

## LECTURE 06: INCOME INEQUALITY

### I. Of Pie

- a. When economists talk of income inequality we typically talk in terms of pie: our metaphor for income.
  - i. “Equal slices of pie” implies an equal amount of income.
  - ii. The “size of pie” refers to how much total income there is.
- b. The metaphor is quite useful: imagine we’re eating pie together and you cut yourself a very big slice, leaving less for everyone else. If you eat that whole big slice of pie, it might start out very satisfying but that joy is quite dulled at the end.
  - i. In other words, there are diminishing marginal returns.
- c. Meanwhile, everyone else only has a little bit of pie. We’d like some more. Because we’ve had so little, a bit more would make us a lot happier.
  - i. If you take less, there is a small decrease in overall satisfaction.
  - ii. If we take what you gave up, there is a much larger increase in satisfaction.
  - iii. Reallocation of pie makes the group happier; this is why you typically split a pizza (pie) evenly. Equal shares maximizes satisfaction.
- d. But suppose the pie isn’t given to us. Suppose we made it together. Also suppose you worked very hard to make the pie while the rest of us slacked off. If we all take equal slices, you might not want to work as hard when we make pie again because you won’t be compensated fairly.
  - i. As a result, the size of the pie shrinks; not enough is being done to make it large.
- e. Thus the essential question: how do you slice the pie when the more equal the slices, the smaller the pie?
  - i. This is called the *equality-efficiency trade-off*.

### II. Why is there income inequality?

- a. One major issue is compensating differentials. Because high wages induce people to enter a market, wages rise if there are few people willing to enter a market, correcting the shortage.

- i. For example, consider malpractice suits. Doctors are regularly sued for alleged incompetence or poor care, even if these suits are frivolous.
  - ii. To combat the threat of suits, doctors increasingly do a lot of paperwork and extra tests. They spend less time interacting with patients and more time doing rather dull work.
  - iii. As a result, the cost of being a doctor has increased, or the supply curve shifts to the left. In order to keep up the same number of doctors, you have to pay them.
- b. Fun jobs are jobs with lots of people interested in doing them. The wage for that job falls.
- c. And less fun jobs means there are few people willing to do them. The wage for that job rises.
- d. A *compensating differential* is a difference in wages that offsets differences in working conditions.
  - i. Thus, dangerous jobs pay more than less dangerous jobs.
  - ii. Boring jobs pay more than exciting jobs.
  - iii. Jobs with lots of flexibility pay less than jobs with little flexibility.
  - iv. Professors, given our education level, don't get paid that much. But we have some of the best working conditions in the world.
  - v. Due to compensating differentials, all jobs should be equally desirable for the random individual.
- e. That's just one of the reasons for income inequality but there are others. Some of them are fair reasons and some are not. Let's build on compensating differentials and expand our list.
  - i. *Nature of work*—Some choose jobs with a lot of leisure time or flexible hours and get paid less. Other jobs, however, are stressful or dangerous and get paid more. Jobs with popular preferences will have less pay and jobs with rare preferences will be paid a lot. (Even if the people who have that job have the rare preferences as such people are unusual.) This is the essence of compensation differentials.
  - ii. *Ability*—Some people are more productive than others. This could manifest as intelligence, grit, physique, diligence, or other desirable social, physical, or mental traits.
  - iii. *Intrinsic motivation*—Like ability, this is slightly different because it's about motive. Sometimes, what people naturally want to do aligns with lucrative options. Because they are so driven on the topic itself, they will work harder and more

thoughtfully than someone who might be motivated by only money. Imagine a doctor who loves her job so much, they would work for free. (Note this is an extreme example.)

- iv. *Education/Experience*—You know this well; more education increases earning potential. We’ve talked about how some of that is skill building and some of it is signaling (which is then really a reference to the previous point).
  - v. *Cronyism*—Some companies/people make money not because they are productive but because they’ve restricted competition and/or garnered political favors.
  - vi. *Luck*—Some people are born lucky; they have well-off parents who can help them build the human capital which lets them get a good job. Others are unlucky: they might be stricken with a disease or started off in a low-income family which interfered with their ability to make themselves more productive.
    - 1. Discrimination is a notable type of luck. Many individuals have less income because of bigotry based on race, gender, creed, sexual orientation, caste, and gender identity.
- f. Now we can use this guide the equality-efficiency trade-off. In this table, if you think income is largely determined by stuff on the left, then you don’t think redistribution will shrink the pie that much and thus favor more equality. If you think income is largely determined by stuff on the right, then you think redistribution will shrink the pie a lot and you favor more inequality.

