L2: Microeconomics 101

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Outline

- Consumer theory
  1. Utility
  2. Budget constraint
  3. Demand curves
  4. Consumer surplus - "value"
- Opportunity costs
- Producer theory
  1. Profit
  2. Cost constraints
  3. Supply curves
- Supply and demand meet to create little markets
- Perfectly competitive markets (the unicorn)
- Differences between the unicorn and health care markets: the birth of health economics
- Beyond economics 101

Big picture

- We will cover a framework that is best understood as an **analogy**
- We will say that people and firms behave "**as if**" they make some very rational decisions
- It's a a model, a conceptual model, a simplification of reality, not exactly reality
- It's a start to see what happens when some of the assumptions do not work
- Another way of describing economics: it's about optimal decisions made by economic agents on the allocation of scarce resources when facing constraints – plus uncertainty in some models
- This leads to *trade-offs*
- **Take it seriously but not too seriously**

Consumers

- Consumers are assumed to care about the quantity of good and services they consume – among many other things like free time and health, as we will see in other lectures
- How much they care about something is assumed to be dictated by a function that we will call the **utility function**
- The utility function is a very peculiar construct. It measures in a very general way the satisfaction or happiness a person gets from consuming products and services
- "Utility" is not the best term. Maybe **preference function** would be better. Even the "satisfaction function" would be better
- We are not interested in how "functional" products are – not interested in their "utility" in that sense of the word

Consumers

- The most unusual thing about the utility function is that we do not actually care about measuring it
- We only care that people have preferences and that they are able to **order** or **rank** their preferences
- There are no natural units to measure the utility; we do not care because we don't have to measure it (at least not this version of utility)
- One important idea behind this framework is that **we can infer what people care about from the choices they make** (**revealed preferences**).
- That's how we will measure the *value of a (statistical) life* in the last week of the semester

Utility

- This is the usual way we write the utility function:

  $U = U(M, J)$
- M and J are goods and services or a bundle of goods and services. Say, M are health care things like vaccines or surgeries . J are other goods like food, iPhones, restaurant meals, cars, etc. (They could overlap in function)
- The function $U(M, J)$ is an abstract function. This is a more concrete one: $U = M^{\alpha} J^{(1-\alpha)}$. This is an even more concrete one: $U = M^{0.2} J^{0.8}$
- If, say, $M = 10$ and $J = 2$, then $U = 10^{0.2} \times 2^{0.8} = 174.1$, but that 174.1 is of not importance by itself
- We won't use numerical functions in this class. We will keep the utility function abstract, like $U = U(M, J)$
- In essence, what we say is that people care about M and J and they prefer more of both to less, although we do not know the exact way (ratio) they prefer them
- We assume that utility increases when M and J increase (partial derivatives $>$ 0)

Utility, properties

- There are few assumptions one needs to make about utility functions for this framework to work
- Some of them are technical so we can use calculus, like requiring continuity; others are more meaningful, like making assumptions about the shape, like convexity
- These are the properties we will care about for now:
  1. **Complete**: Any two bundles can be compared. That is, we assume that people are able to compare different goods and services and decide which one they prefer
  2. **Reflexive**: A trivial property that says that people are logical (people say that M is at least as good as M)
  3. **Transitive**: If M1 is preferred to M2 and M2 is preferred to M3 then M1 is preferred to M3
- Maybe the easiest way to summarize this is to say that we assume that preferences are logical and consistent

Budget constrains

- If people care about M and J, why don't they buy all they want? **Because they can't, of course**
- To buy goods and services, we need income and most people cannot buy all they want, not even the very wealthy
- Note in economics there is a difference between **income** (a flow variable) and **wealth** (a stock variable)
- We will assume people cannot save or borrow money so their budget constraint is:

  $P_M \times M + P_J \times J = I$
- P_M is the price of M and P_J is the price of J. I is total income, which depends on wages and the time people have to work (this time constraint will become important in future lectures)

Equilibrium

- How much of M and J are they going to buy? They are going to buy the amount of M and J that *achieves the highest utility (happiness) possible*
- This is the core of consumer behavior in this framework: **people are rational agents who make optimal choices**
- The process is something like this: Let's say a person buys quantities m_1 and j_1 (any quantity). If there is money left (that is, $P_M \times m_1 + P_J \times j_1 < I$), then m_1 and j_1 are not optimal choices since a person could achieve a higher utility by buying more of M or more of J or both and be happier (i.e. have a higher utility). At some point, they will hit a ceiling. They can't increase their utility function any more. But they could also *substitute* one good for another. Say, buy more M and less J
- Where does this end? **When the extra utility they get from adjusting their level of M and J cannot be made any better and they have spent all the money**

Equilibrium

- Remember, this is a framework that is best seen as an **analogy** of the process people use to make decisions, **not an accurate description of reality**
- Another story: Think about a decision you made. Are you going to sign up for the expensive gym? Are you going to buy Coors Light or the super crafty, ancient Inca beer (by the way, not really a beer)? The expensive new ski boots?
- Your mental process would be something like a calculation of the *additional* (incremental, **marginal**) benefit (status, comfort, etc) you get from the new pair of boots versus the old one compared with the *additional* (incremental, **marginal**) costs (say, about $300)
- However, you **also have to consider what you are giving up**. Say you figure that the extra $300 are worth it. But that means you won't be able to pay for a dental cleaning or a textbook or something else. There is an **opportunity cost** to spend extra $300
- You have to balance all these factors when making decisions, **considering all the goods and services you want to buy**

Opportunity costs

- **Opportunity cost** is one of those concepts that are central in economics:

  "*the loss of potential gain from other alternatives when one alternative is chosen*"
- This concept is central because not only financial costs are important
- Example: **The "cost" of learning is high**. Not getting a degree, but learning: you have to spend a lot of time sitting down and thinking
- The opportunity costs are the things you are not doing because you are pondering big thoughts
- We could actually use this idea to "price" the cost of learning: what is your hourly wage? What are you giving up when you are sitting down learning?
- The opportunity cost can be non-market items. Maybe you are giving up dating? Significant others tend to get upset when you chose books over them...

