

Phil 4800

Notes #1: Rational Choice & Framing

I. Why rational choice theory might predict behavior:

- Rationality helps people pursue their goals. People are rewarded for being rational.
- Competition in the marketplace gives rational agents greater influence.
- The axioms of rational choice are intuitive.

II. Background: Expected Utility & Rational Choice

A decision problem has:

- Options (choices): Things that the agent is choosing among. There must be two or more options.
- States of the World: The way things are descriptively, in the world outside the agent. May affect what happens to the agent. The actual state may be unknown, so there may be many possible states.
- Outcomes: Things that might happen as a result of the agent's choice. The outcome will typically be a function of the agent's choice and the state of the world. Good or bad outcomes are "payoffs".

The agent has:

- Subjective probabilities: These represent his opinions about the state of the world. May be understood as what he regards as fair betting odds for each possible state.
- Utilities: How good any given outcome is, from the agent's point of view. (May be his degree of satisfaction if the outcome happens.) The *utility function* assigns a number to each outcome, representing the agent's utility in that outcome.

A Decision Rule: Maximize Expected Utility

Perform the action with the highest expected utility, which is defined as

$$\sum_{i=1}^n P(O_i | A) \cdot U(O_i),$$

where A is an action the agent might perform, n is the number of possible outcomes, O_i is possible outcome # i , $U(O_i)$ is the utility of that outcome for the agent, and $P(O_i | A)$ is the agent's subjective probability that that outcome will happen if he performs act A . Alternate form:

$$\sum_{i=1}^n U(O_i) \cdot \left[\sum_{j=1}^m P(S_j) \cdot P(O_i | A, S_j) \right]$$

II. Principles of Rational Choice

Cancellation: You can ignore ("cancel") states of the world in which your choice would not affect the outcome.

(Related principle: Independence of Irrelevant Alternatives: If A is preferred to B given alternatives $\{A, B\}$, then B cannot be preferred to A from alternatives $\{A, B, C\}$.)

Transitivity: If A is preferred to B , and B is preferred to C , then A should be preferred to C .

Dominance: If option A produces a better outcome (higher utility) than B given at least one possible state of the world, and does not produce a worse outcome in any other possible state, then A should be preferred to B.

Invariance: Different representations of the same problem must have the same solution.

Completeness: You have preferences for all alternatives.

Continuity: If A is better than B, which is better than C, then there's some probability p such that B is exactly as good as C combined with a probability p of getting A.

- If you combine all these assumptions, you get the principle of Expected Utility Maximization.

III. Violations of Invariance (Framing Effects)

The Cancer Treatments:

(Survival Frame) Which is better:

Surgery: 90% live through surgery, 68% through 1 year, and 34% through 5 years.

Radiation: 100% live through treatment, 77% through 1 year, and 22% through 5 years.

(Mortality Frame) Which is better:

Surgery: 10% die in surgery, 32% die within 1 year, and 66% within 5 years.

Radiation: 0% die during treatment, 23% die within 1 year, and 78% within 5 years.

Radiation seems better in the Mortality framing.

Gain/Loss risk aversion:

(Gain Frame) Which is better:

a) A sure gain of \$24.

b) A 25% chance of getting \$100 and a 75% chance of getting nothing.

(Loss Frame) Which is better:

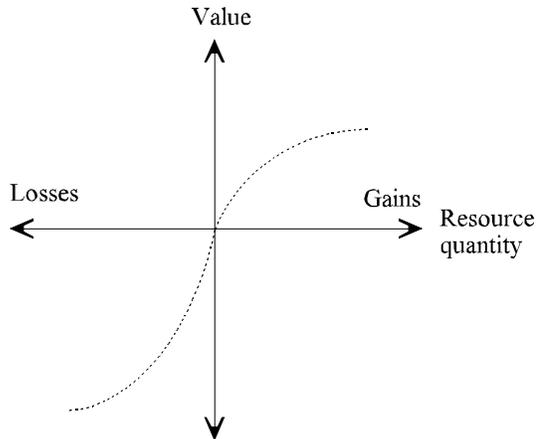
c) A sure loss of \$75.

d) A 75% chance of losing \$100 and a 25% chance of losing nothing.

Most people choose (a) + (d).

IV. Prospect Theory: The Value Function

People use an S-shaped value function:



- People are risk-averse for ‘gains’, risk-seeking for ‘losses’.
- *Loss aversion*: Losses are assigned greater (dis)value than foregone gains.
- Note status quo bias: the ‘neutral’ position (usually the status quo) is treated as the unique position with highest marginal utility.
- Framing can affect what is seen as the neutral/default position.

Example:

600 people have a life-threatening disease. Which is better:

- 100% probability of saving 200 of them.
- A 1/3 probability of saving 600, and a 2/3 probability of saving none.

Which is better:

- 100% probability that 400 of them die.
- A 1/3 probability that none die, and a 2/3 probability that 600 die.

V. Prospect Theory: Weighing Probabilities

Features of the probability weighting function:

- Impossible events are discarded. $\pi(0)=0$.
- Certain events are weighed simply according to the value function. $\pi(1)=1$.
- Low probabilities are over-weighted, moderate-high probabilities (below 1) are underweighted.
- Probability differences are treated as more significant for low probabilities than for higher probabilities. The difference between .1 and .2 probability is seen as more significant than the difference between .4 and .8 probability.

When we violate the axioms of decision theory:

- Cancellation and dominance are obeyed when the relations are obvious.
- When the relations are not obvious, people choose in accordance with prospect theory (above), sometimes violating cancellation or dominance.

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Notes #2: Pascal's Wager

To discuss today:

How to evaluate bets.

Pascal's argument: why you should 'bet on' God's existence.

Objections to Pascal's wager.

I. What Is Pascal's Wager?

- It is an argument intended to show that you *should* believe in God. It is referred to as Pascal's "wager" because Pascal compares believing in God to making a 'wager' (a bet) that God exists.
- Important distinction: 2 kinds of 'reasons for believing' something:
 - *Epistemic reasons*: Reasons that make it likely that the belief is true. An epistemic reason for believing a claim is evidence for the claim.
 - *Prudential reasons*: A prudential reason is a reason why something is in your own interests.
- Pascal proposes that you have a compelling prudential reason to believe in God.

II. How to Evaluate a Bet

- When offered a bet, you should consider the following factors:
 - a) The probability that you will win.
 - b) How much you gain if you win.
 - c) The probability that you will lose.
 - d) How much you will lose if you lose.
- *Expected value* of the bet: This = [(a) × (b)] - [(c) × (d)]. A bet with positive expected value is good; one with negative expected value is bad.
- Note: the same basic idea applies not just to betting behavior, but more generally to making any decision when you're uncertain of the outcome.
- Example: You want to decide whether you should buy a lottery ticket. Suppose the prize is \$1 million, the probability of winning is 1/5,000,000, and the cost of a ticket is \$3. Then you can view this as a bet:

Probability of winning:	.0000002
Gain if you win:	\$999,997
Probability of losing:	.9999998
Amount of loss:	\$3
<hr/>	
<i>Expected value of bet:</i>	$(.0000002)(999997) - (.9999998)(3) = -2.8$

Hence, the 'bet' is unfavorable.

III. The 'Bet' on Whether God Exists

- You can either 'bet' that He exists (by believing in Him), or 'bet' that he doesn't exist (by not believing in him).
- Note: Pascal only compares Christianity versus atheism. Doesn't consider other religions.
- According to Pascal:
 - a) If God exists and you don't believe in him, then you go to Hell forever (very bad).

- b) If God exists and you believe in him, you go to Heaven forever (very good).
- c) If God doesn't exist, and you believe in him, nothing much happens.
- d) If God doesn't exist, and you don't believe in him, nothing much happens.
- e) It's about equally likely that God exists as that he doesn't, because there is no good evidence either way.

• Thus, we compare the two possible bets you can make:

Betting on God's existence:

Probability of winning: .5

Gain if you win: ∞

Probability of losing: .5

Amount of loss: 0

Expected value of bet: $(.5)(\infty) - (.5)(0) = +\infty$

Betting against God's existence:

Probability of winning: .5

Gain if you win: 0

Probability of losing: .5

Amount of loss: ∞

Expected value of bet: $(.5)(0) - (.5)(\infty) = -\infty$

Obviously, you should choose the former over the latter.

IV. Objections

Objection #1:

The probability of God existing is not .5. It's much lower.

Reply: What happens if you substitute different numbers for “.5” in the following equations?

$$(.5)(\infty) - (.5)(0) = +\infty$$

$$(.5)(0) - (.5)(\infty) = -\infty$$

Objection #2:

The loss from believing in God is not 0. Believers waste time going to church, etc., and unbelievers have more fun. Plus, there is the potential disvalue of having a false belief.

Reply: What happens if you substitute different numbers for “0” in the following?

$$(.5)(\infty) - (.5)(0) = +\infty$$

$$(.5)(0) - (.5)(\infty) = -\infty$$

Objection #3:

The argument incorrectly assumes that there are only two possibilities, atheism and Christianity. What about other religions?

Reply: This must be granted. The argument favors theism over atheism. But it does not favor Christianity over, e.g., Islam or Judaism.

Objection #4:

The argument incorrectly assumes that we can choose what we believe.

Reply: You can take steps to try to attain belief.

Objection #5:

The argument assumes that God would punish people for not believing in him. But this is

incompatible with his being all-good.

Reply: The argument succeeds if there is any *chance* that this assumption might be true.

Objection #6:

This might be true: “God hates believers. He will send all who believe in him to Hell, and send all atheists to heaven.” So you should be an atheist.

Reply: There is a better chance that God likes believers than that he hates them.

Objection #7:

“Anyone who doesn’t give me \$1000 by next week will suffer eternal torment.” This *might* be true, so you should give me \$1000.

Reply: There is more evidence for the claim that atheists will go to Hell than for the claim that non-donors of \$1000 to you will go to Hell. (Does this work?)

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Notes #3: Self-Torture & Transitivity

I. The Self-Torturer

- The torture device has 1001 settings:
 - S0: Off
 - S1: Unnoticeable level of electric current.
 - ...
 - S1000: Horrible torment.
- Each time you turn it up, you get \$10,000.
- The difference between any two adjacent settings is undetectable.

A Counter-Example to Transitivity?

1. For every n , it is rational to prefer $S(n+1)$ over S_n .
2. But it is not rational to prefer S_{1000} over S_0 .
3. So transitivity of rational preference is false.

II. Weak Objections

1. The self-torturer's (ST's) preferences are changing.
 - No, they aren't.
2. We're neglecting behavioral manifestations of electric current.
 - The electric current changes are so small that there is no detectable behavioral difference either.
3. Ignoring measures of discomfort.
 - Discomfort levels are indeterminate.
4. The possibility of 'triangulation'.
 - The changes are too small to be detected even by triangulation.
5. The reversal of preferences: There must be a first stage S_n such that S_0 is preferred to S_n . Then he should have stopped at $S(n-1)$.
 - Indeterminacy again.
6. The ST's preferences are paradoxical. He should give up some of his preferences.
 - The conclusion does not depend on any empirically false suppositions. (?)
7. The ST should weigh the risk that he might experience greater discomfort without noticing it.
 - This assumes there can be unidentifiable pains or changes in pain.
8. There is a risk that, if one takes the next step, one will subsequently (after further steps) be in unacceptable pain.
 - This doesn't apply if the ST assumes himself to be rational.
9. Why not pick a reasonable stopping point in advance, proceed to there, and then stop?
 - Once he arrives at that point, it will be rational to go one step farther. (The Principle of Strategic Readjustment)

III. Quinn's Solution

- Let the ST imagine a filtered series of steps (comprising a smaller number of steps than the original), such that
 - a) His preferences are transitive over the filtered series,
 - b) It has a member better than 0,
 - c) It is the most refined series satisfying these conditions.

- Then the ST should choose a reasonable stopping point in the filtered series.
- Then he should proceed to that step in the series he actually faces.
- Why shouldn't he then move to the next setting?
 “A reasonable strategy that correctly anticipated all later facts ... still binds.”

IV. Compare/Contrast with Gauthier's idea

- Gauthier thinks it is sometimes reasonable to fulfil an agreement, even when it is disadvantageous at the time.
- But this is due to the agent's limitations: inability to deceive others.
- Quinn's view does not depend on any inabilities on the part of the agent.

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Notes #4: Rachels' "Counterexamples" to Transitivity

I. Preliminaries

- Transitivity: If A is better than B, and B is better than C, then A is better than C.
- An analogous claim applies to "worse than".
- Transitivity for 3-element series implies transitivity for n-element series.
- Stipulated sense of "pleasure" & "pain": A pain is an experience inferior to unconsciousness. A pleasure is an experience superior to unconsciousness.

II. Why the thesis is not too ridiculous

- Analogy: Rejecting absolute simultaneity (revises conception of time)
- Why we believe transitivity: an inductive argument.
 - But if we find a counter-example, then the inductive argument is refuted.

III. Counter-example

- Imagine a series of experiences:

- A 50 yrs of ecstasy
- B 5000 years of pleasure slightly less intense than A.
- C 500,000 yrs of pleasure slightly less intense than B.
- ...
- Z $5 \cdot 10^{51}$ yrs of muzak and potatoes (barely pleasurable).

1. Each step is better than the previous step.
2. But Z is worse than A.
3. So transitivity is false.

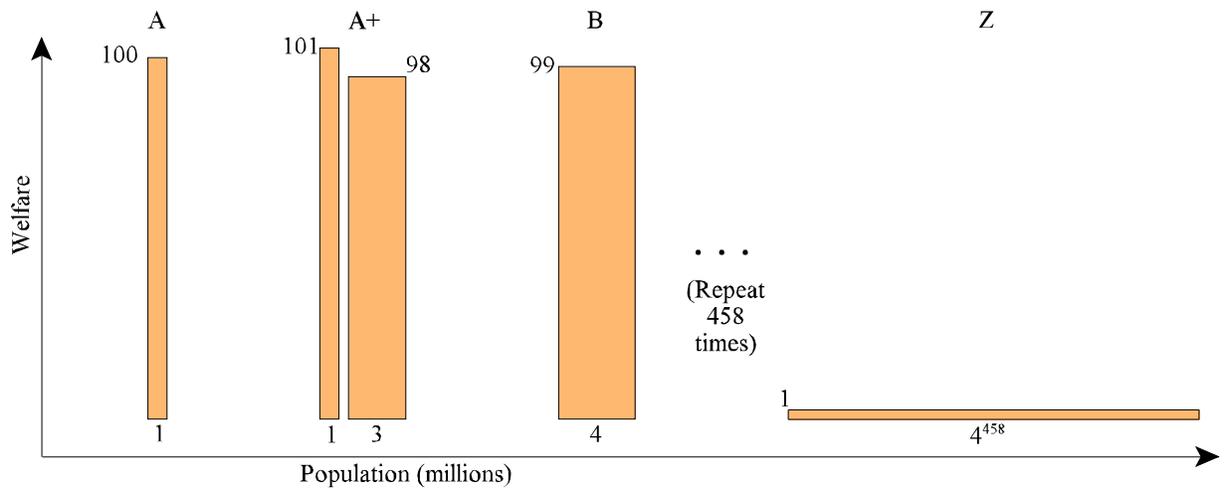
- Similar example can be constructed with pains.