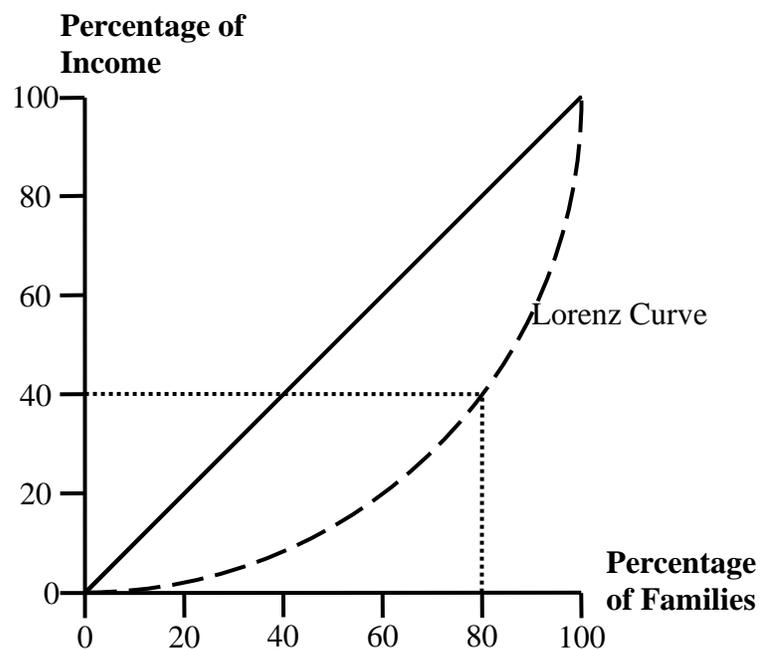
<b>Equality</b>	<b>Inequality</b>
Intrinsic motivation	Nature of work
Cronyism	Ability
Luck/Discrimination	Education/Experience

- g. Everything in the left column says that reducing pay won’t reduce output. People don’t need compensation to motivate them to be productive. They have their job either because they’re so motivated or because of dumb luck (and thus reducing pay won’t change behavior or outcome). Reducing pay might even *increase* output because it reduces the incentive for cronyism.
- h. Everything in the right column says that reducing pay will reduce output. By reducing compensation, people will be less willing to do things that need to be done. This extends even to factors that can’t be

controlled, like intelligence, because you still have to incentivize people to use their natural abilities.

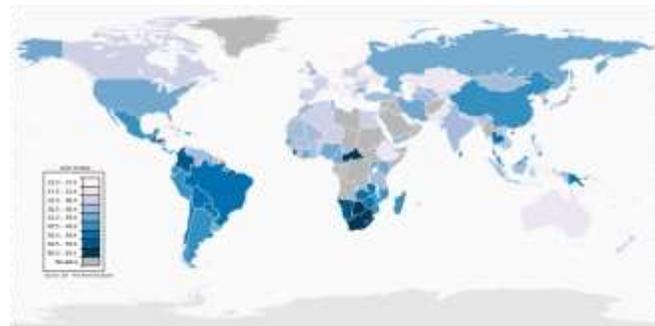
### III. Measuring inequality

- a. Imagine we're going to add up everyone's income starting with the lowest and ending with the highest. In a perfectly equal world, the bottom 20% of families will have 20% of income as the top 20% of families has 20% of income. This equal world is represented by a 45-degree line.
- b. The actual distribution is the Lorenz Curve. Like the 45-degree line, it a cumulative distribution. In this example, the top 20% of earners (100 – 80) make 60% of the total income (100 – 40).



- c. If you take the area between the 45-degree line and the Lorenz Curve and divide it by the total area under the 45-degree line, you get what's called the *Gini Ratio*.

- i. Higher ratios mean more inequality, lower ones mean less inequality.
- ii. It's sometimes multiplied by 100 for ease of interpretation.



- iii. Here's a world map of Gini ratios. Darker countries mean higher Gini ratios.

IV. A word of caution

- a. It's tempting to think of higher inequality as bad and lower inequality as good but how equal or unequal the distribution is does not tell us about a person's quality of life.
  - i. If the poorest people are getting richer and everyone else is getting richer at a faster rate that means more inequality. But that doesn't mean the poorest are worse off.



ii. Note here that while there are times Gini and median income move in opposite directions, sometimes they move in the same direction as they did in the 1990s.

- b. We see this also with claims of the shrinking middle class. It's true that fewer Americans are in what's typically considered "middle class" but it's because some are getting poorer *and* some are getting richer.
- c. Pew Research Center defines "middle" and "upper" incomes based on the size of the household, as below.<sup>1</sup>

**Share of adults living in middle-income households is unchanged since 2011**

% of adults in each income tier

	Lower	Middle	Upper
2016	29%	52	19
2011	29	51	20
2001	28	54	18
1991	27	56	17
1981	26	59	15
1971	25	61	14

Note: Adults are assigned to income tiers based on their size-adjusted household income. For 1971 to 2011, incomes refer to earnings in the calendar year prior to the survey year. For 2016, incomes refer to the 2015-16 calendar years. Source: Pew Research Center analysis of 1971, 1981, 1991, 2001 and 2011 Current Population Survey Annual Social and Economic Supplements and 2016 American Community Survey (IPUMS).

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**Who is 'middle income' and 'upper income' in 2016?**

Minimum household income needed to qualify for middle- and upper-income categories, by family size

	1	2	3	4	5
UPPER INCOME	\$78,281	110,706	135,586	156,561	175,041
MIDDLE INCOME	\$26,093	36,902	45,195	52,187	58,347

Note: Household incomes are adjusted for the cost of living in a metropolitan area before assignment to an income tier in the area. Source: Pew Research Center analysis of 2016 American Community Survey (IPUMS).

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<sup>1</sup> <https://www.pewresearch.org/fact-tank/2018/09/06/the-american-middle-class-is-stable-in-size-but-losing-ground-financially-to-upper-income-families/>