Equilibrium, math

- The "stories" in the previous slides provide an example of how difficult it is to understand this process with words
- With math, it's a lot easier – if you are comfortable with math. If you do some calculus, you would find that the equilibrium is achieved when
  $\frac{\frac{\partial U(m^*, j^*)}{\partial M}}{\frac{\partial U(m^*, j^*)}{\partial J}} = \frac{P_M}{P_j}$
- m^* and j^* are the optimal levels of each good
- The left-hand side is the marginal rate of substitution, MRS. So
  $MRS = \frac{P_M}{P_j}$
- That's the math version of what I said in the last slides. That game of adjusting the quantity of M and J must equal the ratio of prices
- This is a general and important result: **relative prices matter, not absolute prices**. What matters is how expensive is one good in relation to the other, and how much you prefer one good over the other

Equilibrium, math

- Economics assumes goods and services are divisible (continuous) so we can use calculus
- Calculus must be one of the most important technological changes in humanity (around 1700)
- Calculus is based on the notion of limits and small changes that requires continuity, although it may not make sense (we can't buy 1.1 restaurant meals)
- We can use discrete changes too: $\Delta U = U_1 - U_0$ and $\Delta M = M_1 - M_0$
- $\frac{\frac{\Delta U}{\Delta M}}{\frac{\Delta U}{\Delta J}} = \frac{P_M}{P_j}$
- For example, $\frac{\Delta U}{\Delta M}$ is the change in utility when we purchase an additional unit of M
- (I simplified the notation, but this an equilibrium condition, so it holds at optimal m^* and j^*)

Equilibrium, math

$$\frac{\frac{\Delta U}{\Delta M}}{\frac{\Delta U}{\Delta J}} = \frac{P_M}{P_j}$$

- The right-hand side is the ratio of prices, which is essentially the cost of M in terms of J
- The left-hand side is the willingness to give up good J to get another unit of good M
- So what the equilibrium condition says is that a consumer will purchase up to the point when the willingness to give up equals the cost – all in terms of the other good(s)
- In other words, the **marginal cost equals the marginal benefit**
- This repeats over and over in economics
- Another way: $\frac{\frac{\Delta U}{\Delta M}}{P_M} = \frac{\frac{\Delta U}{\Delta J}}{P_J}$
- So the marginal utility for M in dollars equals the marginal utility for J also in dollars

Equilibrium, words

- Here is a practical example that has important consequences for health
- Why do we eat so much now? One reason is that calories are cheaper, way cheaper now
- In a hunter-gatherer society, eating a sugar was "expensive." It requires a lot of effort to find it. Getting food would take most of the day (see, we do not need money to talk about costs)
- When I was a kid, ice cream, cold cuts, or even Coke were luxuries (Bolivia is still a very poor country)
- The fact that calories are cheaper means that people will likely consume more food, but it also means that the consumption of other goods and services will change because there is a limit to how much food you can eat. That means more money to purchase other goods and services, like health
- Relative prices matter in equilibrium, so food is cheaper in relation to the other goods. If P_m, P_j, and I decrease at the same rate, the equilibrium wouldn't change

Equilibrium, words

- Although it is not obvious at all, we now have a **demand curve**
- Out of this process, in theory, we now understand how much of a good a person will demand
- If the price of health goods, P_M, increases, then our rational consumer will need to make adjustments, most likely by reducing the amount of health goods M purchased, **although it depends on preferences** (goods can be **substitutes**, **complements**, there are income effects...)
- This is because our rational consumer wants to maintain the equilibrium $MRS = \frac{P_M}{P_j}$
- How much of each good she buys **depends on how much she cares about both goods, which is given by the utility function**
- (One important thing: we assume that prices are given. That is, they are not determined by a person. A person has no control over prices)

Graphing utility functions

- Utility functions are three dimensional: Two goods and utility: $U = U(M, J)$
- To simplify, we use only two dimensions and plot "isoquants," like in elevation maps. Imagine we are looking at a three dimensional plot from above. We call them **indifference curves**