IV. Objections

1. It's a sorites paradox.
 - No it isn't. The claim at each stage is equally plausible.
2. The scenario is too far from reality.
 - We have clear opinions about the comparisons & the concepts involved are simple & easily understood.
3. People have trouble grasping long periods. Reduce the pleasure/pain to 3 seconds.
 - Some possible pains are such that 3 seconds of them are worse than eons of mild discomfort.
4. There is some point at which making a mild pain milder but 100 times as long would be better.
 - This is not plausible, if one remembers the stipulated def. of "pain".

V. A Population Ethics Example

This is a simpler example than the one in Rachels' paper.



- A+ is at least as good as A.
- B is at least as good as A+.
- So B is at least as good as A. (Transitivity)
... (repeat 458 times)
- Z is at least as good as A.

Most people think Z is *worse* than A. So transitivity must be rejected.

VI. Implications

- Transitivity may still work in most cases.
- Value is not a quantity. Thus
 - No such thing as average utility, total utility.
 - Things don't have "more value" or "less value".
 - There is only a 2-place relation, "better than" (like "to the West of").

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Notes #5: Arguments for Transitivity

I. Money Pump Argument

Assume:

- Assume $A > B > C > A$.
- You have A.
- Would you trade A + a small amount of \$ for C?
- Would you trade C + a small amount of \$ for B?
- Would you trade B + a small amount of \$ for A?

Argument's premises:

1. A rational person would always trade something for something better.
2. A rational person would not be a "money pump".

Rachels' Reply:

Denies (1), because the rational person would want to avoid being money pumped.

My reply:

- Rachels' reply assumes intransitivity, so does not remove the force of the objection.

II. The Dominance Argument

Premises:

(Mereological) Dominance: If $X_1 > Y_1$ and $X_2 > Y_2$, then $(X_1 + X_2) > (Y_1 + Y_2)$.

- Assume no organic unities.

Asymmetry: If $X > Y$, then $\sim(Y > X)$.

Example 1:

- Assume $x_1 > x_2 > x_3 > x_4 > x_1$.
- Then $(x_1 + x_3) > (x_2 + x_4)$ (Dominance)
- Also, $(x_1 + x_3) < (x_4 + x_2)$ (Dominance)
- But $(x_2 + x_4) = (x_4 + x_2)$! So this state is both better and worse than $(x_1 + x_3)$.

Example 2:

- Assume $x_1 > x_2 > x_3 > x_1$.
- Then $(x_1 + x_2 + x_3) > (x_2 + x_3 + x_1)$ (dominance)
- But $(x_1 + x_2 + x_3) = (x_2 + x_3 + x_1)$, so this state is better than itself.

Example 3:

- Assume $x_1 > x_2 > x_3 > x_1$.
- $(x_1 + x_2) > (x_2 + x_3)$. (Dominance)
- $(x_2 + x_3) > (x_2 + x_1)$. (Dominance)
- But $(x_1 + x_2) = (x_2 + x_1)$, so this state is both better and worse than $(x_2 + x_3)$.

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Notes #6: Newcomb's Paradox

I. Newcomb's scenario

Two boxes:

- B1: \$1000.
- B2: Either \$0 or \$1 million.

Your choices:

- Take B1 *and* B2.
- Take only box B2.

The decision-predictor:

- Predicts people's decisions, based on their personality traits, brain state, etc., with 90% accuracy.
- If he predicts that you will take *both* boxes, then he put \$1m in B2; otherwise, he put 0 in B2.
- You know all this, the predictor knows that you know it, etc.
- Sequence: First you hear the decision problem, then the predictor scans you and makes a prediction, then the predictor puts either \$1m or 0 in B2, then you make your choice.

II. An argument for one box:

Expected Utility Maximization:

Let A1 = you take both boxes.

A2 = you take box B2.

Expected money payoff of A1:

$$(\$1,001,000) * P(\text{B2 contains } \$1\text{m} | A1) + (\$1000) * P(\text{B2 is empty} | A1) = (1,001,000)(.1) + (1000)(.9) = \$101,000.$$

Expected payoff of A2:

$$(\$1,000,000) * P(\text{B2 contains } \$1\text{m} | A2) + (\$0) * P(\text{B2 is empty} | A2) = (1,000,000)(.0) + (0)(.1) = \$900,000.$$

Presumably the expected utility of A2 is also greater than that of A1, so choose A2.

Rationality proven by results:

Suppose the experiment is repeated many times. Many one-boxers and many 2-boxers play.

The one-boxers wind up a lot richer than the 2-boxers.

This is predictable in advance.

So it's obviously better to be a 2-boxer than a 1-boxer.

III. An argument for two boxing

Dominance:

- Either B2 contains \$1m, or B2 is empty.
- If B2 contains \$1m, then you should take both boxes (gaining \$1,001,000 instead of \$1,000,000).
- If B2 is empty, then you should take both boxes (gaining \$1000 instead of \$0).
- So A1 dominates A2. So choose A1.

The Friend's Advice Argument

Imagine a friend is sitting there, looking inside both boxes. He knows what is in B2, but he can't tell you. What would he advise you to do: take B2, or take both?

IV. Observations about the Two Principles

- 1) Dominance only applies when the states of the world are probabilistically independent of your action. Otherwise, apply expected utility.
- 2) The probabilities in EU are the prob. of the state conditional on the action.

Example:

	S1	S2
A1	win \$10	win \$100
A2	win \$5	win \$90

- The person working the roulette wheel has been instructed to make S1 happen if I choose A1, and make S2 happen if I choose A2. It is highly probable that he will do so.
- A1 “dominates” A2. But you should choose A2.
- Explanation: S1, S2 are not probabilistically independent of A1, A2 (what you do affects the probabilities of the states).
- Expected utility calculation:
Assume 90% probability that the roulette operator follows his orders.
A1: $(10)(.9) + (100)(.1) = 19$
A2: $(5)(.1) + (90)(.9) = 81.5$

Qualification

- 3) But Dominance *still* applies even if the states of the world are probabilistically dependent on your action, if the probabilities do not reflect any *influence* from the action to the states.

Example:

There is a deadly, genetic disease, which you may or may not have. People with this disease are also more likely to choose academic careers. Should you avoid an academic career, so you will be less likely to have the disease? (No.)

V. Nozick’s View

- Take both boxes.
- But why does N’s problem seem different from the others (like the disease example above)?
 - The explanation of why the \$1m is (or is not) in B2 refers to your decision, but in an intensional context.
 - The idea that the predictor ‘can’t be’ wrong encourages the thought that you have control over what he predicted.

VI. Postscript

- Nozick’s later view in *The Nature of Rationality*:
 - Most people can be moved from one-box to 2-boxes, or vice versa, by changing the dollar amounts (keeping the example qualitatively the same).
 - There are 2 versions of Expected Utility: Causal EU, and Evidential EU.
 - We should use a weighted sum of CEU and EEU.

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Notes #7: The Banker Paradox

A variant on the Ross-Littlewood Paradox.

I. The banker game

- Infinite pile of \$\$, infinitely many turns. Bills are labeled “1”, “2”, “3”, etc.
- Round 1: Choose between
 - a) Taking bill \$1.
 - b) Taking bills 1-10, but giving back #1.
- ...
- Round n: choose between
 - a) Taking the next \$1 bill off the stack.
 - b) Taking the next ten bills, but giving back your lowest numbered bill.
- Each round is played in half the time of the last round. So the game completes in a finite time (twice the duration of the first round).

II. A paradox

- 1) At every stage, you should choose (b).
- 2) If you choose (b) at every stage, you end up with 0.
- 3) If you choose (a) at every stage, you end up with $\$∞$.

III. A variant

- At each stage, instead of giving back your lowest # bill, you switch the labels of the lowest- and highest-numbered bills, then give back the new lowest # bill.
- In this case, you end up with \$infinity.
- This series is qualitatively identical at every stage as the original series. But it has the opposite outcome.

IV. What has gone wrong?

- Perhaps the hypothesized series is impossible. Why?
 - Maybe you can't have an actual infinity.
 - There are many counter-examples. Space, the past, the future, numbers, etc.
 - Perhaps it is impossible to complete an infinite series “by successive addition”.
 - Zeno's paradox refutes this. Zeno's series is completed every time an object moves.
 - Perhaps there cannot be an infinite series of dependencies.
 - Another Zeno series refutes this.
 - Finally, perhaps there cannot be an infinite *intensive magnitude*.

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Notes #8: St Petersburg Paradox

I. The St Petersburg game

- A fair coin is flipped until the first time it comes up heads. Let the number of flips = n . ($n \geq 1$)
- Payoff: $\$2^n$
- Q: How much should you be willing to pay for a chance to play this game?

II. Problem:

- Expected value of the game = $\$infinite$.
- The chance to play the game does not appear to be worth $\$infinite$.
- Also, notice that the actual payoff is 100% certain to be less than the expected value.

III. Solutions

- Appeal to diminishing marginal utility of money.
 - Response: Just increase the \$ payouts faster. As long as utility is unbounded, the paradox can be reproduced with some faster schedule of payouts.
- Bounded utility: there is only so much time during which to spend your money.
 - Response: Give payout in time + money.
- Note that the assumption of infinite resources is crucial.
 - If the house has only \$1 million, then the game is worth only \$11.
 - If the house has \$60 billion (Bill Gates), the game is worth \$19.
 - If the house has the entire world GDP (\$55 trillion), the game is worth \$24.
 - As the house's resources increase, the expected \$ value of the game increases without bound, but slowly.
 - Maybe infinite resources are impossible.

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Review of Unit 1

At the end of this unit, you should know ...

These concepts:

'Expected' values
Subjective probability
Utility
Instrumental rationality vs. epistemic
rationality

Principles:

Expected utility maximization
Cancellation
Transitivity for preference / value
Dominance Principle (in decision theory)
Invariance
'Mereological' Dominance principle
Asymmetry
Diminishing marginal utility of money

Empirical facts:

How people deviate from rationality

- Loss aversion
- Risk aversion vs. risk seeking, gains vs. losses
- Weighting of small probabilities
- How framing alters judgments, effects of gain vs. loss frames
- Which principles of rational choice people violate, when

Hypothetical scenarios:

Self-torture
Rachels' series of pleasures
Newcomb's problem
Nozick's case of the deadly genetic disease & academics
Banker game
& why you end up with \$0
St Petersburg
& expected value of the game
& response to diminishing-utility-of-money solution

These people & their main ideas:

Kahneman/Tversky
Pascal
Quinn
Rachels
Nozick
Barrett/Arntzenius
Cowen/High

Arguments:

Pascal's argument 'for theism'

- Expected utility of 'betting on' God's existence
- EU of betting against
- What if we lower the Pr. of God's existence?
- What if we think being a theist is unpleasant?
- What if we think God wouldn't punish non-believers?

Quinn's argument against transitivity

- Why not rely on estimates of "level of discomfort"
- Why not weigh the 'risk' of having an unnoticed increase in discomfort

Rachels' argument against transitivity

- Why, e.g., there is no such thing as average utility

Money pump argument

- & Rachels' response

Dominance argument for transitivity

Newcomb: argument for one box
& Argument for 2 boxes

Theories:

Quinn's view of how the self-torturer should proceed
Nozick's answer to Newcomb's problem
& when Dominance Pr. applies

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Notes #9: The Prisoner's Dilemma

I. The Prisoner's Dilemma

A game with the following actions and payoffs:

		Player 2	
		Cooperate	Defect
Player 1	Cooperate	2 nd worst, 2 nd worst	worst, best
	Defect	best, worst	2 nd best, 2 nd best

*Notes: "x,y" means payoff x for player 1 and y for player 2. Higher numbers are better.

- What should each player do?
 - Player 1 should defect. Defection dominates cooperation.
 - Player 2 should likewise defect.
- Problem: "defect, defect" outcome is worse for both than "cooperate, cooperate" outcome. Hence the "dilemma".
- Important: Game theory "games" are *not competitions*. Goal is to maximize own payoff, not to beat other player.

II. Some Examples

- Real life example: Trade
 - You and I agree to trade my cow for your keg of beer. Somehow, each of us has to give what he has before he knows that the other party has done their part.
- Outcomes:
 1. I cooperate, you defect: I lose my cow & get nothing. (worst for me)
 2. Both cooperate: Each has something we prefer to what we started with (good)
 3. Both defect: Both keep what we started with (less good)
 4. I defect, you cooperate: I get both the cow & the beer. (Best for me)
- Birds picking ticks off each other's heads (Dawkins, 2007)
 1. Worst outcome: I pick your ticks, you do nothing.
 2. Second worst: No one picks ticks.
 3. Second best: Both pick ticks off each other's heads.
 4. Best outcome: You pick ticks off my head, I don't do anything.

III. Sidebar: The PD with known iterations

- Two parties play PD (e.g.) 10 times, # of plays known in advance.
- Your action in one round may affect other player's actions in future rounds.
- Theoretical prediction: Both parties defect every time.

