LECTURE 8

Income Redistribution: Conceptual Issues

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Introduction

- In this lecture we will provide a framework for thinking about the normative and positive aspects of government income redistribution policies.

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Introduction

- Some questions whether economists *should* be concerned with distributional issues.
  - Value judgments embodied in the "right" income distribution.
  - No scientific basis for the "right" distribution.

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Introduction

- Focus on efficiency alone has problems.
  - That focus, too, is a value judgment.
  - Multiple equilbria.
  - Decision makers *do* care about the income distribution; economic analysis ineffective if it doesn't consider this policy-maker constraint.

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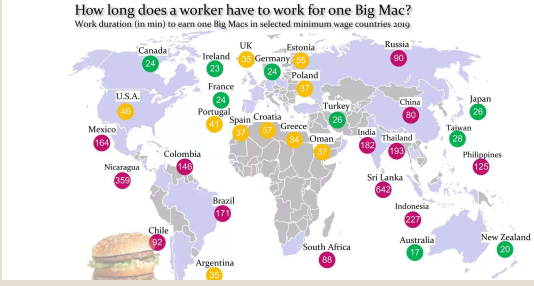

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Distribution of Income

- We can analyze household income, and see how equally or unequally the "pie" is distributed.
- Tables below give some measures of income distribution and poverty in Greece and some other countries of the OECD.

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Distribution of Income

- Richest 20% receives about 50% of total income.
- Poorest 20% receives about 4% of total income.
- Inequality has increased over time.

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Distribution of Income: Poverty

- The ***poverty line*** is a fixed level of real income which is considered enough to provide a minimally adequate standard of living.
- Inherently arbitrary, but still a useful benchmark.
  - Trends over time
  - Differences across groups

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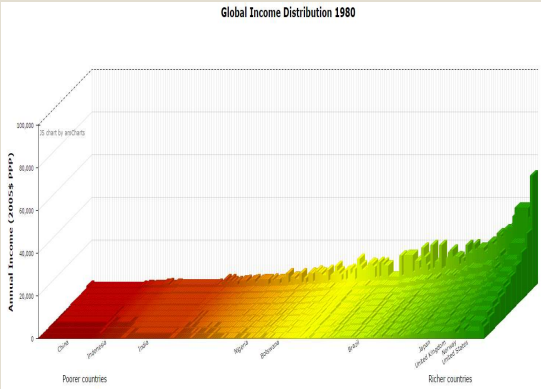

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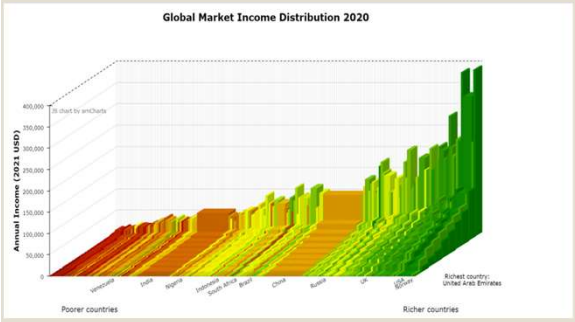

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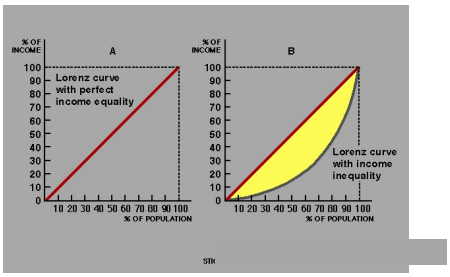
Measurement of inequality: Lorenz curve



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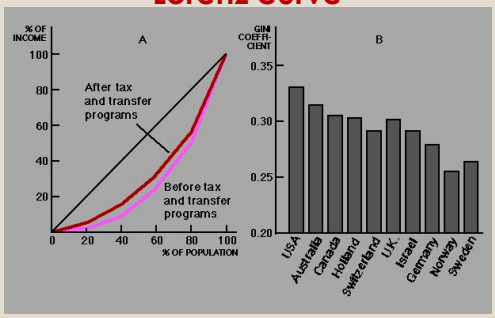
Measurement of inequality: Lorenz curve