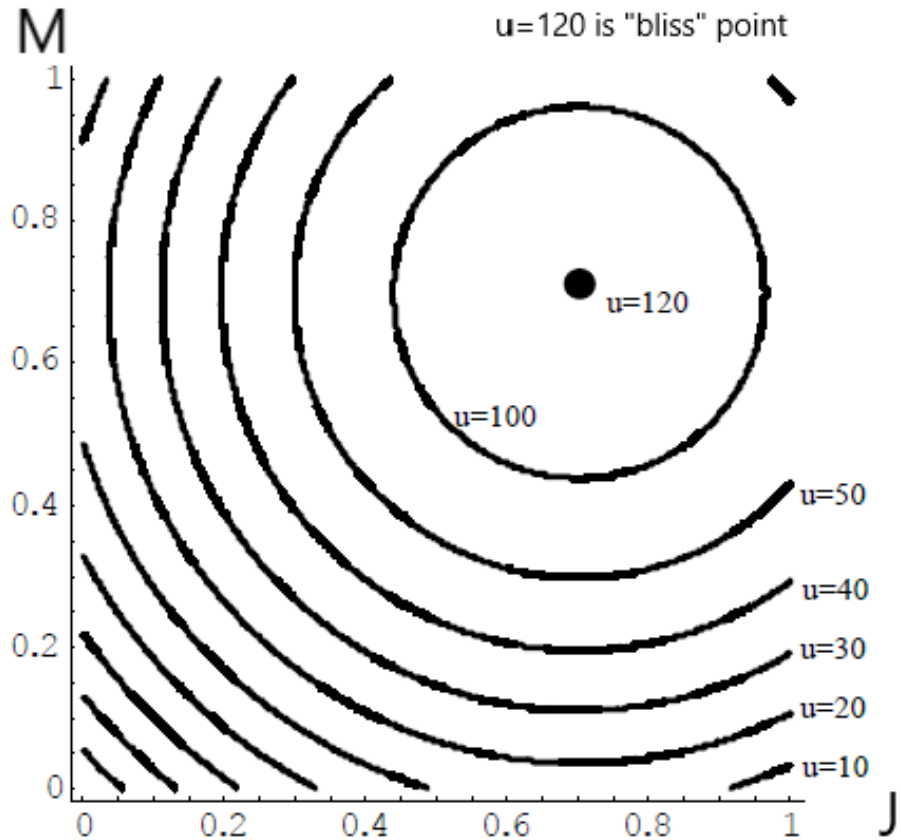
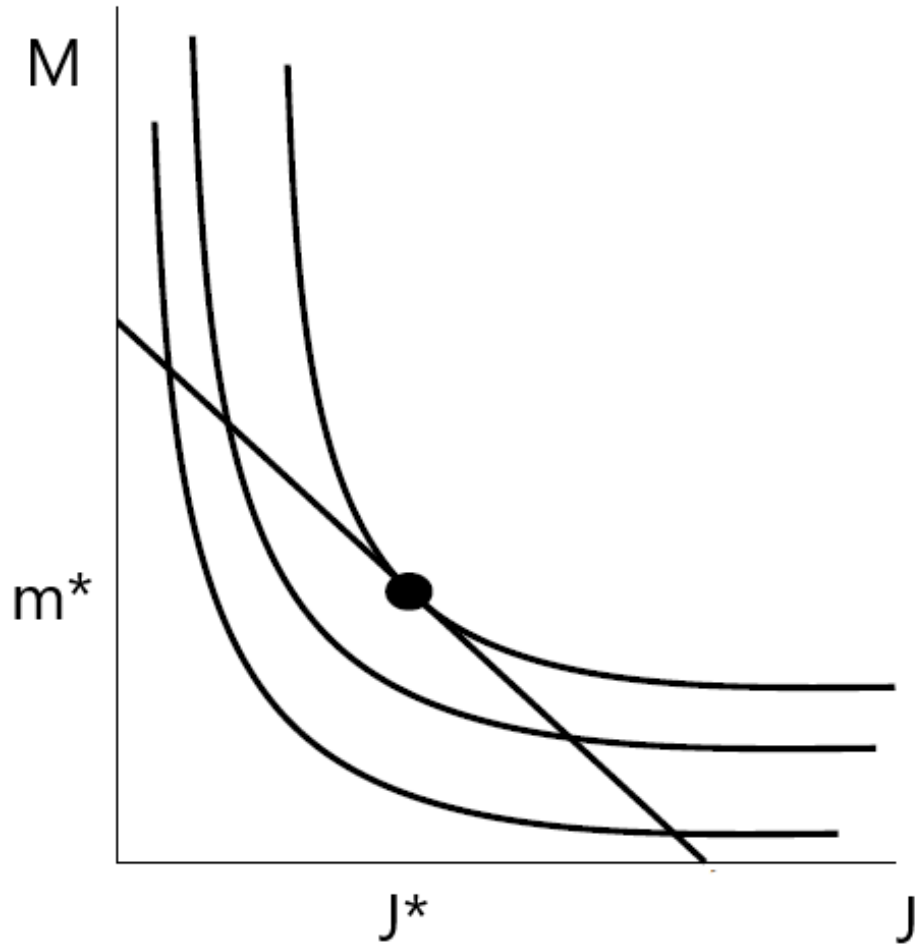


Figure: Adapted from MLD, 2.1

Equilibrium, graphs

- Budget constraints and indifference curves (adapted from MLD, 2.1). Indifference curves are combinations of goods M and J that leave a consumer equality happy



Comparative statics

- From the explanation in class you should understand how we can use this framework to understand changes – this is called "comparative statics" in economics
- What happens if the price of one good increase or decrease?
- What happens if income changes?
- What happens if a good is rationed?
- What happens if taste changes?
- An important insight is that preferences dictate outcomes: **it all depends on the shape of the indifference curves**
- Goods can be substitutes, complements. **Income effect**: changes in prices affect purchasing power. **Substitution effect**: if price goes up, a good could be exchanged for another
- A change in income could increase the consumption of everything or it could lead to a reduction of something. Same with a reduction prices (think of beans versus steaks; beer versus wine; "inferior" versus "normal" goods)
- **This process gives us demand curves (!!)**

Digression: the role of math

- We will skip the usual intermediate grad school micro type of math problems. For example, we could work with a Cobb-Douglas utility function: $U = (M, J) = M^{\alpha} J^{(1-\alpha)}$
- The MRS is $\frac{\frac{\partial U(m,j)}{\partial M}}{\frac{\partial U(m,j)}{\partial J}} = \frac{\alpha J}{(1-\alpha)M}$. So in equilibrium $\frac{\alpha J}{(1-\alpha)M} = \frac{P_M}{P_J}$
- You can write the budget constraint in terms of that first order condition and solve for the demand functions
- $M = \frac{\alpha I}{P_M}$ and $J = \frac{(1-\alpha)I}{P_J}$
- You can see that if income increases, people will consume more of both. You can see what happens when prices increase. In fact, with Cobb-Douglas utility you can see from the demand equations that there are constant expenditure shares
- We could play with other utility functions. This is a good math exercise, but it is also not general. In this example, the price of one good does not depend on the price of the other because assumptions about constant share. **Specific utility functions add assumptions**

