.872]</td>
</tr>
<tr>
<td>Month/year effects</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>State Effects</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>UPC effects</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>1,126,478</td>
<td>1,126,478</td>
</tr>
<tr>
<td>Distinct UPCs</td>
<td>2,843</td>
<td>2,843</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.687</td>
<td>0.939</td>
</tr>
</tbody>
</table>

**Table 8**

Two-Part Cigarette Demand Model Estimates, Adults aged 18+, BRFSS Data, 1985-1995

<table>
<thead>
<tr>
<th>Sample</th>
<th>Obs.</th>
<th>Smoker (smokers only)</th>
<th>Cigs./day (smokers only), OLS</th>
<th>Parameter estimates (standard error) [price elasticity] on real tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full</td>
<td>812,185</td>
<td>0.260</td>
<td>18.7</td>
<td>-0.00019 (0.00006)</td>
</tr>
<tr>
<td>Pr(S=1)=0.24 = (-0.00019<em>183 / 0.24) + (-0.144</em>183 / 18.7) / 1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C=18.7  = -0.144 - 0.149 = -0.293</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
External costs of poor health

- Manning et al. paper
- Accounting exercise
  - What are the external costs of alcohol, tobacco, sedentary lifestyle
  - Will focus on the first two in class
- Consider three sets of costs
  - Direct costs
    - Lives lost, fires, criminal justice
  - Collectively financed programs
    - Sick/medical leave, all types of insurance, retirement, federal transfer programs
    - Taxes on earnings

Direct costs

- Lives lost due to poor health
  - Drunk driving deaths
  - Fires from smoking
  - Does not include
    - Death of the person
    - Any other family member (why is this? Is this a good assumption?)
    - Second hand smoke
- Criminal justice costs

Collectively financed programs

- Health/life insurance
  - Costs of a smoker are paid collectively by those enrolled in an insurance program
  - Externalities can be reduced if premiums are correlated with smoking
- Gov't transfer programs tricky
  - Smoking/drinking increases current costs in Medicare/Medicaid
  - May decrease costs in the future

Taxes on Earnings

- Smokers and heavy drinkers
  - Are less productive during working years (do not know whether this is causal)
  - If die prematurely, pay less in state/local income taxes
What is NOT an external cost

• The smoker/drinkers diminished health or the health of their family members
• The lost earnings of these activities
• Why?

Special case of Federal Programs

• Expenditures are correlated with longevity
  – Social security, Medicare/Medicaid costs increase for older people
• Because smoking kills people early
  – Prevents people from getting to the age when medical costs are very high
  – Reduces payment of Social Security benefits

• From the perspective of the other taxpayers, these are positive externalities
• Smokers pay $ to Federal and states
• They do not take as much out (SS, Medicare/caid) because they die early

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External costs of smoking/drinking
(5% discount rate)

<table>
<thead>
<tr>
<th></th>
<th>Cigarettes (per pack)</th>
<th>Heavy drinking (per ounce)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collectively financed</td>
<td>$0.05</td>
<td>$0.23</td>
</tr>
<tr>
<td>Direct costs</td>
<td>$0.02</td>
<td>$0.93</td>
</tr>
<tr>
<td>Taxes on earnings</td>
<td>$0.09</td>
<td>$0.06</td>
</tr>
<tr>
<td>Total</td>
<td>$0.15</td>
<td>$1.19</td>
</tr>
</tbody>
</table>
External costs of smoking – socially financed

<table>
<thead>
<tr>
<th>Cigarettes (per pack)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical costs</td>
</tr>
<tr>
<td>$0.26</td>
</tr>
<tr>
<td>Sick leave/life</td>
</tr>
<tr>
<td>insurance $0.06</td>
</tr>
<tr>
<td>Nursing homes</td>
</tr>
<tr>
<td>-$0.03</td>
</tr>
<tr>
<td>Pensions</td>
</tr>
<tr>
<td>-$0.24</td>
</tr>
</tbody>
</table>

External costs of smoking/drinking

<table>
<thead>
<tr>
<th>Cigarettes (per pack)</th>
<th>Heavy drinking (per ounce)</th>
</tr>
</thead>
<tbody>
<tr>
<td>External costs</td>
<td></td>
</tr>
<tr>
<td>$0.16</td>
<td></td>
</tr>
<tr>
<td>$1.19</td>
<td></td>
</tr>
<tr>
<td>Total taxes</td>
<td></td>
</tr>
<tr>
<td>$0.37</td>
<td></td>
</tr>
<tr>
<td>$0.20</td>
<td></td>
</tr>
</tbody>
</table>

- Dollars values are in real 1986 dollars
- Between 1986 and now, prices have doubled
  - CPI, Jan 1986 = 109.6
  - CPI, Dec 2012 = 225.9
- Holding all else fixed, external costs have moved to $0.30/pack
- If assume all deaths due to fires and passive smoke are external costs
  - Smoking cost rises to $0.29/pack in 1986 dollars
  - Roughly $0.60/pack in todays dollars
- Average state tax=$1.48, Federal tax=$1.00

- Results
  - Smokers pay their way
  - Drinkers do not
Why the difference between alcohol and cigs?

