**Equity Considerations environmental policy**

* Suppose, due to contamination, the waters off Long Beach cannot be used for recreational purposes – swimming, water skiing etc.
* Environmental policy proposed to clean the waters, make habitable for recreation use

**How clean do we want the waters to get?**

**How much in terms of resources should be dedicated to the environmental cleanup?**

**How does economics approach these questions?**

* Economists evaluate environmental programs in terms of efficiency
  + Efficiency involves comparison costs and benefits.
  + Does the size of the program maximize the difference between social costs and social benefits?
  + Efficiency is reached where marginal cost of the program equals marginal benefit
  + Net benefits to society maximized at this point
* Environmental policies produce goods that are consumed collectively
  + Consumption assumed shared by group at given time and place
* Distribution of costs/benefits across people doesn’t determine efficiency
* There may be situations where people benefiting from environmental policy may not overlap with those bearing costs

**Should equity considerations influence the size or existence of program?**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | **Distribution of Net Benefits** | | |  |
| **Program** | **Total Costs** | **Total Benefits** | **Net Benefits** | **Group X** | **Group Y** |  | | |
| A | 50 | 100 | 50 | 25 | 25 |  | | |
| B | 50 | 100 | 50 | 30 | 20 |  | | |
| C | 50 | 140 | 90 | 20 | 70 |  | | |
| D | 50 | 140 | 90 | 40 | 50 |  | | |

* Programs A and B have same net benefits (and total cost/benefit)
* A’s benefits are evenly distributed between two groups; for B, group X benefits more than Y
* From strict efficiency standpoint programs are equal
* [Equity](https://cdn3.publichealthonline.gwu.edu/content/47daa114889b44afba05defe07796c7b/EquityVsEquality.png) standpoint?
  + Suppose group Y is wealthier
  + Suppose group Y is poorer
* Programs C, D preferred to A or B from efficiency standpoint
* Compare program B to C
  + If Y is wealthier, is program C better than B?
  + What if Y were poorer?
* Compare B to D.
  + Assuming Y is wealthier, what are the equity considerations comparing two programs?

**Demography and pollution sources LA County**

EPA keeps database stationary sources of toxic chemicals in the US

Toxic release inventory (TRI) program

Every polluting facility must report yearly emissions to EPA

Purpose of program to alert residents to possible neighborhood pollutants

Chemicals covered include carcinogens and other pollutants

In 2009 the biggest emitters of toxic chemicals in LA area (on site):

|  |  |
| --- | --- |
| **Facility Name** | **City** |
| [BP WEST COAST PRODUCTS LLC](http://milesfinney.net/334/handouts/tri_example.xlsx) | CARSON |
| DOW CHEMICAL CO CRENSHAW FACILITY | TORRANCE |
| CHEVRON PRODUCTS CO DIV OF CHEVRON USA INC | EL SEGUNDO |
| CONOCOPHILLIPS LA REFINERY WILMINGTON PLANT | WILMINGTON |
| EXXONMOBIL OIL CORP TORRANCE REFINERY | TORRANCE |

Exposure to industrial pollutants varies by social class

[Maps of LA County 2018 neighborhoods](http://milesfinney.net/334/handouts/sum.htm) by ethnicity, income, and immigrant status

Reasons for relationship?

**80 out of 2289 neighborhoods in LA County had facilities that emitted at least 500 pounds of pollutants in 2018.**

|  |  |
| --- | --- |
|  | **Proportion of the population living within neighborhoods with polluting facility** |
| **Total Population** | 2.30% |
| **Native-born** | 2.25% |
| **Foreign-born** | 2.41% |
| **Latino** | 2.92% |
| **non\_hispanic White** | 1.32% |
| **African American** | 2.36% |
| **Asian-American** | 2.06% |

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|  |  |
| --- | --- |
|  | **2018 Mean Household Income** |
| Neighborhoods with large polluting facilities | $61,190.80 |
| Neighborhoods without large polluting facility | $69,903.68 |

**Dynamics in housing market:**

Price

Supply

Pb

Pa

Dbefore polluting firm

Dafter polluting firm

Q2

Q1

Quantity

Housing prices affected by pollution

Pollution may have driven some people out

Housing prices fall

Induce others to replace movers

Q1 – Q2 residents move out and are replaced by the same number of residents paying a lower housing price, Pa

Income in polluted neighborhoods relative to remaining LA County probably fell