Digression: the role of math II

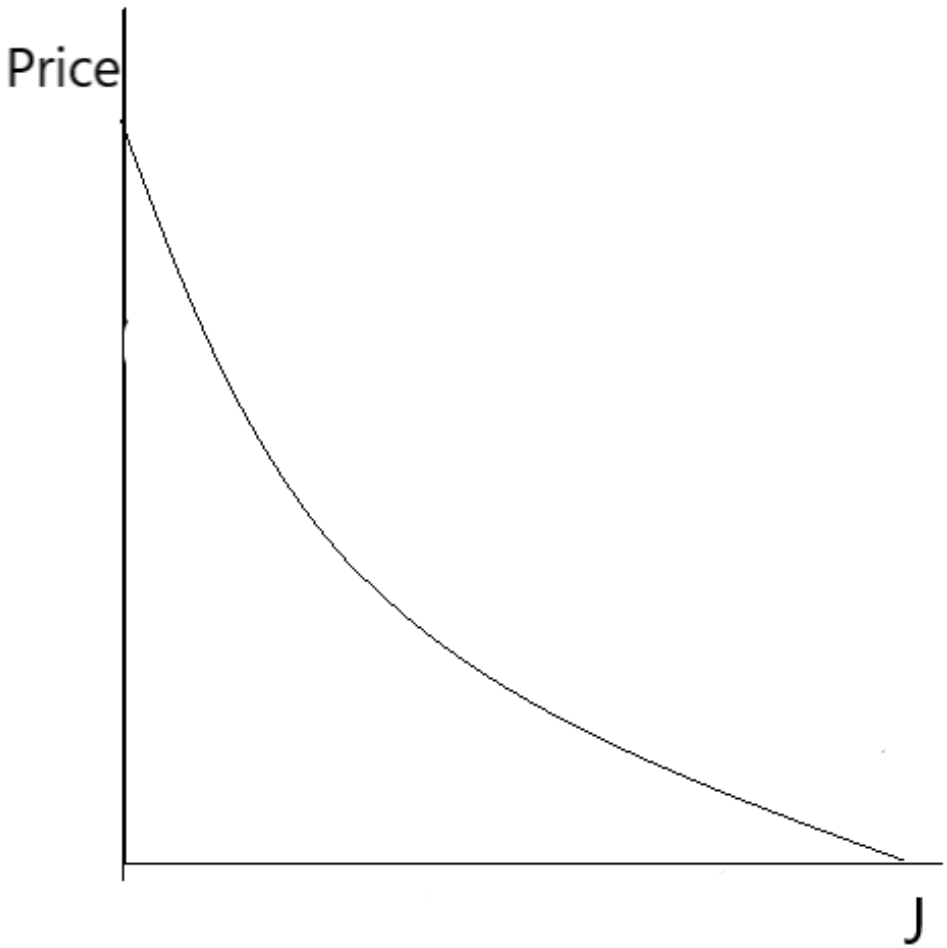
- A lot of economic theory is based on constrained optimization
- The equilibrium condition $\frac{\frac{\partial U(m^*,j^*)}{\partial M}}{\frac{\partial U(m^*,j^*)}{\partial J}} = \frac{P_M}{P_j}$ can be derived in several ways, but one general way is to set up the Lagrangian:
  $L = U(M, J) + \lambda[I - P_m M + P_J J]$
- You then take derivatives: $\frac{\partial L}{\partial M}$, $\frac{\partial L}{\partial J}$, $\frac{\partial L}{\partial \lambda}$ (**first order conditions**)
- This results in a system of 3 equations and three unknowns
- You can get a lot of insight from first order conditions. For example, $\frac{\partial L}{\partial M} = \frac{\partial U}{\partial M} = \lambda P_M$ and same for good J: $\frac{\partial U}{\partial M} = \lambda P_M$
- The first order conditions tell you that the additional (marginal) satisfaction a consumer gets from consuming more of a good is proportional to its price. That suggests that measuring **price indexes** gives us information related to consumers' wellbeing (and a justification for GDP)
- Prices matter a lot, that's why in some corners (mainly Chicago) microeconomics is called **price theory**

Equilibrium, more words

- To recap, what I want you to understand is:
  1. We assume that people have preferences over goods and services
  2. They also have a budget constraint dictated by their income and the price of goods and services
  3. Because they have constraints, they need to decide how much of each good to purchase
  4. Our hypothetical consumer is assumed to be rational or at the very least make decisions **as if** she **were** entirely rational. She will maximize utility (satisfaction/happiness) by purchasing "optimal" quantities of each good
  5. As a result, we have **demand curves**. At each price, we can tell how much our consumer will buy
- This framework takes some time to get used to, but it's actually an incredible powerful tool to understand the effect of changes and policies
- The tricky part is also to understand when any of the many assumptions we made leads us the wrong way (more on this shortly)

Demand curve

- Below is a demand curve. It "**slopes downwards**"
- If the price increases, then a person buys less of that good



Producer theory

- We can review now the other side of our market: the producers
- We are going to assume that producers **maximize profits**. Let's say we do this from the point of view of the producer of medical goods M:

  $\pi_M = P_M \times M - C(M)$
- Profit (π) equals revenue (prices times quantity) minus a cost that it's a function of the quantity produced, M. If costs depend only on labor (L) and w are wages, we have:

  $\pi_M = P_M \times M - w \times L$
- A producer would like to make profit as high as possible (not just revenue), but they they also have a constraint, which is the cost of producing an extra unit
- The cost could be hiring more people or buying raw materials or renting more space (we could include the cost of capital, K)