IV. The indefinitely iterated PD

- PD is to be played many times (unknown #).
- Your action may affect other player's actions in future rounds.
- What is the best strategy?
 - *Nice* strategies: are never first to defect
 - *Provocable* strategies: can be caused to defect by other player's behavior

- *Forgiving* strategies: do not hold a grudge
- *Best strategy*: Tit for tat
 - Cooperate in round 1.
 - In round $n+1$, do what the other player did in round n .
- This was tested & confirmed by Robert Axelrod (*The Evolution of Cooperation*)
- Why is this best?
 - Avoids extended runs of sucker's payoffs. Cost: potential 1 round of sucker's payoff.
 - Obtains extended runs of cooperation with other nice players.
 - Beats nasty strategies: The payoffs from cooperation outweigh the 1 round of sucker's payoff.
 - Beats pacifist strategy ("always cooperate"): avoids multiple rounds of sucker's payoffs.
- Important points:
 - Best strategy is relative to the field of competitors. However, TFT works in many contexts.
- Variation: PD with errors: Suppose a player periodically misinterprets the other player's action.
 - Then TFT can lead to long runs of mutual recrimination, CD DC CD ...
 - Can be improved by a more forgiving strategy.
- Sidebar: Other ways to increase cooperation
 - Reputation: Players have access to other players' previous moves in interactions with third parties.
 - Selection: Players can choose whom to play with.
 - Reproduction: Frequency of a program increases with each round that it is successful.

V. Lessons for understanding society

- To be selfish, be nice, forgiving, but provocable.
- Don't be envious. Goal is to maximize your score, not 'beat' your partner. TFT *cannot* beat its partner.
- Strategies may be conscious *or unconscious*. "Strategies" are defined purely behaviorally. Hence,
 - Real-life players may be moved by thoughts of "justice", the virtue of "forgiveness", etc.
 - But they may *behave* like rational utility-maximizers.

VI. More real-life examples

- German & British soldiers "cooperating" with mutual non-aggression during WWI.
- The British soccer example.
 - Teams A and B will each move to the next round if they draw against each other. If one loses, the loser is eliminated.
 - Result: Teams start cooperating for a tied score.
- Chess tournaments can have similar cases. Both players agree to a draw.

VII. Postscript

- In a later tournament, other strategies won. The strategy:
 - People from Southampton University submitted a total of 60 programs.
 - Southampton programs were designed to recognize each other in the first 5-10 rounds against each other.
 - After recognition, the programs assume a "master-slave" relationship.
 - The programs defect against non-Southampton programs.
- This result has little theoretical interest. (Why?)

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Notes #10: Nash Equilibrium

I. Background: IEDS

Described in earlier chapter of the book: Iterated elimination of dominated strategies.

- Step 1: Look for any strategy by any player that is dominated by some other strategy. Eliminate that strategy.
- Step 2: From the remaining matrix, eliminate any dominated strategies.
- ... continue until no dominated strategies exist.

Example:

		Player 2		
		A1	A2	A3
Player 1	A4	1,1	1,0	0,-1
	A5	0,1	0,2	0,0

- IEDS solution = A4, A1. (Why?)

II. Nash Equilibrium

- A *Nash Equilibrium* is a set of choices for all the players in a game, such that no individual could do better by switching his strategy, given what all the other players are doing. In other words:
 - Each player plays a *best response* against a conjecture about other players' strategies.
 - The conjectures are all correct.
- Any IEDS solution is a Nash Equilibrium. Some Nash equilibria are not IEDS solutions.

Example 1: What are the Nash Equilibria in the game above?

		Player 2		
		A1	A2	A3
Player 1	A4	1,1	1,0	0,-1
	A5	0,1	0,2	0,0

Example 2: This shows that Nash Equilibrium is weaker than IEDS solution:

		Player 2		
		A1	A2	A3
Player 1	A4	-8,-6	-1,-4	7,-4
	A5	-4,-1	4,-1	4,-4
	A6	1,2	1,-1	1,-4

- Find the IEDS solution.
- Find the Nash equilibria.

III. Motivating the Nash Equilibrium solution concept

Why would rational parties choose a Nash equilibrium?

- A reasonable prescription for play for all parties. Deviation from the prescription worsens anyone's payoff.
- Preplay communication: Players might try to agree on a set of strategies to play. Any non-Nash set would be vetoed.
- Assume no one makes a "mistake" \Rightarrow Nash equilibrium
- It's a Schelling point.
- Trial and error (repeated games) \Rightarrow Nash equilibrium. Other points are unstable.

To reflect on: How successful are these arguments?

IV. Application: Collusion

- A group of airlines all want to see higher prices for air travel. They band together to form a *cartel*, with an agreement as to the price to be charged per mile. Assume:
 - If everyone sticks to the agreement, everyone does better than they would with the original (competitive) prices.
 - The agreement, being secret and illegal, will not be enforced by the courts. (Why is this important?)
 - If one airline charges slightly lower prices, they get more business & more money. The other airlines lose business.
 - We will consider two players, and three prices they could charge.
- **Aside:* This is like a Prisoner's Dilemma, except there can be multiple players & multiple actions.
- Payoff matrix:

		United		
		Low price	Medium price	High price
Southwest	Low price	2,2	6,1	4,0
	Medium price	1,6	5,5	12,4
	High price	0,4	4,12	10,10

- Find the Nash equilibrium.
- The same logic applies when you introduce many price levels, and many airlines.
- The process is more certain when there are more players. (Why?)
- It is also more certain when there are more subjective or hard-to-detect ways of chiseling (e.g., giving customers something extra of value when they buy a ticket).
- To consider: What happens if the game is iterated indefinitely many times?

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Notes #11: Bargaining Theory

I. Philosophical Relevance of Bargaining Theory

- A popular conception of justice: the terms of a rational social agreement (a kind of social contract), designed to resolve conflicts of interests.
- Two versions:
 1. *Justice as mutual advantage*: Justice must advantage both/all parties, relative to what happens in the absence of agreement. Takes bargaining power into consideration. Self-interest motivates us to follow justice.
 2. *Justice as impartiality*: The agreement that would be reached from an impartial standpoint, considering everyone's interests equally.
- Justice as mutual advantage: Requires
 - 1) A non-agreement point – what is the outcome relative to which justice is judged as “advantageous” or not?
 - 2) An account of how to choose a solution from among the mutually advantageous possible agreements. Two ideas about this:
 - a. Rely on bargaining power & the outcome of rational, self-interested bargaining.
 - b. Rely on intuitive notion of fairness, which favors an equal division of the gains.
- (2a) leads us to: *Is there* such a thing as *the* rational outcome of a bargaining process?
 - This question is also independently interesting. Identifying such a thing might help us understand many real-world events.

II. Bargaining Problems

- Two rational people need to agree on something. If they do not agree, they both get a payoff of 0. (True by stipulation – definition of the “0” point.)
- There is a range of points (possible agreements) that give both parties payoffs above 0.
- There may also be points that give one party less than zero.
- Q: What outcome will they agree on? What determines the outcome? Traditional answers:
 - They will pick a point that gives both parties >0 payoff.
 - They will not “leave money on the table”: they will pick a Pareto optimal point. Vocabulary word: *Pareto optimality/efficiency*:
 - This occurs when there is no way to make anyone better off without making someone worse off.
 - A “Pareto improvement” is a change that makes someone better off without making anyone worse off.
 - A state of affairs is Pareto efficient (Pareto optimal, on the Pareto frontier) if no Pareto improvements are available.
 - Beyond that, the solution is indeterminate: *Every* solution that satisfies those constraints is in both parties' interests.
- Example: bargaining on the price of a car.
- Example: the game of Bilateral Monopoly:
 - Two people are in a room with \$100. Each person must write down on a piece of paper a possible division of the money between them. If they write down the same number, then they get that division. If they do not agree, then both get nothing.
 - Note: Every possible division is a Nash equilibrium.
- But John Nash disagrees with this conclusion: He says there *is* a determinate rational outcome.

III. The Nash Bargaining Solution

- Background: Von Neumann-Morgenstern utilities
 - Set 0 as the non-agreement utility for both parties.
 - Set 1, for each party, as the maximum utility that party could gain from the interaction. (All the cooperative surplus goes to me!)
 - *Important:* This does not involve interpersonal utility comparisons! My “1” utility might be a much greater amount of happiness than your “1”. My “1” just means the maximum I could get from the bargaining, and your “1” is the maximum you could get.
 - Intermediate values determined by people’s preferences over lotteries:
Utility of “x” goes to something such that I would be indifferent between getting that thing for sure, and having a probability of x of getting 1 unit of utility.

- The Nash Solution:

The agreement point will be that point that maximizes the product of the two parties’ utilities.

Some motivations:

1. Nash argues: It is the unique solution satisfying some formal constraints: (a) Pareto optimal, (b) dominates the non-agreement point, (c) not dependent on the units of utility used, (d) symmetry, (e) independence of irrelevant alternatives.
 - Objection: Not clear how satisfaction of these constraints shows that the solution represents the maximization of each party’s self-interest.
 2. Harsanyi says: See the solution as the outcome of a series of offers and counter-offers. The party with *more to lose* at any given point should be the one to make the next concession. This turns out to lead to the Nash solution.
 - At any point in the negotiations, you can accept the other party’s last offer (and get some utility from that), or hold out for more.
 - Holding out for more carries a risk of conflict (failure to agree).
 - So you should only hold out if the amount you stand to gain outweighs the risk.
 - The person *most* willing to make a concession is the person for whom the ratio of potential gain to risk is lowest. Harsanyi says this is $(u' - u'')/u'$, where u' is the utility you get if your current offer is accepted and u'' is the utility you get if the other player’s current offer is accepted.
- What if you meet a person who sincerely insists on more than the Nash solution?
 - If they can convince you of this, then you should accept their offer.
 - But if you know they are rational, then they could not convince you.

An Example:

- Dividing \$1 million between P and R. P has borrowed \$100,000 from the Mafia and had no hope of otherwise repaying it.
- Intuitively, P is in a weak bargaining position. R can hold out for \$900k.
 - *Aside:* But note that P is in a “strong” bargaining position in this slightly different case: Suppose P borrowed \$900k from the Mafia.
 - What puts P in a weak position is that he has *quickly diminishing marginal utility* of money.
 - Note that this has little or nothing to do with P’s being “poor” or R’s being “rich”.

Arbitration:

Parties bargaining about something very important might hire an arbitrator, to reduce the risk of nonagreement.

- Note: the arbitrator must be acceptable to both parties. Hence, each party must expect the arbitrator to make a decision about as good as the party could get by direct bargaining.
- Arbitrator has more leeway when the nonagreement point is worse (or: the stakes are high).

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Notes #12: Bilateral Monopoly, Ultimatums, & Dictators

I. The Ultimatum Game

- Two people are in a room with \$10. They must divide the money between them. Amounts must be multiples of \$1.
- Player 1, the *Proposer*, proposes a way of dividing the money. (An ultimatum.)
- Player 2, the *responder*, accepts or rejects the offer.
 - If he accepts, they get that division.
 - If he rejects, they both get nothing.
- What is the game theoretic solution? The subgame perfect equilibrium:
 - Player 1: "\$9 for me, \$1 for you."
 - Player 2: "Accept."
- Reality:
 - Modal response: "\$5 for me, \$5 for you." "Accept."
 - If Proposer demands much more than \$5, Responder usually rejects.
 - Aggressiveness of Proposer demands increased by:
 - i) Use of market terminology ("buying" and "selling").
 - ii) Proposer's "earning" his position.
- Why offer more than \$1?
 - a. Concern for welfare of other player?
 - b. Ideal of fairness?
 - c. Fear of rejection by responder?
 - d. Concern about others' opinion of you?
- These hypotheses can be tested ...

II. The Dictator Game

- Like the Ultimatum, except that Player 2 has no option to reject. Player 1 unilaterally determines division.
 - Result: Dictators are much more aggressive. Some take all \$10. But some still offer \$3 or \$5.
- A variation: As above, except that the offers are "double blind": neither the experimenter nor the other players know which Dictators made which offers.
 - Result: Dictators are *extremely* aggressive. Most take all \$10.
- Conclusions:
 - Explanations (a) and (b) above are not correct. (c) and (d) are correct.
 - But (b) has something to do with it, because offers change when one party "earns" the right to be the proposer.

III. Bilateral Monopoly

- Player 1 and Player 2 must agree on a division of \$10. Either party can veto. Non-agreement → both get nothing.
- No unique solution in traditional game theory.
- In reality, almost everyone agrees on \$5, \$5.
- Brinkmanship strategy:
 - Try to *commit* yourself to a certain offer (favorable to you). Prevent yourself from changing. E.g., make promises.
 - This converts the Bilateral Monopoly into an Ultimatum Game with you as Proposer.

- Theoretically, the other party then should give in.
- In reality, this will very likely fail. (Recall results of Ultimatum Game above.)

IV. Application: Nuclear Deterrence & Doomsday

- If the Russians attacked the U.S., it would be irrational to retaliate.
 - Game theoretically, either side should have rushed to attack first.
 - They did not. Why?
 - a) Perhaps they didn't hate the other side enough.
 - b) They were irrational.
 - c) They thought the other side was irrational.
 - d) The larger the stakes are, the more risk-averse the players will be. Ex.: the Cuban Missile Crisis. Why did Khrushchev back down, instead of running the blockade?
- A solution: Build a doomsday machine. It will trigger automatically if the Russians attack, killing everyone.
 - Even better if we could rig it to go off if the Russians did anything we didn't like.
 - The other party must *know* that this is the case.
- Should one really do this, if we can? See point (d) above.

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Notes #13: Game Theory & Property Rights

Introduction

Q: Why do people recognize 'rights'?

- Moral concept of 'rights': "A has a right to do B" \approx "It would be wrong (or prima facie wrong) to prevent A from doing B."
- Legal concept of 'rights': "A has a right to do B" \approx "There's no law against A doing B."
- These don't explain all rights-respecting behavior:
 - Both fail to explain Britain's 'right' to control Hong Kong or 'ownership' of the Falkland Islands.
 - For the moral concept: some aspects of accepted property rights seem arbitrary.
 - For the legal concept: there is some circularity, since the behavior of government people is partly explained by the rights that they have. (Better argument: legal rights depend upon the laws themselves having been made 'legitimately', i.e., by people who had the right to make those laws; and how is that to be understood?)
- Alternative: a *positive* account of rights: A theory of why people would engage in rights-recognizing behavior, independent of moral beliefs or laws. "Rights ... are a consequence of strategic behavior and may exist with no moral or legal support." (p. 2)

I. Schelling points, self-enforcing contracts, and the paradox of order

Q: What is the difference between civil society and the 'Hobbesian state of nature'?

- [Note: the 'Hobbesian state of nature' is a state of social chaos; no rule of law.]
- Not because of the physical objects present. (Courtrooms, law books, etc.)
- Not because of the people present. (Police officers, politicians, etc.) For what makes those people act in the socially orderly way?
- Answer: People in a civil society face a different strategic situation than people in a state of nature. (They have different incentive structures.)