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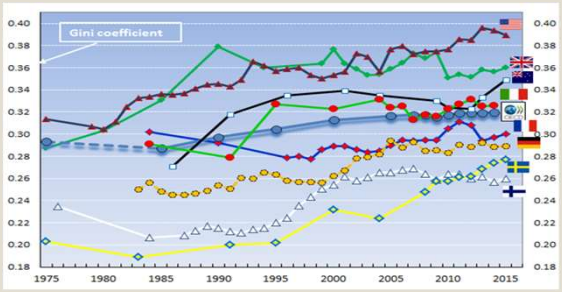
Inequality has been increasing in almost all countries



Source: OECD (2016), "Income inequality remains high in the face of weak recovery", http://www.oecd.org/social/OECD2016-Income-Inequality-Update.pdf OECD Income Distribution Database, www.oecd.org/social/income-distribution-database.htm.
Note: Income refers to disposable income adjusted for household size.

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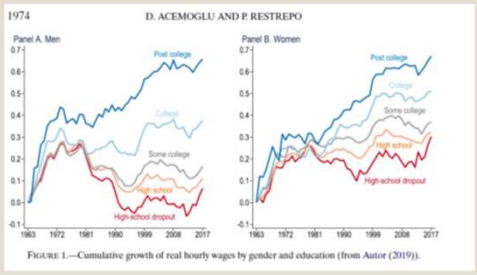

FIGURE 1.—Cumulative growth of real hourly wages by gender and education (from Autor (2019)).

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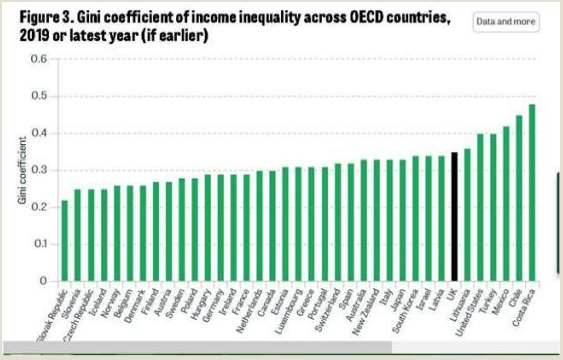

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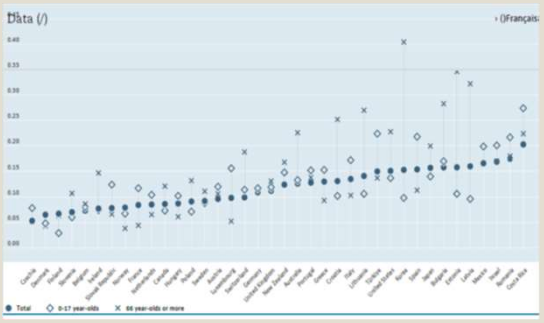
Poverty rate, OECD data for 2021



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Interpretation Problems

- Poverty line (& poverty rate) is subject to a number of criticisms.
- When interpreting the numbers, it is useful to know the conventions and limitations.

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Interpretation Problem 1

- "Income" consists only of *cash* receipts.
  - Excludes in-kind transfers like health insurance, food stamps, and housing.
    - Would reduce poverty rate by more than 20%.
  - Excludes non-market work such as childcare or housework.
  - Ignores income flow from durable goods.

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Interpretation Problem 2

- Income is *before-tax*.
  - It ignores cash refunds from the Income Tax Credit, which may be considerable.
  - Ignoring this overstates poverty rates, and also affects the trends over time.

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Interpretation Problem 3

- Income is measured annually.
- Not obvious what the correct time frame should be.
  - Income does fluctuate from year-to-year.
  - Lifetime income considerations seem relevant.
  - Consider a "starving" college student, for example. Not really "poor" in a lifetime sense.