Producer theory, equilibrium

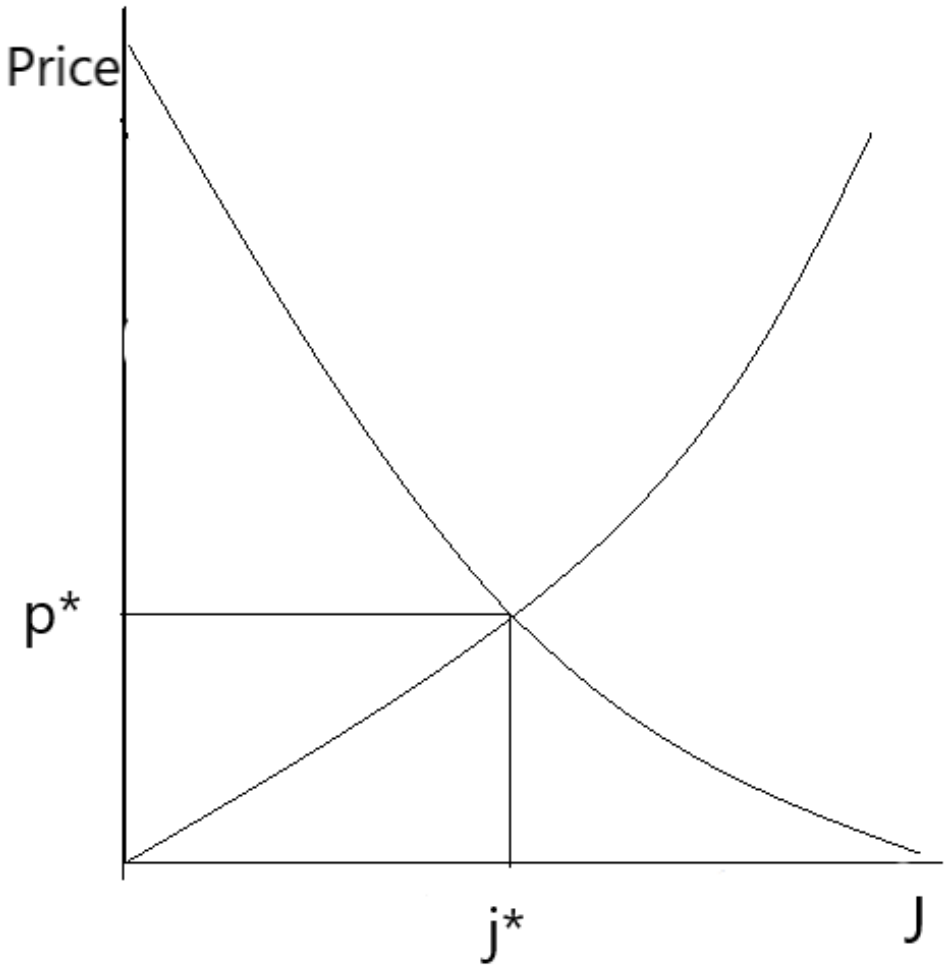
- The equilibrium condition is:
  $\frac{dR}{dM} = \frac{dC}{dM}$
- In words, the producer will **produce up to a point in which the marginal (additional) revenue of producing an extra unit of the good equals the additional cost** of producing the additional unit
- See, again: **marginal cost equals marginal benefit** – learn that and you know a large chunk of economics
- Producer theory is more intuitive in the sense that our analogy seems more plausible: you can imagine a business does behave in some rational way maximizing profits
- If you are an owner of yoga studio, for example, are you going to offer an extra yoga session if the cost of offering the extra session is more than the revenue you can get from it?
- Of course not... unless you are maximizing future profit or client loyalty or something else... Note how we don't take into account strategic long term behavior. This is a one-shot type of framework (for now)

Supply curve

- We now have a supply curve, which shows how much a producer is willing to produce at a given price

Consumer and producer together

- When we combine both sides, we obtain the market price and quantity



Market

- When consumers and producers are combined, we get a **market** for a particular good or service
- When we add up all markets, we get an economy
- As silly as this framework looks, it allows for the the analyze of the impact of many actual, real things. **The analysis makes assumptions crystal clear**
- What could happen if the cost of hiring people goes up? What happens if tastes change? What happens if there is new technology that lowers costs? What happens is there is a pandemic? What happens if taxes go up?
- **Law of demand**: quantity purchased is inversely related to price. Price goes up, quantity demanded goes down. Price goes down, quantity demanded goes up (there is some caveats in the short versus long run)

Market demand versus a single consumer's demand

- It's helpful to keep things simple and plot demand curves using a line or a curve
- If all consumers were identical, then the shape of the market demand curve would be identical to the shape of the demand curve for each consumer
- But consumers are **heterogeneous**. Some people are willing to pay a lot for cable TV; others couldn't care less. Some consumers are willing to pay a lot because their income is higher
- Words matter. "Willing" is perhaps not the best term since it's made of two components: **willingness** (because of preferences) and **ability** to pay dictated by budget constraints
- The market demand curve could look very different from the demand of each person