A. Schelling points

- A type of problem: When there is an advantage in coordinating, but people can't communicate, how can they coordinate?
- A Schelling point is a solution that people will tend to converge on in the absence of communication, because it seems natural or 'special' to them.
 - Ex.: You and a friend have to try to pick the same number from the following sequence:

2, 5, 9, 25, 69, 73, 82, 96, 100, 126, 150

Which number do you pick?

- The game of bilateral monopoly:
 - Two people are in a room with \$100. They may keep the money if they can both agree on how to divide it between them. If they can't agree, then neither gets anything.
 - In terms of pure game theory, *any* division (other than 0-100) benefits both parties, so both parties should be willing to accept it. Should you insist on 99-1 in your favor?
 - Note how this is similar to the above game. What division should you propose/accept?
- Schelling points also provide alternatives to continued bargaining.

B. Up from Hobbes

- Imagine 2 people in a state of nature.

- Both want to avoid conflict. (Similar to above ‘bilateral monopoly’ game.)
- Best way is to agree on a system of rights, esp. property rights.
- The Schelling point:
 - May use some natural boundary to divide the land. Neither party pays tribute to the other.
 - Any previous agreement is thereafter itself a Schelling point.
- The establishment of the agreement does not alter our physical situation or physical power. But it alters the strategic situation. Neither party violates the agreement, because that would return them to the ‘Hobbesian jungle.’ If one party violates the agreement, the other party fights, because allowing the violation “implies unlimited demands.” If A allows B to steal from him, A loses not only that property, but also the advantage of *having agreed-upon property rights*.
- Important: The contract enforces itself, *without either moral beliefs or legal sanctions*.

II. Two routes from Hobbes to here

- Main idea:
 - There is a process of evolution of norms, whereby more efficient rules win out.
 - It produces *locally efficient* but not necessarily *globally efficient* norms. I.e., a norm will not be adopted if its benefits depend upon almost everyone adopting it. It will be adopted if it benefits small groups who adopt it.

III. Law, justice, and efficiency

- The 3-way coincidence: the following tend to be about the same:
 1. The (intuitively) morally correct rules
 2. The economically efficient rules
 3. The rules that are actually in effect
 Why this coincidence?
- (II) above explains why 2 & 3 tend to coincide.
- Good question: why does (1) correspond with (2) and (3)? What, if anything, does this show about the nature of morality? Think about this.

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Notes #14: Commons, Public Goods, & Externalities

I. The Tragedy of the Commons

- There is a common grazing area. Many ranchers have free access.
 - Ranchers profit according to # of cattle they have.
 - If land is overgrazed, it becomes useless to everybody.
- What will happen?
 - Each rancher gets 100% of the benefit of each cow he adds to the land.
 - He gets $1/n$ of the cost, where n is the # of ranchers.
 - He “should” then put as many cows on the land as possible.
 - Problem: The land becomes overgrazed & worthless. Maybe he should restrain himself? Problem:
 - If *one* other rancher overgrazes, that rancher gets all the benefit, and everyone else is a “sucker”. The larger the group, the more certain that this happens.
 - If one rancher *thinks* someone else will overgraze, then he “should” do so *first*.
 - No natural rule for how much each can graze (Schelling point).
- Analogies:
 - Population & overbreeding.
 - Pollution.
 - Use of National Parks.

II. Public Goods

- Like the tragedy of the commons, except with something good.
 - Non-excludable: The good must be provided either to all or to none of the members of some pre-existing good \Rightarrow Provider cannot collect money proportional to the value of the good. \Rightarrow Provider bears the costs, other people get the benefits.
- Example: A dam could protect a valley from flooding.
 - Anyone who builds it pays the cost.
 - The benefit goes to everyone in the valley.
 - Problem: no one will individually choose to build it.

III. Externalities

- *Positive externalities*: Benefits your action has that you can't charge people for. (Like public goods.)
- *Negative externalities*: Harms your action causes that you don't have to pay for.
- Problem:
 - Positive externalities are underproduced.
 - Negative externalities are overproduced.

IV. Solutions

A. *Appeal to conscience?*

- This won't work because people will not want to be suckers.
- Also, it causes anxiety.
- And conscience will be selected out by cultural/biological evolution.

B. *Private property*

- For the ranchers, this would internalize the externalities.
- Problems: What about population? Air pollution? Oceans?

C. *“Mutual coercion, mutually agreed upon.”*

- We appoint an authority to hurt people who produce negative externalities.
 - We could prohibit harmful actions.
 - Or we could tax them. This is better, when the optimal amount is nonzero.
- Problem: Who will watch the watchers?
 - We must “invent corrective feedbacks to keep custodians honest”. (Doesn’t say what these would be.)

V. The Problem Hardin Doesn’t Notice

“Mutually agreed upon coercion” creates another tragedy of the commons.

- Custodian may:
 - Exploit the resource for his own benefit (directly or indirectly): Benefits go to custodian. Harms go to society.
 - Protect resource responsibly: Benefits go to society. Costs go to custodian.
 - What will he do?
- Response: The public will watch over the authorities.
- Problem: Each citizen may:
 - Carefully watch over the authorities: Benefits go to society. Costs go to citizen.
 - Ignore authorities, let other people do the watching: Benefits go to citizen, costs to society.
 - What will citizen do?

VI. Schmitz on Jamestown & Customs

- Jamestown: First permanent settlement in America, 1607 on.
- Most colonists starved. Why?
 - Food was a commons: Any food was to be shared equally. \Leftrightarrow Food is a positive externality.
 - Human “skeletons” were standing in the streets bowling, waiting for someone else to plant crops.
- Governor Dale in 1614 divides land into private plots.
 - Production rises 7-fold.
 - Why? Internatized positive externalities.
- An alternative to conscience, chaos, and government: Custom. Works best when
 - Group is very interdependent.
 - They can easily monitor.
 - They get frequent feedback.
- Difference between Hutterites and Jamestown?
 - In Jamestown, you get food no matter what.
 - I think Schmitz’ point is: The consequences of shirking must be more than disapproval. Like, starvation. The rewards for good behavior should be tangible.
 - Note: Punishments might be enacted only rarely. But they must be there.

Phil. 4800 Unit 2 Review

At the end of unit 2, students should know:

These games, their payoffs, & their solutions:

Prisoner's Dilemma
& iterated version
& indefinitely iterated
Ultimatum Game
Dictator Game
Bilateral Monopoly

These solution concepts:

Dominance
IEDS
Nash Equilibrium
Nash bargaining solution

Other concepts:

Schelling points
Pareto improvements/optimal/efficiency
Public goods
Negative/positive externalities
Tit-for-tat strategy
Nice strategies
Forgiving strategies
Provocable strategies

These examples & what they illustrate:

British & German WWI soldiers
Collusion in a market
Doomsday device
Tragedy of the commons
& pollution
& population
& Jamestown

These people & their main views:

Dawkins on PD
Nash on bargaining
Friedman on property rights
& why we observe them
Hardin
On commons problem
On appeal to conscience
Solution to commons problem
Schmidtz on Jamestown
& problem w/ it

Note: Working w/ Payoff Matrices:

You will have to do it. E.g., correlate them with types of games, work out Nash equilibria, etc.

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Notes #15: Exploitation

To Discuss Today

- Intuitive motivations for criticizing capitalism
- Marx's attack on capitalism
 - Alienation
 - The Labor Theory of Value
 - The theory of surplus value
 - The theory of exploitation

I. Why study Marxism?

- For historical reasons:
 - Marx was perhaps the most influential political philosopher in history.
 - ~ 1/3 of the world lived under Marxist regimes in the late 20th century.
 - 85-100 million people killed by Marxist regimes.
 - Central to 20th century geopolitics: the cold war, etc. The human race was almost destroyed.
- There are still Marxists around today.
- Many other thinkers are *influenced* by Marxian ideas.
- Q: Did he have a valid criticism of capitalism?

II. Intuitive Background: Why people oppose capitalism?

- Capitalist countries have large *economic inequality*.
(Statistics: <http://www.census.gov/hhes/www/income.html>)
Workers get low incomes.
Capitalists get high incomes.
But the workers are doing all the work!
This looks unjust.
- Question: How do the capitalists get so much money? Why do the workers get so much less?

III. The Theory of "Alienation"

- What are wages:
Wages are the price of "labor power."
- The nature of labor:
Labor = the worker's "life-activity".
Worker sells it in order to live.
So he is like a slave: he "belongs ... to the capitalist class."
- Alienation:
Worker does not consider his labor as a part of his life.
The product of his labor belongs to the capitalist.
Hence, the worker's labor is "alienated": His own life activity comes to be something foreign
[Discuss: Is this all true? How bad is it? What could be done about it?]

IV. The Theory of “Exploitation”

- Background economic concepts:
 - Use-value vs. exchange-value:
 - * Use value: The value an item has in virtue of one’s ability to consume/use it.
 - * Exchange value: The value an item has in virtue of one’s ability to trade it for something. Market value.
 - Capital: physical goods used in producing more goods. Ex.: Factories, tools, money useable for investment.
 - ‘Capitalists’: People who own a lot of capital.
- *Labor Theory of Value*: (LTV)
The price of goods on the market is determined by the *socially necessary labor cost* of the goods.
- The price of labor:
Wages are determined by “the cost of existence and reproduction of the worker.”
- “Surplus value”:
 - The difference between (a) the amount of labor required to keep the worker alive and (b) the amount of labor the worker can perform. Or:
 - The difference between (a) the price of labor, and (b) the price of the *goods* produced by the laborer.
- The theory of “exploitation”:
 - The capitalist gets the surplus value.
 - Then he uses it to get more capital & increase his power over the workers.
 - Example: the worker and the farm-owner.
- In sum:
 - LTV → Subsistence-level wages → Theory of Surplus Value → Theory of Exploitation
 - Q: Where do capitalists get their wealth? A: Purely from
 - (a) already owning capital, and
 - (b) extracting the ‘surplus value’ from the workers.

V. Marxist Economics: Effects of Mechanization & Division of Labor

- What is the effect of *the growth of capital*?
“Increases the competition between the capitalists”
 - Capitalists seek to raise productive power & lower labor costs
 - Increasing mechanization.
- Effect of mechanization:
 - Capitalist must sell more
 - Lower prices
 - Other capitalists introduce the same machines.
 - All are forced, by competition, to lower their prices “below its new cost of production” (213).
- Later:
“This law is none other than that which, within the fluctuations of trade periods, necessarily *levels out* the price of a commodity to its *cost of production*.” (213)
“Thus, the capitalist will have won nothing by his own exertions but the obligation to supply more in the same labor time ...” (214)
- Effect on workers:
Workers compete with each other.

“Therefore, as labour becomes more unsatisfying, more repulsive, competition increases and wages decrease.”

Mechanization → more workers are discharged → They can't find new jobs (215)

Also, women and children must work

- Capitalist class shrinks, workers increase.

“The working class gains recruits from the *higher strata of society* also; a mass of petty industrialists and small rentiers are hurled down into its ranks...” (216)

- In sum:

Mechanization & Division of labor → Everyone is continually worse off.

VI. Selected Incoherences

- Wages are decreasing *and* prices of consumer goods are decreasing. (Lower consumer prices = higher *real* wages.)
- Productivity is increasing, *but* workers and capitalists are worse off. (Where are all the extra goods going?)
- Wages are at the minimum level (determined by LTV), *and then* they decrease more. (Contradicts LTV. And how are the workers still alive?)
- New jobs require unskilled labor, *and* workers are put out of work and can't find jobs in new areas. (If jobs require no skill, anyone should be able to do them.)
- Capitalists are forced to sell *below* cost of production. And they sell *at* cost of production. (Immediate contradiction. And how are the capitalists still in business? And why would they participate in an activity with 0 profit?)
- Capitalists extract surplus value from workers, *but* they only sell products at cost. (Where is the surplus value going?)

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Notes #16: Marx vs. Mainstream Economics

To Discuss Today

Standard economics: price theory
Contrast with Marxist economics
Why are capitalists rich?

1. Basic assumptions of economics

- Human behavior tends to be instrumentally rational.
 - *Instrumental rationality*: Choosing the correct means of pursuing your goals, according to your factual beliefs.
- *Economics studies the nature and consequences of instrumental rationality.*

2. The law of diminishing marginal utility

- Important concepts:
 - Utility: A person's amount of desire-satisfaction. Understood as a quantity, determined by strength of desires and how well they are satisfied.
 - Total utility of X: The utility a person receives from the total amount of good X that they have.
 - Marginal utility of X: The change in a person's utility that would result from a small addition to the quantity of some good that they possess. Mathematically: The derivative of total utility with respect to quantity of X possessed.
- *Law of Diminishing marginal utility*: As quantity (of whatever good) increases, marginal utility decreases. Examples:
 - Orange juice
 - Money

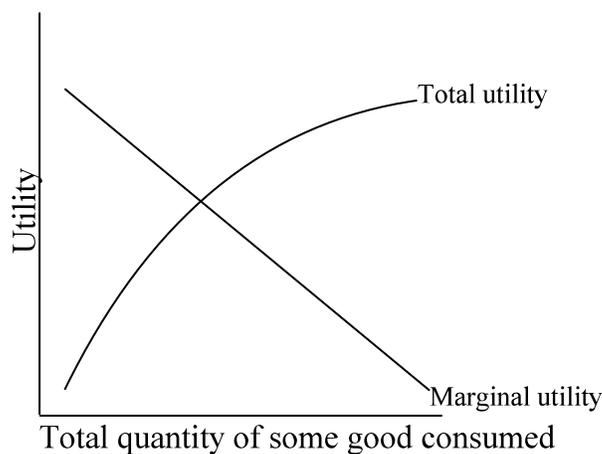


Figure 1: Diminishing marginal utility.

3. Demand curves slope downwards

What is a ‘demand curve’? Shows how much you desire at any given price.

Price = marginal utility of consumption.

Demand curve mirrors marginal utility curve.