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Interpretation Problem 4

- Unit of observation
  - Person, family, household?
  - People often make decisions as an economic unit, and there are economies of scale in household production.
- Classifications can matter for poverty numbers
  - Bauman (1997) calculates that including the income of non-family members (such as nonmarried cohabitors) would reclassify 55% of people who are poor out of official definition.

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Rationales for Income Redistribution

- Different kinds of social welfare functions
- Utilitarian
- Maximin criterion (Rawlsian)
- Pareto efficient
- Non-individualistic

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Simple Utilitarianism

- The ***utilitarian social welfare function*** is:

$$W = F(U_1, U_2, \ldots, U_n)$$

  - Which depends on all *n* members of society. One specific function form is:

$$W = U_1 + U_2 + \ldots + U_n$$

  - This special case is referred to as an ***additive social welfare function***.

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Simple Utilitarianism

- With the additive SWF that was given, also assume:
  - Identical utility functions that depend only on income
  - Diminishing marginal utility of income
  - Society's total income is fixed
- Implication: government should redistribute to obtain *complete equality*.

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Simple Utilitarianism

- This can be illustrated with 2 people.
- See Figure below
- Any income level other than I* does not maximize the SWF.
- I* entails equal incomes.

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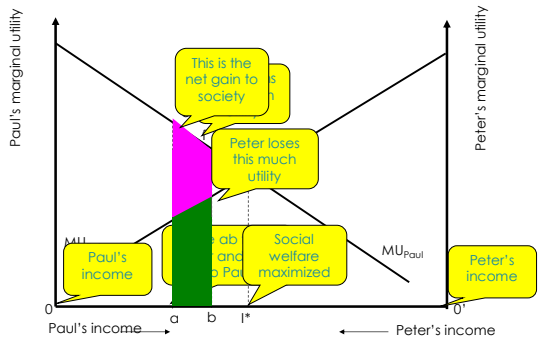
Implications for Income Inequality



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Simple Utilitarianism

- Striking result is that full income equality should be pursued, but some scrutiny required.
- Assumes identical utilities
- Assumes decreasing marginal utility
- Assumes total income fixed
  - E.g., no disincentives from this kind of redistributive policy.

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The Maximin Criterion

- The ***Rawlsian social welfare function*** is:

$$W = Minimum(U_1, U_2, \ldots, U_n)$$

- Social welfare in this case depends only on the utility of the person who has the lowest utility.
- Rawls (1971) asserts it has ethical validity because of the notion of ***original position***.
  - Notion that *ex-ante* individuals do not know where in the income distribution they will be.

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The Maximin Criterion

- These ethical claims are controversial:
  - Still selfish view in original position
  - Individuals extremely risk averse here
  - All that is relevant is the welfare of the worst-off person, even if a policy is extremely detrimental to everyone else.

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Pareto Efficient Income Redistribution

- Suppose that utility of richer person does depend on poorer person's utility. That is:

$$U_{PETER} = U\left(I_{PETER}, U\left(I_{PAUL}\right)\right)$$

- Government redistribution in this case could improve efficiency. It may be difficult for the private market to do this, if, for example, the rich lack information on just who really is poor.
- Simply an externality problem.

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Pareto Efficient Income Redistribution

- Altruism plays a role in this example, but private market could conceivable give charity.
- But not just altruism. Self-interest could play a role. Suppose there is a possibility that, for circumstances beyond your control, you become poor.
  - When well-off, pay "premiums." When bad times hit, collect "payoff."
  - Motivation of some social insurance programs.

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Nonindividualistic views

- In previous cases, social welfare derived from individual's utilities.
- Some specify what the income distribution should look like independent of individual preferences.
- One example: ***commodity egalitarianism***.
  - Right to vote, food, shelter, education, perhaps health insurance.