Market demand

- **Consumer heterogeneity** is important to understand practical problems

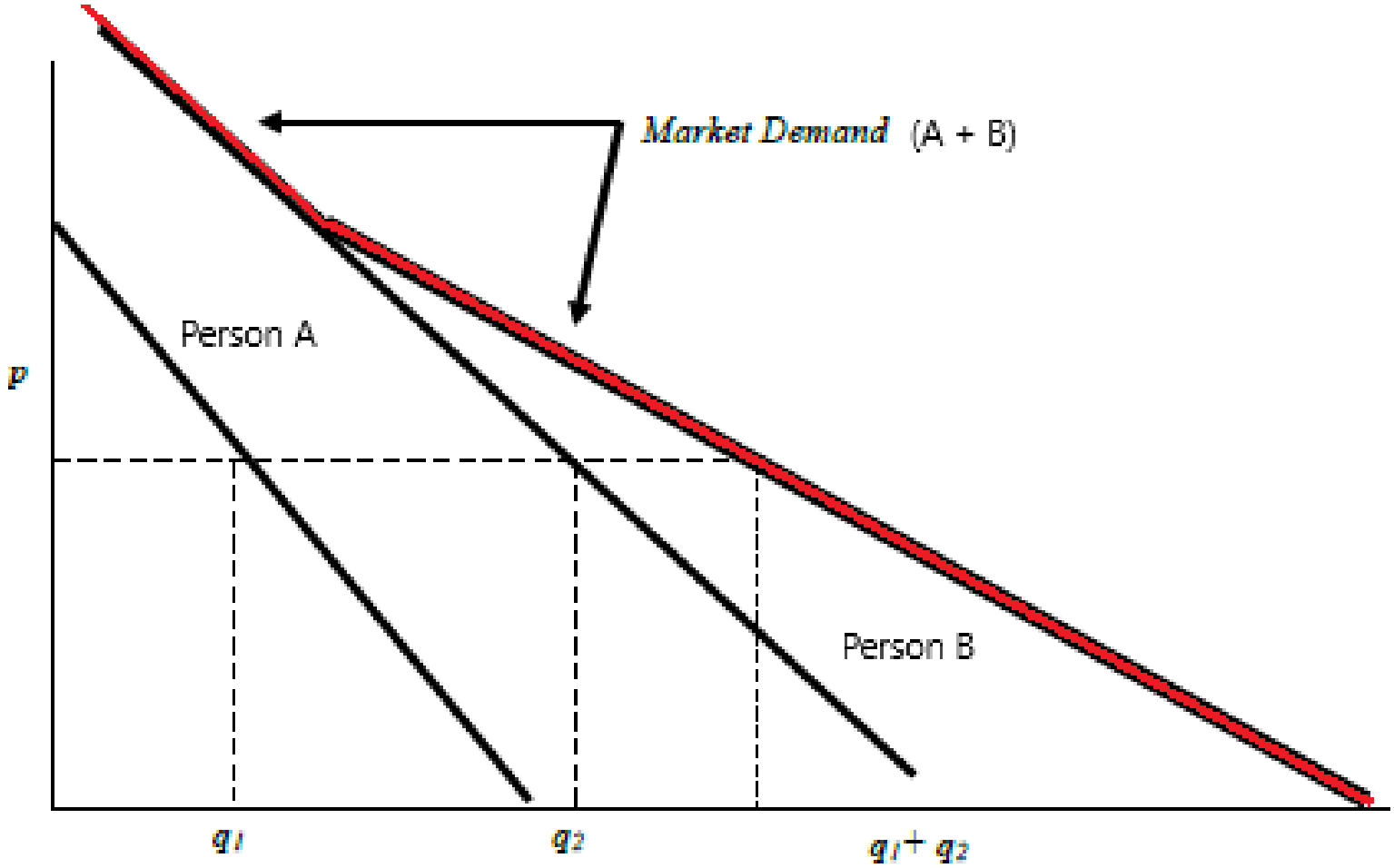


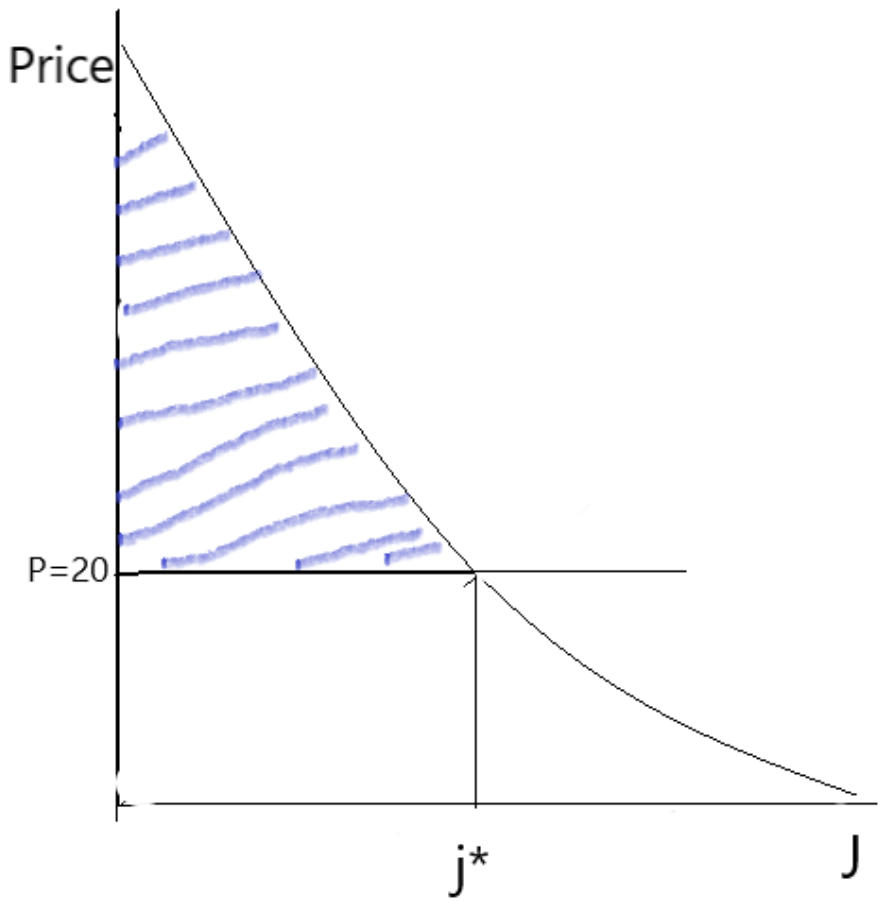
Figure: Adapted from MLD 2.1

Value - consumer surplus

- Image a person's demand curve for, say, yoga classes (let's call him Joe in honor of our current president)
- At $120 per class, Joe would go for a run or try a free online YouTube video instead (substitute goods)
- At $100 per class, Joe would go once a month; at $40, 5 times a month... Joe would buy 8 classes if they were $35 each
- The market for yoga classes is competitive. The price of equilibrium is about $20 per class
- Our hypothetical Joe has **gained value** since he was willing to pay more for each class. This is what is called **consumer surplus**
- Consumer surplus is the difference between what a person is **willing to pay (aka reservation price) compared with what the person actually pays**
- This gives us one definition of **value**: a comparison of incremental (marginal) cost and benefits (the demand curve is Joe's marginal utility; the price is marginal cost)

Consumer surplus, graphically

- Consumer surplus in the area under the curve (Joe's, that is); it becomes an integral with calculus
- It also gives another way of understanding utility maximization. Why does he not buy 9 classes? Because the additional utility of 9 versus 8 classes is less than the incremental cost of $20



Value - consumer surplus

- In case you missed it:
  1. Value is a marginal/incremental/additional concept
  2. It's based on what people **prefer**
  3. Budget constraints and the price of other goods and services were taken into account – our hypothetical Joe derived his demand curve rationally
  4. It's a cost-benefit comparison
- It also gives us another way of understanding utility maximization. Our Joe consumed yoga at to the point where the additional benefit he received from a class (marginal utility) equals the marginal cost (price) of the class, *relative to other goods*
