

First Midterm

- Answer Key posted on Learn@UW. See the 'past exams' section.
- If you did poorly, don't fret: If you do better on Midterm 2 and the Final, this exam will only count for 10% of your grade.
 - I'm available during office hours (9-10:30a Mondays, SSCI 7481) or by appt to go over your exam with you if you have questions.
- Regrade policy: Return exam to me or Eudey with written request for a regrade before the end of October.

Goals for this session

- Rule of 70 $70/\%growth = doubling\ time$
- Identify factors which have led to income inequality
- Determinants of Economic Growth - Set the stage for future chapters studying growth models and government policy. (Capital Deepening, Technological Progress, Development of Human Capital)
- Causes of Technological Progress (Creative Destruction, Induced Innovation)

Problems

1. In the 1980s and 1990s stock market returns averaged around 18%. In 1980 you win the lottery and get \$10,000,000.
 - (a) Approximately how many times would your money double between 1980 and 2000?
 $Rule\ of\ 70: 70/18 = 3.9$ Over 20 years, $20/4 = 5$, so your money would double about 5 times.
 - (b) How much are those stocks approximately worth in 2000? $\$10,000,000 * 2 * 2 * 2 * 2 * 2$ (5 doublings) = \$320,000,000
 - (c) Nearly 70% of Americans have less than \$1000 in savings!!! Relate this fact to your answer in (a)/(b) to discuss wealth/income inequality. In Piketty's words, why are we seeing income inequality grow? In (a)/(b) we showed that people who have excess money to invest in the stock market do very very well. Poorer people have less or no money invested in the stock market, so they cannot benefit from these large returns. As they say... IT TAKES MONEY TO MAKE MONEY! In Piketty's words: Returns to capital are rising faster than returns to labor

2. What is a Lorenz curve? What does it show? See attached graph. The Lorenz curve is a method of showing the income distribution of an economy. How has this curve changed over the years as income inequality increased? Again see attached. As income inequality grows, the curve will bow out.
3. Bill Gates on income inequality: "Some level of income inequality is built into capitalism" (i.e. incentivize innovation and education) "The question is, what level of inequality is acceptable? And when does inequality start doing more harm than good?" No correct answer here. This quote does a good job of laying out the subtleties of income inequality.
4. Foreign investment in developing countries
 - (a) Why might the idea of 'Economic Convergence' induce people to invest their money in emerging economies? Economic convergence says that countries with lower GDP per capita, will grow faster than more advanced economies, thus converging to match GDP per capita of the wealthier countries. High rates of growth means that investors might be able to have a lot to gain by investing their money in fast growing economies. This can either be direct (build factories for your company), or indirect (buy bonds) investment.
 - (b) A large Fortune 500 corporation wants to make direct investments in a developing country since low-skill labor is cheap there. What are the pros and cons of this investment from the perspective of the developing country? Pros: Stimulate local economy (employment and economic boost), develop the local human capital (transfer of knowledge). Cons: Can crowd out local investment, Economic Colonialism (exploitation by wealthy powerful company).
5. Why has industrialization/globalization helped rich countries more than poor countries? Technological progress is 'skill biased'. It tends to benefit those with more skills (more human capital). Poor countries might not have enough high-skill labor to take advantage of these technologies. See attached "Elephant Chart"
6. Come up with 3 recent examples of creative destruction (consider silicon valley). Netflix - put DVDs, movie rental companies out of business. Uber/Lyft - displacing taxis. Free, online news outlets destroying print news.
 - (a) Can you think of any innovations which may have had a net negative on society? Innovation in the financial sector with mortgage securitization - caused most recent financial crisis.
 - (b) Should the government do anything to alleviate the pains of creative destruction? Any opinion is valid here. It seems like in an ideal world companies who need laborers, would re-train the laid off workers, however in practice this doesn't happen for a number of reasons. One is it is expensive to re-train people without any guarantee they will stay and work for you long enough to recoup your investment in them. Another issue is that the new jobs might be in a different area of the country. People are very unwilling to move, even if it would be mean being fully employed vs. unemployed. Perhaps the government could somehow incentivize new companies to move to the laborers instead of the other way around.
7. Between 2011 and 2013, upon the introduction of generic versions of oral medications whose patents expired, decreased prices by 90%! e.g. a \$50/pill medicine would drop to