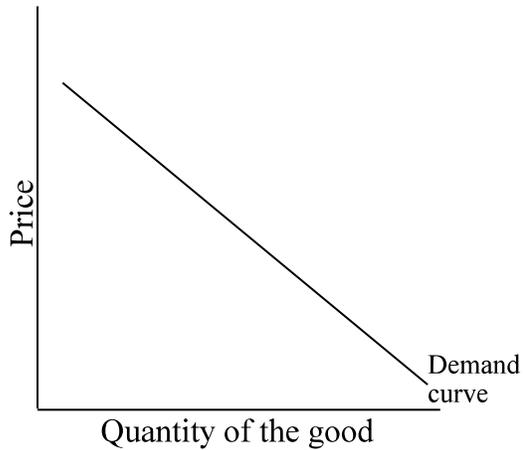


Figure 2: A demand curve.

“Demand curves slope downwards”: The lower the price, the more you buy.

- For individual consumers
- For society

4. Supply curves slope upwards

• What is a “supply curve”? Shows how much suppliers sell at any given price.

• The principle of increasing marginal costs of production: (After the most efficient production volume) as production increases, per-unit costs increase.

• Price = marginal cost of production.

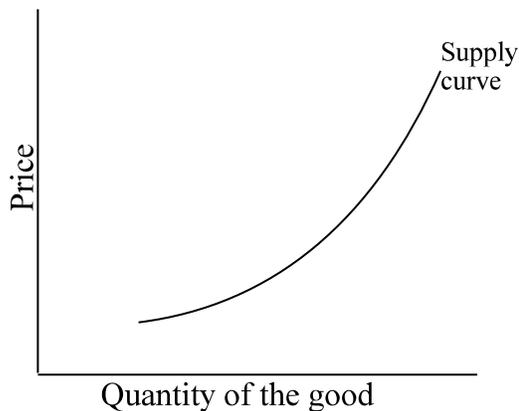


Figure 3: A supply curve.

• Supply curves slope upwards: The higher the price, the more you produce & sell.

- For individual producers
- For society

5. Prices

We have said:

1. Price = marginal utility of consumption.
2. Price = marginal cost of production.
3. Therefore, the price must be set at the point where:
marginal utility of consumption = marginal cost of production.

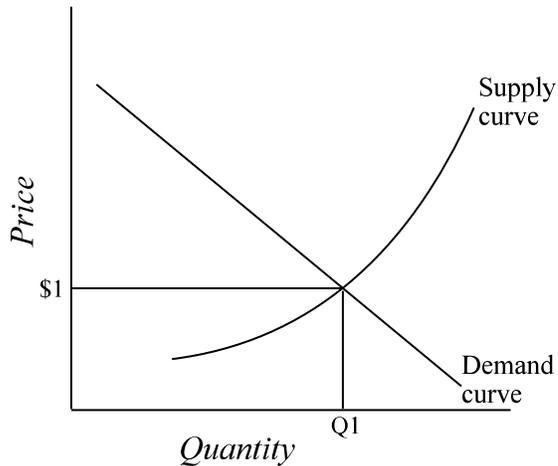


Figure 4: The market price is determined by the intersection of supply and demand curves.

6. What is price theory good for?

- Enables qualitative predictions about utility of various policies, e.g.:
Rent control.
Tariffs.
Minimum wage laws.
Capital gains tax rates.
- Gives a response to Marx's theories.

7. Marxism vs. Price Theory

The basis of 'costs' & 'benefits':

- Marx: cost = (socially necessary) quantity of labor. Has a physical basis.
- Price Theory: cost = disutility. Has a psychological basis.

The mathematical form of 'production costs':

- Marx: Cost of production represented by a number.
- Price Theory: Distinguish *marginal cost* from average cost. Cost of production represented by a *curve*.

What determines prices?

- Marx: Prices determined by labor costs.
- Price Theory: Prices determined by supply *and* demand *curves*. Both determined by human desires.

Difference between workers' & businessmen's sources of income:

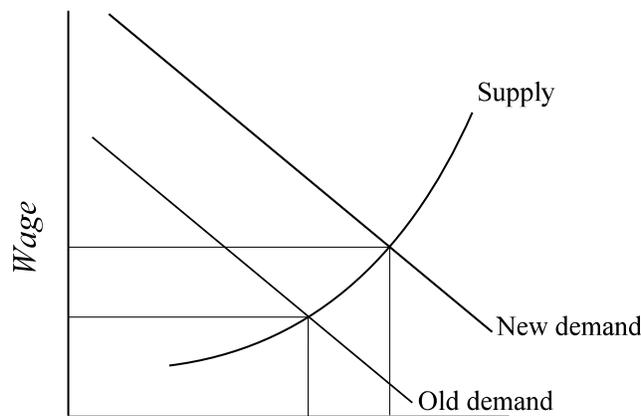
- Marx: Two classes of people: capitalists & workers. Their income has fundamentally different explanations.
- Price Theory: No theoretically significant distinction. All income is a price; all prices determined by the same mechanism.

Why are capitalists so rich?

- Marx: Capitalist wealth is surplus value expropriated from workers. Capitalists do not produce value, they only take value produced by others.
- Price Theory: Salaries determined by supply & demand, like all prices. Businessmen's salaries reflect:
 - * High marginal value to businessmen's activities. (Hence, high demand.)
 - * Low supply of competent businessmen.

Effects of mechanization & specialization:

- Marx: Increased competition among capitalists, making capitalists poorer. Overproduction, businesses cannot sell everything they make. Fewer jobs available, unemployment. Wages fall because of lower demand for labor (businesses can produce the same amount with less labor, so they will hire less labor).
- Price theory:
 - * More goods: someone must be consuming them. Someone is better off.
 - * Marginal value of labor increases, so wages & employment increase.
 - * In classical economics: More productivity \Rightarrow larger aggregate demand. *Say's Law*: aggregate supply = aggregate demand; supply creates demand.



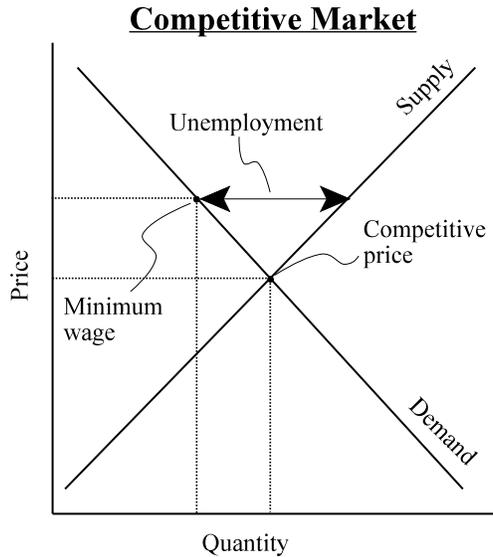
Quantity of Labor

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Notes #17: The Minimum Wage

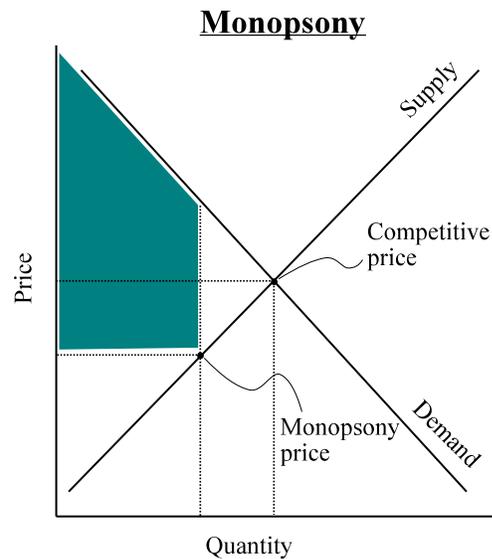
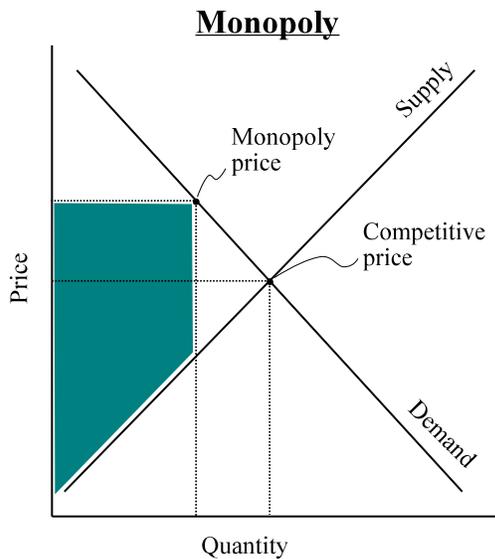
I. Economic effects of the minimum wage

A. Effects on employment

Standard theory:



The economic effects of monopoly & monopsony.



- Monopoly: Single supplier. Restricts output & raises prices. Shaded area = profit.
- Monopsony: Single buyer. Restricts output & lowers prices. Shaded area = profit.
 - Upward price fixing can result in higher quantity (i.e., employment).
 - Some employers may have monopsony-like powers: costs of job search, illegal immigrants

Empirical evidence:

- Card & Krueger say min. wage increased employment.
- Other economists dispute this.

B. Effect on poverty

- Min. wage workers are a small proportion of the work force. Most min wage workers are young people in temporary jobs (e.g., while in school).
- Most poor are unemployed, or employed at above the min wage.

II. The Consequentialist Criterion

The most important consideration is the effects on the jobs & income of the worst-off.

- Egalitarians & prioritarists accept this.
- Utilitarians can also accept this, b/c of diminishing marginal utility of wealth.

The standard view:

- Min wage causes small losses to employers and consumers.
- Large losses to marginal workers (job loss).
- Small gains to other workers (who keep their jobs at a higher wage).

At best, consequentialists could be half-hearted about min wage.

III. Exploitation

Exploitation argument: Employers should pay a decent wage; otherwise, they exploit workers.

What is exploitation?

- Taking unfair advantage of others.
- What is a fair wage? The wage that would obtain in a perfectly competitive market?

Objections

- How important is exploitation? Suppose A and B are equally deserving, equally poor people, with the same wage. They are in different market conditions, so that A counts as exploited but B does not. How much more important is it to help A than to help B? Not much.
- Even if exploitation is wrong, the state may not have the duty to stop it. The state might place more weight on the interests of the worst off.
- Those who are disemployed because of the min wage might count as “exploited”.

IV. Freedom

Maybe the minimum wage infringes workers freedom. (a) Violates their self-ownership rights, (b) violates freedom of contract.

Objections

- Min wage laws target employers, not workers. No worker is punished for violating the law.
 - But you can infringe someone’s freedom by stopping others from interacting with him in ways he would desire.
 - But the purpose of the min wage law is to benefit the worker.
- The min wage law also is not paternalistic. It does not suppose that workers have poor judgment. It aims to give them a better strategic position.
- Not all infringements of freedom of contract are wrong: slavery contracts, dueling, specific performance, unlimited liability.
- If min wage laws violate rights, then
 - a. Even workers whose income increased would have been wronged.

b. Even people who have wages above the minimum have been wronged.

V. Conclusion

Min wage is a mistake at worst, or something to be half-hearted about at best.

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Notes #18: Welfare

I. The basic income issue

- Proposal:
 - (a) All citizens should get a guaranteed basic income, from the state.
 - (b) This income should be at the highest sustainable level.
- Objection:
 - People could choose not to work & move to Hawaii to surf.
 - This would be unfair to those who have to pay for the surfers.
- Argument in favor of this:
 - The “real libertarian” view: “real freedom” should be maximized. This is like Rawls’ Difference Principle.
 - Maximin: Maximizing the lowest level of some quantity. E.g., maximin income: redistributing wealth so that the lowest income level is as high as possible.
 - “Real” freedom: Opportunities to do what one wants (including things that require resources from others).
Distinguished from the libertarian/classical liberal conception of freedom, which is: freedom from active interference or harm done by others.

II. Crazy & Lazy

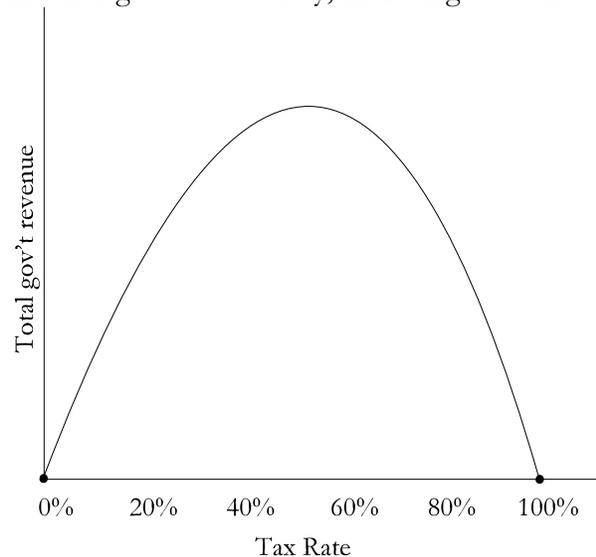
- Example:
 - Crazy works a lot, but is unhappy.
 - Lazy works little & is content with gov’t welfare.
- Crazy’s complaint: “Since I am unhappy & Lazy is happy, more \$ should be given to me, to make us closer to equal. I am the worse-off.”
 - Reply: We aren’t maximizing welfare. We maximize “real freedom”, or resources that give people opportunities.
- Crazy’s second complaint: “We have equal talents, so we don’t need a basic income at all.” (They already have equal real freedom w/o the state doing anything.)

III. Rawls’ View

- Include leisure among the primary goods.
 - The value of n hours of leisure = the value of n hours’ wages for the lowest-income group.
 - Hence, Lazy gets no money. He already has equal goods to Crazy, b/c he has the leisure time.
- Objection:
 - Suppose we get some new natural resources. Rawls would distribute it entirely to the working.
 - Rawls’ proposal then increases the value of leisure time. But this is wrong.
 - *Note:* A more realistic case: economic growth increases wages & welfare payments (for people who are willing to work). But it obviously does not increase the value of leisure for surfers. So the value of leisure does not = the value of the minimal welfare payments or the min. wage.

IV. Dworkin's View

- Everyone gets equal entitlement to all the material goods of society, including both natural resources and man-made goods.
 - [To think about: At what time? Does this happen continuously, so every time Crazy makes something good, it should be immediately taken from him?]
 - Note: but we can allow unequal distributions to the extent that doing so allows us to get a greater total amount to distribute to the poor.
 - Aside: The Laffer curve. Revenues are 0 at 0% tax, and 0 at 100% (no incentive to work). They must reach a maximum somewhere in between. Van Parijs would like to hit the maximum point.
 - He only mentions taxes on gifts and bequests. What about income? Why wouldn't this also be taxed?
[To think about: Does this mean shutting down all charities? Can you give food to your children? Can you do favors for people that result in their having more things of value?]