- Seen this way, a comparison of **willingness to pay** with costs (all marginal/incremental) tells us a about **value**

Value - consumer surplus

- Note too the issue of **affordability**: at $120, Joe is priced out of yoga
- No value for him at that price. What if we were talking about lung cancer screening, not yoga?
- Now, mabye Joe should care more about yoga or screening... Consumer preferences reign supreme in this framework
- The market price is influenced by other consumers who may be able (or willing because of preferences) to pay more for yoga in relation to other goods. Maybe these people drive a 2002 Honda Civic while Joe spends $500 a month leasing a BMW
- In other words, preferences, not just budget constraints, play a role in an person's reservation price (willingness to pay)

Diminishing marginal returns

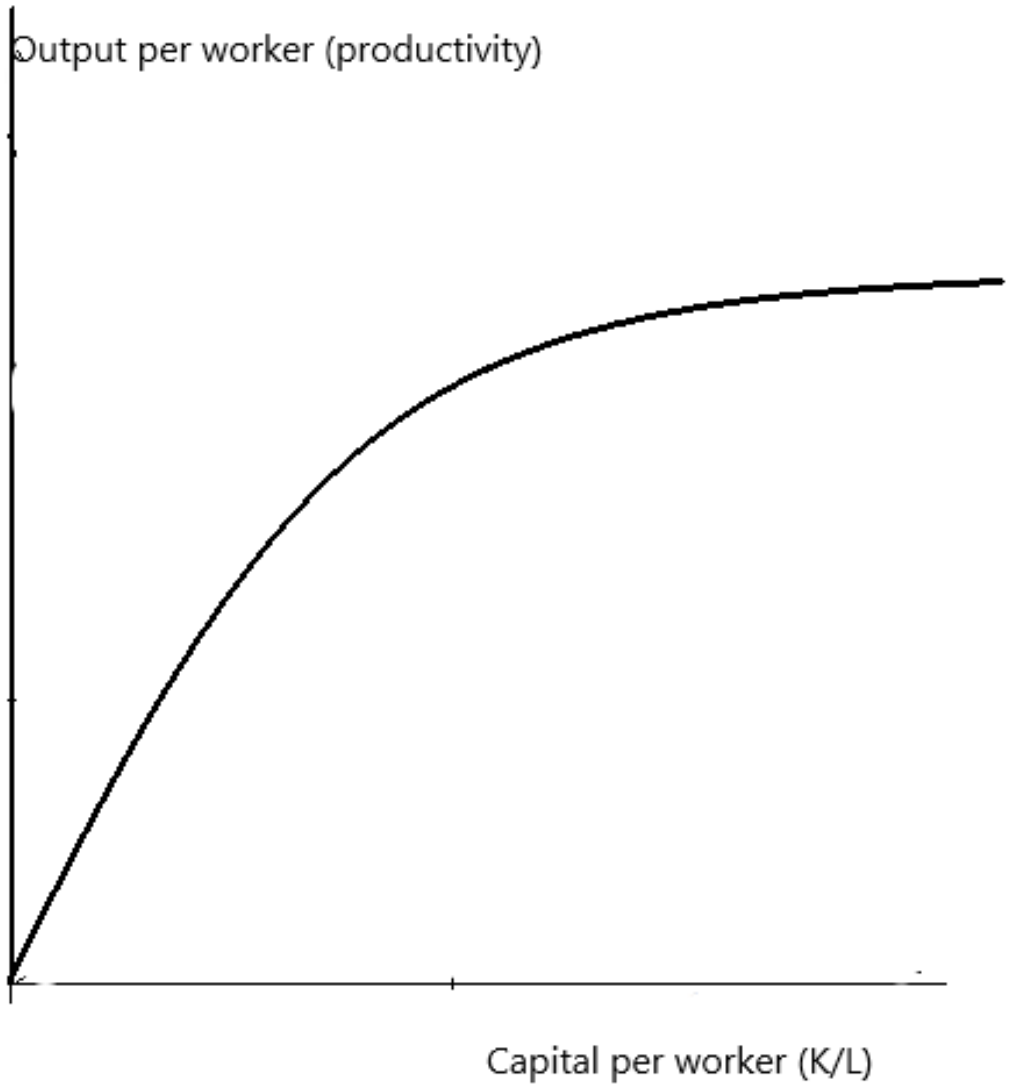
- A fact of life that is present in economics is **diminishing or decreasing returns** to many things
- For now, let's focus on diminishing marginal value
- Buying 1 restaurant meal a week will bring satisfaction to your life. Buying 2 is probably better. Buying the 3rd one less so. The 15th may not bring much extra joy
- 1 hour of exercise a week compared to 0 will do wonders for your health. 2 versus 1 will too. The 20th not so much
- More money will no doubt make you happier. An extra million when you make tons and tons of money will probably won't change your happiness
- At some point it's also possible that more of something with make you a lot less happy (like overtraining)
- That's diminishing returns. One way to see where this comes from is the **scarcity principle**: you need to give up more and more to keep consuming something – in other words, it becomes more costly measure in the things that you are giving up