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Processes versus Outcomes

- Some argue that a just distribution of income is defined by the *process* that generated it.
- For example, "equal opportunity".
  - Ensuing outcome would be considered fair, regardless of the income distribution it happened to entail.
- Does raise problem of how to evaluate social processes.
- Robert Nozick
  - Society cannot redistribute income because society has no income to redistribute
- Mobility
- Corruption

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Expenditure Incidence

- Relative Price Effects
- Public Goods
- Valuing In-Kind Transfers

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Relative Price Effects

- Suppose government subsidized housing of the poor.
  - As a first pass, redistribution from rich to poor.
- May have overall effects on housing prices
  - Landlords may reap part of gain.
  - Affects wages of construction workers
- Generally, any government program sets off a chain of price changes, and the incidence is unclear.

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Public Goods

- Do rich and poor benefits similarly from the provision of public goods?
- Difficult to measure, sensitive to assumptions that are made.

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Valuing in-kind transfers

- Government provides many benefits to the poor *in-kind* – that is, direct provision of goods rather than cash.
  - Food stamps
  - Medicaid
  - Public Housing
- Estimating value is difficult. Not always valued at dollar-for-dollar (if resale is difficult).

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Valuing in-kind transfers

- Consider how the provision of an in-kind benefit changes the budget constraint in Figure 7.2.
- In this case, giving an in-kind benefit lowers utility relative to an equally costly cash transfer.
- Although the person is better off by having the in-kind transfer than not having it, she would be *even happier* with the cash transfer.

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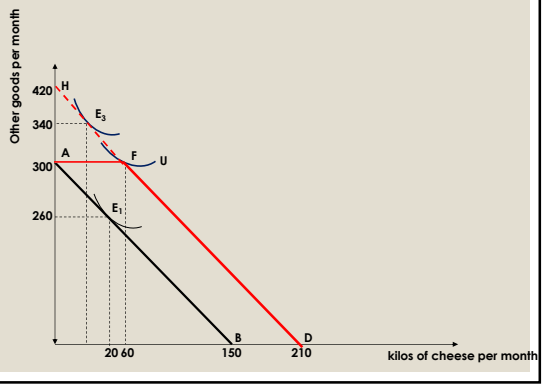
Valuing in-kind transfers



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Valuing in-kind transfers

- A person can never be made better off with an in-kind transfer that is ***equal in cost*** to a cash transfer.
- There are instances, however, when a person is indifferent between the two transfer schemes.
- See Figure below

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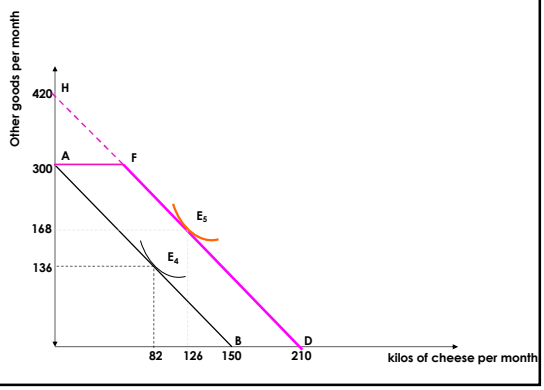
Valuing in-kind transfers



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Valuing in-kind transfers

- In this example, giving the transfer in-kind is not binding.

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Numerical Example: Baseline

- Assume that Jones has the following utility function:

$$U = u(C, O) = C^{\frac{1}{4}} O^{\frac{3}{4}}$$

- Where C indicates the quantity of cheese consumed, and O indicates the quantity of other goods.
- Jones faces prices P_C=2 and P_O=1 for cheese and other goods, respectively.