V. Basic Income & Inherited Technology

- How much would the basic income be? Not much. Only 10-15% of national income is donated or bequeathed.
- Q: Should discovered technologies be considered resources to be redistributed?
 - This might increase the amount available for distribution to surfers.
 - Problem: People who use technologies are not taking anything away from others. (Knowledge is a non-rival good.) So they do not require others to give up their rights to the technologies. So there is nothing for the technology-users to pay to the non-tech users.

VI. Redistributing Employment Rents

- The non-Walrasian labor market:
 - In a perfectly competitive market, everyone who wants a job has one.
 - But this may not be true in our world.
 - o Workers may exercise monopoly-like powers to raise wages & lower employment. Unionization, retraining costs.
 - o Higher wages may lead to greater productivity. Employers may pay more than the market-clearing wage.
- Employment rents: People with jobs are receiving a benefit, at the expense of the unemployed.
 - The employed people have a higher wage than they would have in a perfectly competitive market.
 - This causes the unemployed not to have jobs.
- The state could take money representing these “employment rents”, to give to the unemployed.

- When would this be a significant amount?
 - In societies with high unemployment.
 - Also in societies in which many people have worse jobs than they would like (and would be qualified for).

VII. The Just Way of Dealing with Unemployment

- What if some people are voluntarily unemployed? Why should they receive distributions from the employment rents?
 - Reply: They are giving up their fair share of a resource, enabling others to have more. It doesn't matter whether they do so involuntarily or voluntarily.
- What if the state can eliminate unemployment?
 - Employment rents still exist as long as people have jobs less good than those they want (and could do).

VIII. Right to Work & Economic Arguments

- Objection: The basic income doesn't make up for the non-pecuniary advantages of work.
 - Reply 1: Yes it does.
 - Reply 2: Gov't subsidies also make it easier for you to get work.

IX. Conclusion

“Let me now return ... to the welfare hippies and Malibu surfers.... Does justice require that they be fed? ... [I]t certainly does.... [T]hose who take an unfair share of society's resources are not those who opt for such a low-production, low-consumption lifestyle. They are people like myself and most of my readers, who, thanks to the attractive job they were given, appropriate a huge employment rent.”

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Notes #19: Proportional Taxation

I. To Discuss

- Proportionate Taxation: Taxation in proportion to income (a.k.a. the flat tax).
- Gauthier's argument for it.
- Epstein's argument for it.
- Thesis: neither argument succeeds.

II. Epstein's View

- 1) The social surplus open to distribution: All value produced in society above what would exist in the state of nature.
- 2) How to divide it: In proportion to state-of-nature holdings. Analogy: an investment partnership. Each partner gets profits in proportion to the capital he contributes.
- 3) Result: Proportionate taxation.

Objections

A. What is open to distribution?

- All wealth above what would exist in the state of nature?
- Only the amount of \$ required to run the minimal state?
- Only the gains directly from specific governmental services?

B. How to divide the surplus?

- What to do with non-fungible goods: a good idea vs. capital?
- What if the value of goods in the state of nature is different from its (marginal) value inside the partnership?
- Two plausible constraints: (1) Strict Pareto superiority, (2) the outcome has to be better for each *group* than the outcome they could get by seceding.
 - This leads to distribution in accordance with market prices.

C. How do you get to proportional taxation?

- How to determine state-of-nature values?
 - Epstein assumes: Value of what we have in the state of nature is proportional to the value that we have today.
 - This is very implausible. Ex.: what would Bill Gates' talents be worth in the S.o.N.?
- What to do about non-wealth benefits?
 - Epstein ignores this, assuming all utility is reflected in income.

III. Gauthier's View

A. What is the surplus?

- Gauthier: all "rents" are open to distribution. Rents: profits in excess of the opportunity cost of the resources used in a productive activity.
- Where does G get this idea?

- Rents are a product of social interaction, not value inherent in the resource.
- This would seem to lead to: all benefit in excess of the value obtainable as isolated individuals gets distributed by the state.
- Is this consistent with G's other views?
 - G says: when 2 societies trade, only the surplus from the trade is open to distribution.
 - By analogy, shouldn't better- and worse-endowed members of society have a similar relationship? This leads to: only the surplus above what the better-endowed group could obtain from secession is open to distribution. (See Epstein's view, B, condition (2).)

B. How to divide the surplus?

- G says: Each cooperator gets an equal share of normalized utility.
- Note: The amount of resources each brings to the table is irrelevant.
- Why does G think this?
 - "Since [no cooperator] can gain any part of the cooperative surplus without the other, then each is equally responsible for making it available, and so is entitled to an equal share of it."
 - Problem: this is false.
 - Counter-proposal: every individual gets their marginal product.

C. Proportionate taxation?

- G says:
 - Initial suggestion: A flat head tax. This would be right if we wanted to equalize *wealth* concessions.
 - But we want to equalize utility concessions. Hence, need something more progressive.
 - Maybe proportionate taxation.
- Problem #1:
 - Equal *absolute* utility concession would lead to progressive taxation.
 - But G's view officially uses von Neumann/Morgenstern ("normalized") utility. This means we want equal *percentage* utility concessions (each party gives up the same percentage of the utility available to them from the interaction).
 - If only the tax burdens are open to distribution, this leads to a *regressive* tax system. (Assumption: rich people's marginal utility of wealth function is approximately linear, poor people's is strongly concave down.)
[Comment: this is confusing & irrelevant, because of the next point below. -mh]
- Problem #2:
 - G treats only tax burdens as up for distribution.
 - But on his view, the *total social surplus* is up for distribution.
 - This should lead to a radical redistribution.
[Comment: This should lead to an approximately egalitarian state, i.e., everyone gets about the same income & wealth.]

IV. Why the Popularity of Proportional Taxation?

- Maybe it's a Schelling point.

V. Other Comments on Tax Distribution (not in article)

- **How does the state get to distribute the "social surplus"?**

- Why not see the state as just one more vendor of goods & services?
- Why not a head tax?
 - Mirrors how all other goods & services are treated.
- But some services are priced according to value to the user, or cost to provider. Insurance. Carpeting. Etc.
 - State may provide higher-value services to rich people: protection of a larger amount of property.
 - Hence, higher prices might be charged. Proportional to wealth?

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Notes #20: Taxation: Is it just?

I. Basic Concepts

- *Distributive Justice*: Justice in the distribution of goods/wealth.
- *Patterned (end-state) conceptions of distributive justice*: Say there is some overall pattern of distribution we should aim at. Justice is a matter of closeness to the desired pattern.
Examples:
 - Perfect equality
 - Distribution in accordance with need
 - Distribution in accordance with desert/merit
- *Historical conceptions of distributive justice*: Say that whether a person is entitled to some bit of wealth depends on the process by which he got it. Justice is a matter of following the right rules in acquiring property.

II. The Entitlement Theory of Distributive Justice

- *Principle of Acquisition*: You can acquire resources in the state of nature by claiming & mixing your labor with them.
- *Principle of Transfer*: Property can be transferred by mutual consent.
- *Principle of Rectification*: People who acquire property in violation of the preceding two principles owe compensation to their victims.

III. Against end-state theories

The Forced Labor Argument

1. Forced labor is wrong.
2. End-state theories sanction forced labor.
 - a. People get money through labor.
 - b. Hence, forcing them to give their money to others is like forcing them to labor for the benefit of those others.
 - *Objection #1*: But individuals have a wide choice of work to do. There is no particular work they must do.
 - *Objection #2*: Individuals can avoid the tax entirely by earning only enough to meet their basic needs.
 - *Nozick's Reply*: It is (like) forced labor because people use a threat of force to limit your alternatives to bare subsistence (the worse alternative) or working for the benefit of others.
3. So end-state theories are wrong.

The Slavery Argument

1. No one can own another person, even partially.
2. End-state theories imply that people can (partially) own other people.
 - a. Ownership of x = the right to decide how x is used.
 - b. End-state theories give you a right to the fruits of others' labor.
 - c. This is a right to decide what use other people are put to.

3. So end-state theories are wrong.

The Wilt Chamberlain Argument

Scenario: Everyone starts out with a just distribution of holdings (stipulation). Wilt agrees to play extra basketball, in return for 25¢ from each fan. The fans agree. Wilt then makes \$1 million extra.

Argument:

1. If no one can complain about X, then X is not unjust.
2. No one can complain about Wilt's \$million.
 - a. Wilt can't complain.
 - b. Fans can't complain.
 - c. Third parties can't complain.
3. So it's not unjust.
4. Patterned/end state theories of distributive justice imply that Wilt's extra share is an injustice.
5. So, all patterned/end state theories are wrong.

IV. Objections to Nozick

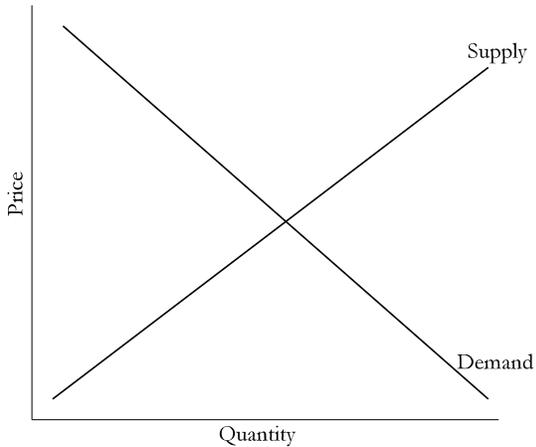
- Nagel's objections:
 - Nozick's classification of theories of justice is incomplete. Ignores theories that take into account *both* history *and* desirable ends.
 - The Wilt Chamberlain argument fails because
 - * it assumes that, when we distribute in accordance with a patterned principle of distributive justice, we distribute *absolute* property rights.
 - * But people with patterned principles would say property rights are not (ever) absolute. [Discuss: Does Nozick assume this? Is the second point a strong criticism?]
- Property rights are not absolute.
 - The cabin in the woods example.
- The unjust history of actual holdings.
 - The case of the Native Americans.
- Problems with initial acquisition. (G.A. Cohen)
 - Why may one acquire natural resources, worsening the situation of those who can no longer use them?
 - Should resources start out with communal ownership?

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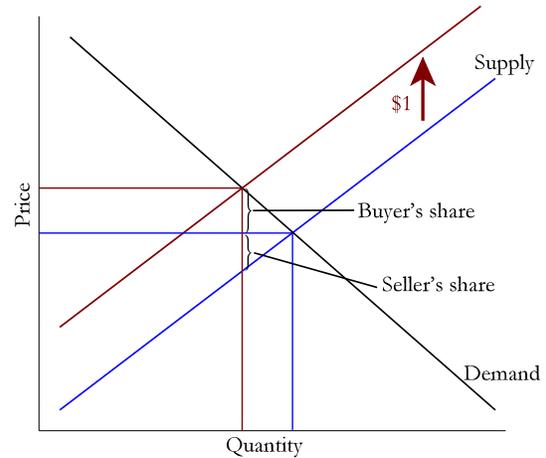
Notes #21: Taxation: Who Really Pays?

I. Sales Tax

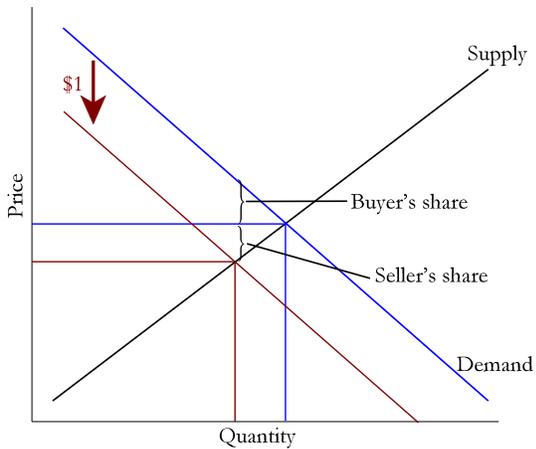
Supply/demand of widgets (no tax):



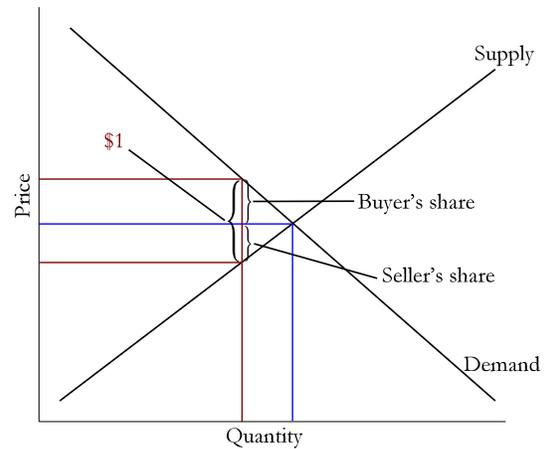
After a \$1 tax on producers:



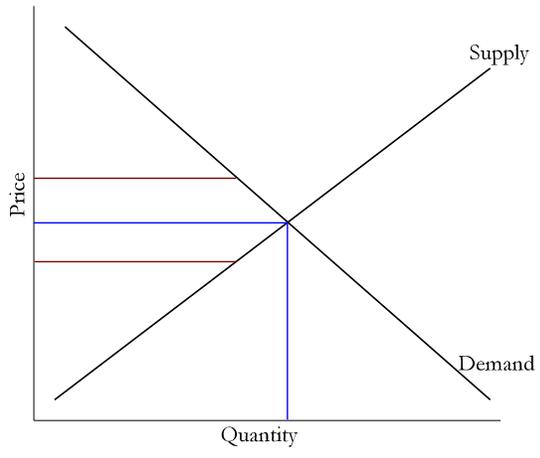
After a \$1 tax on consumers:



Neutral statement: \$1 tax on the transaction:



- Summary:
 - Tax on producers raises the supply curve by \$1. Tax on consumers lowers demand curve by \$1.
 - Either has the same effect: Imposing a \$1 difference between price paid by the consumer and the revenue received by the producer.
 - The effect is the same in all three cases: price paid by consumer rises, revenue received by producer declines, and quantity decreases.
 - Who pays the tax? Both consumer and producer.
- The full cost: the loss of consumer/producer surplus.
 - Consumer surplus: the benefit consumers get from consuming goods, minus their cost.
 - Producer surplus: the money producers get, minus their production cost.