- Most of the external costs of alcohol are monetized value of a statistical life
  - Value of life is valued at $5 million
  - Drunk drivers kill 10,000 people/year (other than themselves)
  - External costs of $50 billion
- DD fatalities have fallen from 23,000 to 10,000 from 1981 to 10,000 – so external costs have fallen a lot
- But real taxes on alcohol have fallen as well
Value of a statistical life

- People trade off $ for job characteristics
  - Jobs with nice characteristics paid less
  - Jobs with unattractive characteristics paid more
  - Hold ALL ELSE CONSTANT
- One characteristic is job risk
- Workers in higher risk jobs get paid more
- Can use the willingness to accept risk to calculate a 'statistical value of life'

- Among blue collar workers, there is a 1 in 10,000 chance of dying on the job during the year.
- People in jobs with twice the average risk are estimated to make $500 more than identical people in average risk jobs.
- For every additional 10,000 workers in high-risk jobs, they will receive an extra $500 x 10,000 = $5 million in income

- But among these additional workers, on average, 1 will die.
- VSL = value of a statistical life
- VSL = additional income people are willing to take for additional risk/expected additional deaths

- Example: Suppose that a group of workers requires an additional $350 to accept an additional risk of death of 0.000152
  - Just divide $350 / 0.000152 = $2.3 million
- Suppose there are an additional 50,000 workers
  - Take home an additional 50,000 x 350 = $17.5 million
  - But an additional 50,000 x 0.000152 = 7.6 will die
  - 17.5 / 7.6 = $2.3 million
Drunk Driving Facts

- 17,000 MV deaths due to drunk drivers in 2003
  - down from 26K in 1981
  - 40% of all MV deaths in 2003
  - The drunk drivers themselves are 2/3rds of the alcohol-related MV fatalities, so you only count the 1/3 left over
- External costs of alcohol are now much lower -- probably too high by 34%

Viscusi (1995)
Costs of smoking

- External insurance costs per pack (1993$)
  - Medical care $0.388
  - Sick leave $0.016
  - Group life insurance $0.072
  - Nursing home care -$0.062
  - Retirement pensions -$0.286
  - Fires $0.092
  - Total $0.238
- Taxes paid $0.53/pack

What is not included in these numbers?

- Second hand smoked deaths
  - Disagreement about extent of deaths
  - Most exposure is within house
  - Is this an externality?
- Costs to children
  - Increases miscarriages
  - Increases LBW

Second hand smoke risks -- BMJ

- Study of 36,000 never smokers in CA, 1960-1998
- No significant associations were found for current or former exposure to environmental tobacco smoke before or after adjusting for seven confounders and before or after excluding participants with pre-existing disease.
- The results do not support a causal relation between environmental tobacco smoke and tobacco related mortality, although they do not rule out a small effect. The association between exposure to environmental tobacco smoke and coronary heart disease and lung cancer may be considerably weaker than generally believed.
• EPA identifies second hand smoke as a Class I carcinogen
• Surgeon General notes that exposure to second hand smoke at work or home increases risk of heart disease/lung cancer by 20-30%
• California environmental protection agency
  – 50,000 deaths annually from second hand smoke

What are some other justifications for higher cigarette taxes
• Recall the market graph. The problem w/ external costs is that people consume above a socially optimal level
• Can be other reasons why people ‘over consumer’ smoking
• Maybe people do not understand the health risks. If they did, they would not smoke

Viscusi
• Survey, “of 100 smokers, how many will get lung cancer because they smoke?”
• Survey responses
  – Smokers
  – Non smokers
• The true risk level is
• People over state the risk of smoking
Do smokers underestimate the addictiveness of smoking?

- 82% of smokers say they would like to quit
  - About 50% of ever smokers eventually quit
  - What does this measure?
- Survey of HS smokers
  - 56% say they will NOT be smoking in 5 years
  - Only 31% actually quit
  - Among pack a day smokers
    - 72% who say they will quit in 5 yrs are still smoking
    - 74% who say they will not quit in 5 yrs are still smoking