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Numerical Example: Baseline

- What allocation of would Jones choose with *I=300* ?
- In this Cobb-Douglas utility function, Jones' demand curve for cheese is:

$$C^* = \left(\frac{\alpha}{\alpha+\beta}\right)\left(\frac{I}{P_C}\right) = \left(\frac{\frac{1}{4}}{\frac{1}{4}+\frac{3}{4}}\right)\left(\frac{300}{2}\right) = 37.5$$

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Numerical Example: Baseline

- In addition, Jones' demand curve for other goods is:

$$O^* = \left(\frac{\beta}{\alpha+\beta}\right)\left(\frac{I}{P_O}\right) = \left(\frac{\frac{3}{4}}{\frac{1}{4}+\frac{3}{4}}\right)\left(\frac{300}{1}\right) = 225$$

- Jones' utility is therefore equal to:

$$U = (37.5)^{\frac{1}{4}}(225)^{\frac{3}{4}} = 143.76$$

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Numerical Example: Cash transfer

- In addition to Jones' initial income, assume the government gives a *cash* transfer of $120.
- What consumption bundle does Jones now choose, and what is her utility?

$$C^* = \left(\frac{\alpha}{\alpha+\beta}\right)\left(\frac{I}{P_C}\right) = \left(\frac{\frac{1}{4}}{\frac{1}{4}+\frac{3}{4}}\right)\left(\frac{420}{2}\right) = 52.5$$

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Numerical Example: Cash transfer

- In addition, Jones' demand curve for other goods is:

$$O^* = \left(\frac{\beta}{\alpha+\beta}\right)\left(\frac{I}{P_O}\right) = \left(\frac{\frac{3}{4}}{\frac{1}{4}+\frac{3}{4}}\right)\left(\frac{420}{1}\right) = 315$$

- Jones' utility is therefore equal to:

$$U = (52.5)^{\frac{1}{4}}(315)^{\frac{3}{4}} = 201.26$$

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Numerical Example: Binding in-kind transfer

- In addition to Jones' initial income, assume the government gives an *in-kind* transfer of 60 units of cheese, which she cannot resell.
- What consumption bundle does Jones now choose, and what is her utility?

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Numerical Example: Binding in-kind transfer

- Note that the *in-kind* transfer costs the government €120 (60 units x €2 per unit).
- When Jones was unconstrained, she used the extra 120 € to arrive at an allocation of {C,O}={52.5,315}.
- Jones cannot attain this, because the *minimum* amount of C she can consume is C=*60* (the amount of the in-kind transfer).

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Numerical Example: Binding in-kind transfer

- Thus, she uses all of her fungible income (€300) to purchase the good O:

$$O^* = \left(\frac{I}{P_O}\right) = \left(\frac{300}{1}\right) = 300$$

- Jones' utility is therefore equal to:

$$U = (60)^{\frac{1}{4}}(300)^{\frac{3}{4}} = 200.62 < 201.26$$

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Numerical Example: Non-binding in-kind transfer

- In addition to Jones' initial income, assume the government gives an *in-kind* transfer of 30 units of cheese, which she cannot resell. In addition the government also gives a cash transfer of €60.
- What consumption bundle does Jones now choose, and what is her utility?

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Numerical Example: Binding in-kind transfer

- Note that the *total* transfer costs the government €120. The *in-kind* transfer costs the government €60 (30 units x €2 per unit), and the *cash* transfer costs another €60.
- When Jones was unconstrained, she used the extra €120 to arrive at an allocation of {C,O}={52.5,315}.
- Jones *can* attain this, because the *minimum* amount of C she can consume is C=*30*, which is less than C=52.5 (the amount of the in-kind transfer).

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Numerical Example: Binding in-kind transfer

- Thus, she uses part of her fungible income (€360) to purchase the good C and good O.
- Ultimately, she wants C=52.5, so she purchases 22.5 units of C with her fungible income (with the rest coming from the in-kind benefit.
- She purchases 315 units of O with the remainder of her fungible income.
- Utility is the same as the unconstrained case.

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Valuing in-kind transfers

- Why give in-kind transfers if they tend to be inefficient?
  - Commodity egalitarianism
  - May reduce welfare fraud (especially if the in-kind transfer is an inferior good)
  - Politically viable because they help the producer of the in-kind good.

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Recap of Income Redistribution: Conceptual Issues

- Distribution of income
- Poverty line
- Social welfare functions
- Valuing In-Kind transfers

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