Phil. 4800 Review, Unit 3

Concepts you should know:

Alienation
Surplus value
Use value vs. exchange value
Exploitation (Marxist)
Monopoly
Monopsony
Maximin
“real freedom” (van Parijs)
Laffer curve
Employment rents
Proportionate taxation
Distributive justice
End-state vs. historical theories of it
Elasticity of supply/demand

Theories:

Labor theory of value
Price theory
Diminishing marginal utility
Demand curves slope downwards
Supply curves slope upwards
How prices are determined
Source of capitalists' wealth
According to Marx
In standard price theory
Van Parijs' view of how to distribute resources
“Maximin real freedom”
How employed people take an unfair share of resources
Epstein on how to distribute social surplus
Gauthier on how to distribute social surplus
Entitlement Theory
Principle of acquisition
Principle of transfer
Principle of rectification
Who pays taxes & supply-demand diagrams that illustrate this
Including: Effect of elasticity

Arguments:

About minimum wage:
Effects on (un)employment
Exploitation & Wilkinson's argument for why it is not very important
Forced labor argument (Nozick)
Wilt Chamberlain (Nozick)

These people:

Marx
Wilkinson
van Parijs
Fried
Nozick

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Notes #22: Behavioral Foundations of Economics

I. Traditional assumption: Egoism

- People are rational egoists.
 - Problem: This seems not to be true.
 - But it is approximately true in certain areas. War, contracts.
- A way to make it definitionally true:
 - “Interests” = utility = preference-satisfaction.
 - Preference = “revealed preference”, which is revealed by actual choices.
 - The only way to falsify the theory is for people to be inconsistent.
 - *Objections:*
 1. There are non-choice sources of information on preferences.
 2. Not all preferences are selfish. This definition of “selfishness” is an evasion.
 3. The theory is close to being empty & unfalsifiable. It only rules out inconsistency. But, it is difficult to distinguish inconsistency from changing preferences.
- Three possibilities:
 - Egoism
 - Utilitarianism
 - Other. People may have commitments to specific people/groups, such as family, friends, nation, etc. People may also have various non-utilitarian ethical values (freedom, justice, equality, etc.).

II. Commitment vs. Sympathy

- A distinction between 2 kinds of motivation:
 - *Sympathy*: This is where your welfare is tied to (awareness of) others’ welfare. Learning of others’ happiness makes you happy (or unhappy [“antipathy”]).
 - *Commitment*: This is where you have beliefs about what is good/right, separate from your own welfare.
- The 2-apples story
 - A offers B the choice between the 2 apples. B chooses the larger. A is upset because he thinks B should have chosen the smaller. A would have chosen the smaller.
 - A would have chosen the smaller apple. Why? *Sympathy*: Then he should be happy.
 - *Commitment*: explains why he is angry.
- Sympathy might be consistent with egoism. Commitment is not.
- The railway story.

Someone asks you, “Which way is the railway station?” “Over there,” you say, pointing to the post office. “And while you’re there, could you post this letter for me?” The other person says “Yes,” and takes your letter, determined to open it and see if it contains anything valuable. This is what rational egoists would do.

III. How does commitment affect economics?

- Consumer choices: boycotting of South African avocados. Rare cases.
- Provision of public goods. [It is unclear what his point is about this.]
- Voting behavior:
 - Utility maximizers should not vote. Your vote makes no difference.
 - People are motivated by “a desire to record one’s true preference”.
 - Related: The expressive theory of voting. People vote to express their feelings.

- This can lead to altruistic decision-making.

IV. Work motivation

- Ways of motivating people to work:
 - Constant supervision w/ rewards & punishment. Impractical.
 - Rewards for production.
 - General social norms. Work ethic, etc. This plays an important role.

V. Metarankings

- Rankings of alternatives: Specify which actions are better than (or preferred to) which.
- Meta-rankings: Specify which rankings are more moral (or otherwise better) than which. Closely related to second-order preferences.
- Can be used for:
 - Explaining *akrasia*
 - Explaining behavior in Prisoner's Dilemma. People often fail to do the "rational" thing in PD's.
 - * Maybe they are thinking in quasi-Kantian terms: what preferences would they like everyone to have?

VI. Rationality & Egoism

- The egoistic model of rationality:
 - Consequentialist: only consequences matter
 - Act- rather than rule-consequentialist.
 - Only effects on self-interest matter.
- Challenges:
 - We might have non-consequentialist obligations.
 - We might focus on rules rather than acts.
 - We might care about something other than our own well-being.
- Sidgwick's challenge:
 - "Why care about others' interests?" Is this question like, "Why care about interests at a later time?" Compare:
 - * Interests at present time vs. interests of other times (other time-slices of oneself?)
 - * Agent's own interests vs. other agents' interests.

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Notes #23: Economic Methodology

I. Positive & Normative Economics

- Positive Economics is independent of any value judgments.
- Most economic policy debates depend on positive questions, not value questions.
 - Example: Minimum wage laws.

II. About scientific theories

- They have 2 components:
 - A “language”, a kind of conceptual filing system.
Should be judged by clarity, usefulness, etc.
 - A body of substantive hypotheses.
Should be judged by predictive accuracy.
- Evaluating substantive hypotheses
 - “Predictions” must be of phenomena previously unknown to the predictor.
 - * Need not be of future events.
 - * [Think about: Why does he say this? Is this right?]
 - Problem: There are always infinitely many hypotheses consistent w/ data.
Solution: non-empirical criteria:
 - * Simplicity
 - * Fruitfulness
 - Problem: lack of controlled experiments
 - * Some physical sciences lack controlled experiments: astronomy.
 - * Ability to control is a matter of degree.
 - * But economic data is much harder to interpret. Unsuccessful hypotheses are always cropping up again.

III. About Realistic Assumptions

- A commonly held view: Two ways to test an economic theory:
 - By testing its implications
 - By testing the realism of its assumptions
- But this is wrong. The most “important” hypotheses have “wildly inaccurate”, “descriptively false” assumptions. (14)
- Accuracy of assumptions can only be evaluated by accuracy of implications. Example:
 - For falling bodies, $s = \frac{1}{2}gt^2$.
 - This formula “assumes” no air resistance. Is this “assumption” accurate enough?
 - How to test this: by testing the implications.
 - There is no other standard of “close enough” to a vacuum.
- “Assumptions” may be wildly inaccurate: Example:
 - The leaves of a tree behave as if they were seeking to maximize the sunlight they capture.
 - But leaves do not have beliefs and desires, etc.
 - There is another, evolutionary explanation of this phenomenon. This theory is better, not because it has more realistic assumptions, but because it is more fruitful, connected to other knowledge.
- Example: Predicting the shots of an expert billiard player.
 - They behave as if they had detailed knowledge of physics & do calculations before each shot.

- This doesn't mean they actually have this knowledge.
- The theory is plausible because, unless players behaved this way, they would not be *expert* players.
- Economic example:
 - Businesses maximize their profits.
 - They may not actually perform complex calculations to do this.
 - But unless they behaved in this way, they would not be in business for long. (Or their businesses would not grow.)
 - There is a lot of evidence for this. But it is difficult to document.

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Notes #24: Interpersonal Utility Comparisons

I. Hausman's Article

Hausman's Thesis

- A theory of welfare: S's level of wellbeing = the degree to which S's preferences are satisfied.
 - Note: Preference-satisfaction not = feelings of satisfaction.
 - Hausman thinks this theory is wrong.
- Can we say that one person's utility is higher than another's?
 - This is important for ethics.
 - Some say no, perhaps because interpersonal utility comparisons (IPU's) cannot be tested.
- Hausman argues: *If* we take the preference theory of welfare, then we cannot compare welfare levels.
 - Therefore, we should reject the Preference Theory.

1. Ordinal Utility & Interpersonal Comparisons

- Suppose we have only an ordinal ranking of preferences. This means that we can order events as our 1st preference, 2nd preference, etc.
- Robbins says: IPU's are untestable.
- Actually, they would be meaningless. In an ordinal ranking, there is no *quantity* of utility.
- *Counter-proposal*: Measure by how far up your preference ranking you are.
 - Count # of alternatives in one's pref ranking above and below one's current state?
 - Problem: How to individuate alternatives.
 - Problem: There might be infinitely many alternatives.
[Comment: # of preferred/dispreferred alternatives also seems morally irrelevant.]

2. Extended Sympathy

- Maybe we can use an "extended sympathy" function, which gives a preference ranking among person-state pairs, e.g., _____ prefers Ira-with-x over Jill-with-y.
- What goes in the blank?
[Some weird discussion that doesn't make much sense in this section.]

3. Maybe we can make IPU's in special cases:

- When someone is at the top/bottom of their preference ranking.
- But this isn't very useful.

4. Cardinal Utilities

- To make IPU's, we need a maximum & a minimum utility. Degree of pref satisfaction =

$$\frac{\text{Actual U} - \text{minU}}{\text{maxU} - \text{minU}}$$

- This uses the "zero-one rule": Your maximum utility = 1. Your minimum utility = 0.
 - Note: Any affine transformation of this utility measure is equally good. *Affine transformation*: the result of multiplying everything by a constant & adding a constant.
- This must be correct because

- If two people both have their minimum utilities, then their preferences are not at all satisfied.
- If Ira and Jill's preferences are both "not at all satisfied", then neither's preferences are any more satisfied than the other. So they have the same utility.
- Similarly, if Ira and Jill both have their top preference, then their pref's are equally satisfied, so they have = utility.
- [Note: Basically ignores any other possible way of measuring "degree of preference satisfaction". E.g., ignores the possibility that degree of preference satisfaction depends on strength of desires.]
- Objection: Then a person's imaginativeness affects their well-being. People who have imagined wonderful possibilities are thereby worse off.
 - Reply: This is just a further objection to the pref-satisfaction theory of welfare.
 - Or, maybe we should use hypothetical, fully-informed preferences.

5. Other people's criticisms of the zero-one rule

- Hammond: We'd have to give more to greedy people than to people with modest desires. This is unfair.
 - o Reply: This is just an objection to the pref-satisfaction theory of welfare. [Really?]
- Sen:
 1. Suggests that we could, e.g., assign 1 to the *sum* of all possible utilities.
 - o But this would obviously not measure degree of preference satisfaction. (Repeat argument from section 4.)
 2. Suggests that handicapped people might have uniformly lower utilities.
 - o [Sen seems to be counting only utility functions over *feasible* alternatives, not all imagined or imaginable alternatives.]
- Rawls:
 1. The rule assumes that everyone has similar capacity for satisfaction.
 - o This seems to conflate preference-satisfaction w/ feelings of satisfaction.
 2. It also implies that great social utility would result from educating people to have simple desires.
 - o (Repeat argument of section 4.)
 - o [What's the objection here? Isn't this implication *true*?]
- Griffin: it assumes that we "reach the same peaks and valleys".
 - o Rep. section 4. All these people are refusing to take the pref-satisfaction theory seriously, because obviously, once you accept it, you have to accept the zero-one rule.

6. Implications

- We should reject the preference theory of welfare.
 - Actual preferences probably can't be represented by a cardinal function. [Why not?]
 - See the criticisms from section 5. [I think he has in mind:
 - o Greedy people shouldn't get more \$. (Hammond)
 - o We can't improve the world by teaching people to have simpler desires. (Rawls)
 - o Some people might have uniformly lower welfare levels, like the disabled. (Sen)
- Objection: We only use pref-satisfaction as a *proxy* for welfare.
 - Reply: It is too hard to measure to make a good proxy.

[Skip sections 7-8.]

II. Weintraub's reply

A. Hausman's first argument for the zero-one rule

- He says "to question whether Jill's bottom might be lower than Ira's is implicitly to reject the notion of utility as merely representing how well preferences are satisfied."
- Objection: You wouldn't say this about pain.
- Possible reply: But pain is an intrinsic state.
 - This doesn't matter. Compare a person's "P-height", the sum of their parents' heights. It is not intrinsic, but it is measurable on an absolute scale.

B. Must interpersonal welfare comparisons be possible?

- Hausman says a theory of welfare should allow IPU's; otherwise, it should be rejected.
- But many plausible accounts of well-being do not allow interpersonal comparisons.
 - E.g., levels of enjoyment, friendship, authenticity, accomplishment, etc., are all part of well-being.
 - Those things are hard (impossible?) to quantify.
 - So we couldn't make IPU's.

III. Hausman's Reply

A.

- Analogy: Compare two quantities:
 - X: How much water you have in your cup.
 - Y: How full your cup is.
- The zero-one rule is appropriate for measuring Y, but not X.
- "How well satisfied your preferences are" is like Y.
- [Why couldn't it be construed like X?]

B.

- Not all theories require precise interpersonal comparisons.
- [What is his point? Is it that we must have *some* interpersonal comparisons, but they need not be *precise*? And the preference-satisfaction theory does not enable even imprecise comparisons?]

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Notes #25: Corporate Social Responsibility

Q: Do corporations have a “social responsibility”?

For example, should they reduce pollution, below what is required by law?

Should they hire employees who *need* jobs the most?

Should they keep their prices down to resist inflation?

I. Milton Friedman

- *Biographical note:* Famous, Nobel-prize-winning economist. Prominent defender of free market capitalism, + monetarist macroeconomic theory. Author of *Free to Choose*, and *A Monetary History of the United States*. Argued that the Great Depression was caused by monetary mismanagement by the Federal Reserve.
- Primary responsibility of corporate executives is to maximize profits.
 - Corporate resources are owned by shareholders.
 - Executives are *agents* of shareholders.
 - Shareholders want profit.
 - o Stated purpose of (most) businesses.
 - o Purpose of investing.
- Constraints on pursuit of profit: Friedman says each of these at different points:
 - Must obey the socially accepted rules.
 - Must obey laws.
 - Must obey accepted ethical limitations.
 - Must have “open and free competition without deception or fraud”.

[Questions about Friedman’s constraints:

Could the socially accepted ethical rules include notions of “social responsibility”? If no, why not?
What is open & free competition? Does it preclude monopoly? Does it preclude Microsoft-like tactics?

What if some shareholders want the corporation to exhibit “social responsibility”?]

- Failure to maximize profits is wrong.
 - It is like “taxing” shareholders, customers, or employees. [He should have said it is like stealing from shareholders, or misusing funds.]
 - Executives don’t have the right to tax.
 - Social ends should be chosen by the democratic political process.
- Social responsibility initiatives won’t work.
 - Executives don’t know how to benefit society. That is the job of the political system.
 - Shareholders will fire them.
- Social responsibility philosophy will destroy society.
 - It supports the idea that profit-making is bad.
 - This will lead to socialism.
- But, it is permissible to start “social responsibility” initiatives as a cynical publicity ploy.