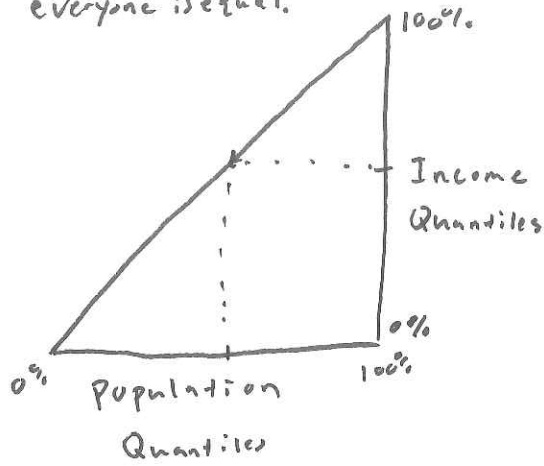
\$5 per pill. Do you think it is fair for companies to use their property rights (patents) to charge exorbitant prices for potentially life saving medicines? **Argument that it is fair:** Although in the short run, people may have trouble accessing drugs due to the cost, however in the long run it will get cheaper. The company would never have made the innovative drug in the first place, if it were not for the guarantee of monopoly profits before the patent expires. **Argument that it is not fair:** It is immoral to deny people access to life saving drugs due to cost. We shouldn't have a society where the rich can survive and poor cannot. The big takeaway here is that with any policies there are always winners and losers. The tricky part is deciding who the winners and losers should be.

8. Explain the solow growth residual. How does Eudey say it is calculated? **We have $Y = F(K,L,A)$. A (tech) cannot be measured. So we measure output due to Capital and Labor, but it doesn't explain in total all of the output. The leftover unexplained portion is explained away as 'A'. In growth rates, Eudey says: $Y-f(K,L) \approx A$**

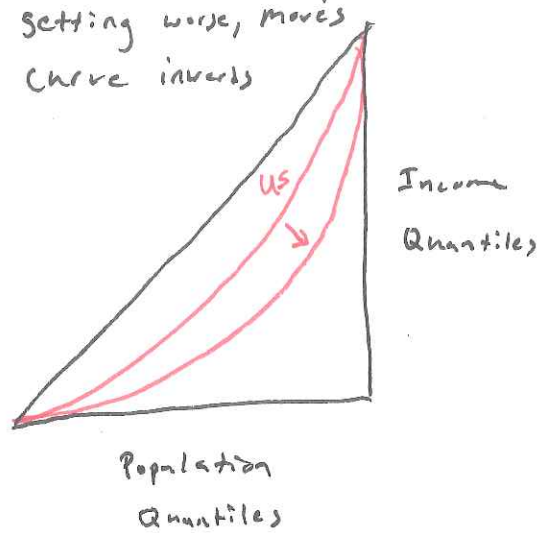
TA Session Survey

- Survey closes this weekend - please take a second and go to aefis.wisc.edu and share your thoughts. You'll need to log in with your wisconsin ID.

Balance d Income,
everyone is equal.



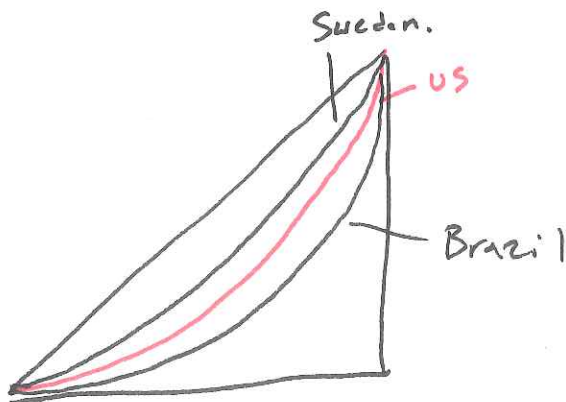
Income inequality
setting worse, moves
curve inward



e.g. in the middle of the
graph, 50% of people have
50% of the Income

This case does not occur
in a capitalist system.

Comparison to
other countries:



i.e. Income inequality
is highest in Brazil,
lowest in Sweden when
compared to US.