II. John Mackey

- *Biographical note:* Co-founder and CEO of Whole Foods Market. Supporter of free market economics, vegetarianism, & organic foods movement. Donates to animal welfare groups.
- The stakeholder philosophy: The business serves the interests of all its stakeholders:
 - Investors

- Customers
- Employees
- The community
- Entrepreneurs
- Why do this?
 - Because we care.
 - It improves the “brand” of capitalism.
 - It’s also good business.
- Response to Friedman:
 - The Whole Foods philosophy was in place long before our IPO. It was publicly announced.
 - Anyone who didn’t like it didn’t have to buy in.
 - Shareholders have the right to introduce resolutions to change the philosophy. No one has done so.
 - Therefore, management is not stealing from shareholders, etc.

III. Friedman’s Response

- As long as the corporate philanthropy is good business, there’s nothing wrong with it.
 - It must be good business; otherwise, Whole Foods would be out of business.
 - [Seems to ignore Mackey’s distinction about the *purpose* of corporate philanthropy, etc.]
- Giving to charity through a corporation makes sense only because of the tax laws (deductibility of corporate charity).
 - This means we should change the tax laws.
- Whole Foods Market has no special competence in distributing charity.
 - So their money would do more good if used to expand the business, or distributed as dividends.
 - [Not clear why Friedman thinks this. Is he confusing financial value with moral value?]

IV. T.J. Rodgers

- Mostly irrelevant attacks on Mackey:
 - Mackey didn’t hire his investors, because he can’t fire them; they can fire him. Mackey “spouts nonsense”.
 - Mackey is no libertarian. He’s closer to a Marxist.
- Maximizing profits is great.
 - Giving to charities is not better than maximizing profits (and thus giving to investors).
 - Businesses contribute to society by seeking profits. They lower costs for everybody. Ex: the semiconductor industry has lowered costs of transistors from \$3 to \$0.000003.
- Capitalism’s brand is fine.
 - Only 0.1% of public companies are guilty of serious wrongdoing.
 - Politicians and journalists have much worse records.
 - The public knows this. Businessmen are more respected than politicians or journalists. [No source cited.]

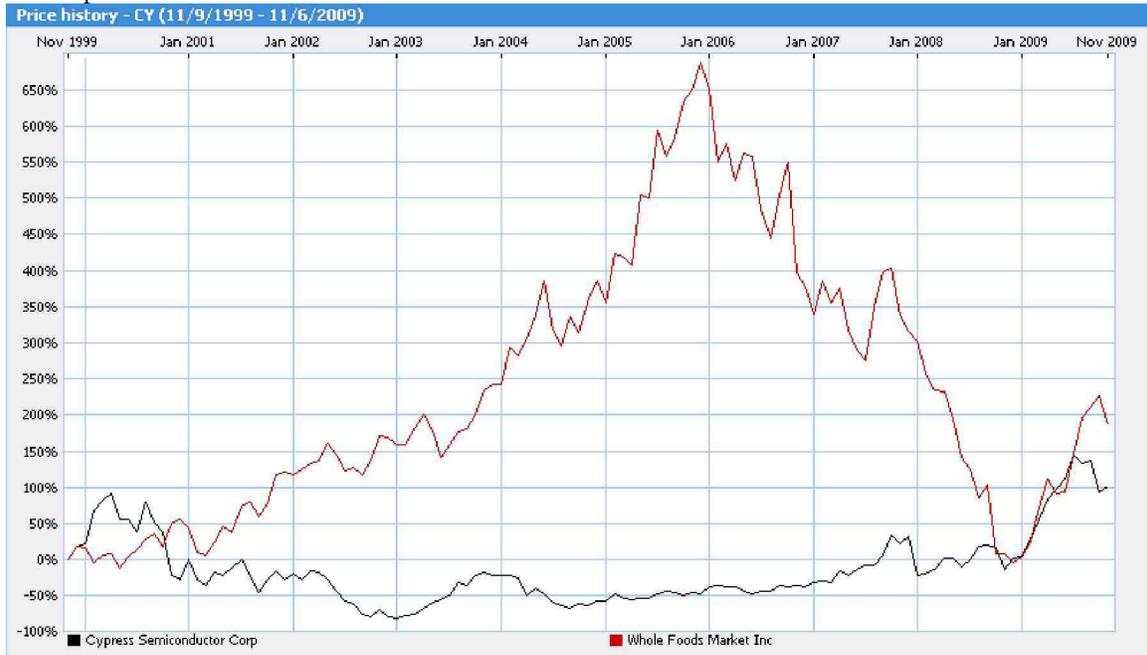
V. Mackey Responds

- To Friedman: No, we’re not in agreement:
 - Friedman says: Philanthropy is the means to maximizing profit. Profit is the end.
 - Mackey: Profit is the means of pursuing Whole Foods’ mission of improving health and well-being for everyone.
 - Friedman didn’t respond to this: The entrepreneurs define the purpose of the enterprise.

- o You can start an enterprise devoted only to profit.
- o But you don't have to do that.
- Again, my (Mackey's) message is better marketing for capitalism.
- To Rodgers:
 - Rodgers is indulging in personal attacks. I'm not a Marxist, etc.
 - I am not giving all stakeholders a property right in Whole Foods. Analogy: doctors have a responsibility to their patients. This doesn't mean the patients own the practice.
 - My business model is better than Rodgers'. Whole Foods Market is doing much better than Cypress Semiconductor.

Comparing Whole Foods Market (WFMI) and Cypress Semiconductor (CY):

- Stock price:



- Net income, 12 months ending 9/2009:
 WFMI: **\$111 million**
 CY: **-\$567 million**

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Notes #26: Public Choice Theory

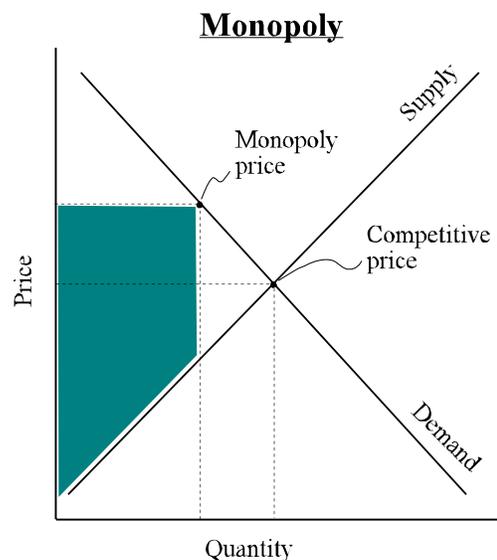
I. About public choice in general

- Economics analyzes people's behavior using the assumption of *instrumental rationality*.
- Traditional economics:
 - Focuses on market participants.
 - Sometimes uncovers *market failures*: cases in which the free market outcome deviates from the socially optimal (utilitarian) outcome.
 - These are often used as grounds for state intervention.
- Public choice theory:
 - Applies the same principles to analyze *political choices*, incl.:
 - Voters
 - Politicians
 - Bureaucrats
 - Lobbyists
 - Etc.

How do these people make their decisions? What are the social consequences?

II. The problem of monopolies & cartels

- What they do:
 - Restrict output, raise prices.
 - Results in lower total utility, esp. for consumers.
- A similar phenomenon: Cartels. Multiple businesses join together and make an agreement to raise prices & restrict output.
- This is often cited as a reason why we need government.



III. Why it is hard to establish cartels

- Cartel tries to raise price & limit production.
 - Parties outside the cartel produce more at the higher price, taking advantage of the cartel.
 - Cartel members have an incentive to “defect” against their fellow members.

IV. Government to the rescue (of the industry)

- Solution: Get government to enforce a cartel.
 - This is a typical solution to a “public goods” problem.
 - Gov't sets prices, to maximize industry profits. They say they are controlling the industry for public benefit.
- Why can they do this?
 - Regulatory agencies staffed by former and future industry leaders.
 - Industry insiders have more knowledge of the industry, its regulations, and their effects.
 - Industry insiders care more about the regulations than anyone else.
- What's the problem?
 - Harms the rest of society.

- Benefit to the industry is minimal
 - o They expend money on lobbying.
 - o They expend money on trying to steal customers with non-price competition. Increased quality, etc.
- Ex: The Civil Aeronautics Board fixed plane fares (until deregulation).
 - PSA's fares were about 1/2 of interstate airline fares.
 - Airlines ran planes half empty.
- Similar logic applies to craft unions: Plumbers, electricians, doctors.
 - Impose licensing requirements.
 - Alleged purpose: to ensure quality for consumers.
 - Actual function: To limit supply and drive up prices.
- Example: The AMA
 - AMA controls state licensing boards.
 - They claim to be ensuring quality. But limiting # of physicians means fewer people get medical care, or everyone gets less medical care.
 - Licensing restricts supply & drives up prices.
 - Ex.: Applicants must be U.S. citizens; tests must be taken in English.
 - The AMA controls which medical schools are approved. They make medical schools restrict entry.
- Analysis of the incentives
 - Industry insiders: restrict supply, raise prices. Concentrated, well-organized interest group.
 - Voters: Face a public goods problem. Diffuse, unorganized. No individual has interest in doing anything.
 - Politicians: Help industry, not consumers.

V. The problem with democracy in general

- Good laws are a public good.
 - Costs of producing them: Time, energy. Borne by the individual.
 - Benefits go to society as a whole.
- Public goods are underproduced.
- That is why good laws are underproduced.

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Notes #27: Economists versus the Public

I. The public has 4 main biases

- Anti-foreign bias. They see interactions with foreigners as a threat.
 - Outsourcing
 - Trade & protectionism
 - Immigration
 - Foreign aid
- Make-work bias. “Jobs” are an end in themselves. Labor-saving is bad.
 - Downsizing
 - Technological progress
 - Trade & outsourcing again
 - Gov’t policies that cost labor. Being costly in labor is good, because it “creates jobs”.
- Anti-market bias. The market is bad.
 - Prices result from conspiracies, rather than supply & demand.
 - Executive pay needs to be controlled.
- Pessimistic bias. Things are constantly getting worse.
 - Living standards over the past 20 years.
 - Will the next generation live better than this one?
 - Deficits, welfare dependency, high taxes are disasters waiting to happen.

II. Are the economists biased?

- Because of their high incomes?
No. High-income non-economists think like the rest of the public, not like economists.
- Because of their conservative ideology?
No. Most economists are Democrats.
- The simplest explanation for the disagreement is that the experts have knowledge, and the lay public do not.

III. Implications

- Explains why public policy is often bad. Voters are confused. They vote for policy-makers who share their confusions.

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Notes #28: Rational Ignorance & Irrationality

I. Rational Ignorance

- Theory
 - Benefits of information: Better decisions.
 - Costs of information: Time & effort.
 - Collect information when the expected benefit exceeds the expected costs.
 - Political information is a public good: Benefits go to society, costs go to individual.
 - o Prediction: Little political information will be purchased.
- Evidence
 - Most voters do not know length of House terms & cannot name their representatives & senators.

During the 1992 presidential campaign 89 percent of the public knew that Vice President Quayle was feuding with the television character Murphy Brown, but only 19 percent could characterize Bill Clinton's record on the environment... 86 percent of the public knew that the Bushes' dog was named Millie, yet only 15 percent knew that both presidential candidates supported the death penalty. Judge Wapner (host of the television series "People's Court") was identified by more people than were Chief Justices Burger or Rehnquist.¹
- Solutions
 1. The Miracle of Aggregation: Assume ignorant voters vote randomly. Informed voters vote for the best candidate. Best candidate will win.
 2. Voters could punish wayward politicians very severely.
 3. Special interest laws: Someone could introduce an omnibus anti-special-interest-law bill repealing all of them.
 4. Voters aware of their own ignorance could adopt the rule, "When in doubt, say no." Similar to buyers who are ignorant of the quality of a used car.
- Q: Why don't these things happen?

II. Rational Irrationality

- Premises
 - Voters have non-epistemic belief preferences: They want to believe things for reasons other than truth, evidence, etc.
 - Voters can exercise some control over their beliefs.
 - Correct political beliefs are a public good. And voters know this.
- Prediction: Rationality will be underproduced.
- Evidence explained by the theory
 - Individuals are emotionally committed to their political beliefs & resist new information, even if it's free.
 - Ignorance commonly conjoined with high degree of subjective certainty.
 - Systematic biases in voter preferences. E.g., protectionism, general anti-foreigner attitudes.
- Against the standard theory of special interest influence: Inefficient policies are *popular*.

¹ Delli Carpini & Keeter, *What Americans Know about Politics and Why It Matters*, 101.

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Review of Unit 4

Things you're supposed to know:

These people & their views:

Amartya Sen
Milton Friedman
Daniel Hausman
Ruth Weintraub
John Mackey
T.J. Rodgers
David Friedman
Bryan Caplan

These concepts/distinctions:

(Psychological) egoism
Sympathy / Commitment
Act- vs. rule-consequentialism
Positive (vs. normative) economics
Preference satisfaction (Hausman)
& the theory of welfare based on it
Interpersonal utility comparison
Ordinal vs. cardinal utility
The zero-one rule
Corporate social responsibility
Public choice theory
Monopolies & cartels
Rational ignorance
Rational irrationality
& costs/benefits of rationality
These biases:
anti-foreign
make-work
anti-market
pessimistic

These examples & what they show:

Falling bodies & wind resistance (M. Friedman)
Degrees of pain (Weintraub)
Cups of water (Hausman)
The AMA (D. Friedman)
The CAB (D. Friedman)

These views/arguments:

Comparison between self-vs.-others and present vs. future-self (Sen)
Friedman on justification for economic theories & realisticness of assumptions
Hausman on how to measure degree of preference satisfaction
- if you have ordinal utilities
- if you have cardinal utilities
Friedman on responsibility of business executives
& how “social responsibility” initiatives are like taxes (or theft)
& the competence of executives.
Mackey’s “stakeholder” philosophy
& response to Friedman on taxes/theft
& how purpose of corporation is defined
How good laws are a public good
Why regulations serve concentrated, organized interests & industry insiders
Monopolies & cartels: what they do
The problem with maintaining cartels
The miracle of aggregation
& why Caplan thinks it fails
How rational irrationality explains more than ignorance (Caplan)