Diminishing marginal returns: Economic growth

- I'll give you the cartoon version, but the Solow growth model provides a nice illustration of diminishing marginal returns
- Economic growth over time (Y) depends on capital (K) and labor (L): $Y_t = K_t^{\alpha} L_t^{(1-\alpha)}$ (yep, Cobb-Douglas again)
- A poor country often lacks capital, in terms of investments but also in terms of equipment and machinery
- I was fascinated with American construction sites when I first came here. Compare a construction site in Bolivia with one in New York:
- `https://www.alamy.com/stock-image-workers-on-building-site-spreading-wet-concrete-ove` `html`, `https://www.alamy.com/stock-photo-usa-new-york-manhattan-overview-of-construction-sit` `html`
- If the workers in the Bolivian picture get more capital (tools), productivity would increase – but more and more machinery will hit a limit: that's diminishing marginal returns

Diminishing marginal returns, graphically

- We will encounter diminishing returns many times this semester



Perfectly competitive markets

- There are some underlying assumptions that we need to clarify, and this is where things get interesting
- These are the requirements for a **perfectly competitive market**:
  - **1) Products are homogeneous**. There is no way to differentiate a product. One computer is the same as another computer. Think about a standard gram of gold of same karat or a fruit
  - 2) Consumers and produces have **perfect information**. Both have the same information about quality. They know who has the cheapest price. Marketing wouldn't work because the information is already known and because of 1), all products are the same
  - 3) Consumers and producers are **price takers**. None has enough power to control prices. **4) There are many producers and consumers**. No monopolies here or single buyers (monopsony)
- If a producer doesn't charge the equilibrium price, because of perfect information, homogeneous products, and many producers, he wouldn't sell a thing

Perfectly competitive markets

- There is more:
  - **5) No barriers to entry**. Any producer who wants to sell something can do so. Consumers don't have any restrictions about buying things either
  - There are property rights, no transaction costs, clear but non-intrusive labor laws... There is no racism, no gangsters, no slavery, no professional societies, no Instragram influencers...
- If these conditions are met, the market would allocate resources in an "optimal" way, and by optimal we mean**efficient**: scarce resources are allocated to their best use based on what people prefer
- Even taxes result in "non-optimal" allocation of resources in this framework
- As you can tell, perfectly **competitive markets are unicorns**. Some markets come closer, but most markets are not perfectly competitive

Adam Smith's invisible hand

- The invisible hand of the market works when all these conditions are in place because out of **self-interest the market allocates scarce resources efficiently**
- You can show in this framework that an all-knowing "social planner" would achieve the same result (but the social planner would need to read our minds to know our preferences)
- We are talking about **efficiency** in the allocation of resources. We are not taking about **fairness**. The market allocates resources by giving people what they want. **Prices determine the allocation of resources** and prices reflect the value of a good
- **People know what is best for them**, that's the premise. There is a lot of issues packed here, issues that have defined societies and created wars
- A lot of economics is understanding how deviations from perfectly competitive markets affects equilibrium
- Don't forget about the difference between **positive economics** and **normative economics** (BTH, Chapter 1)
- Grad students, read Fuchs (1996)

Profits are zero in the long run

- I'll say more about this in a bit, but worth it to mention now: In a perfectly competitive market, **profits are zero in the long run**
- The reason is that if profits are greater than zero, then more firms would enter the market, pushing the supply curve down, which means that prices would go down too, until profits are zero
- It doesn't mean that a business owner will lose money. Remember that profits are revenue minus costs. I kept cost simpler here, but the cost could include capital and labor costs. So owners get their due; yet profits are zero
- Famously, Keynes quipped that "In the long run we are all dead." In full context: "*The long run is a misleading guide to current affairs. In the long run we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is past the ocean is flat again*."
- The correct interpretation can be understood with another quote. One from Detective Lester Freamon from The Wire (paraphrased): "Life's the stuff that happens while you are waiting for the moments that never come"

Monopolies and oligopolies

- Even Adam Smith recognized many problems with the unicorn
- One problem is when there are not many producers, just one (**monopoly**) or a group (not one, but maybe 2 or 4 or 9; **oligopoly**)
- The problem is that they can **control prices**, to an extent
- They have market power. If they increase price, most consumers will have to buy the product anyway since there are no alternatives
- But they can't just charge any price, otherwise people may stop purchasing the product – we face trade-offs
- Think of a rural hospital. What choice do people have?
- The general result is this: the monopoly price will be higher than the price in a perfectly competitive market. As a result, consumers lose value (consumer surplus)
- Because of this, **governments regulate monopolies** (antitrust laws) – except Internet companies... In fact, consolidation in many industries is a very scary current trend

Health economics

- How does the health care market fits in the framework of perfectly competitive markets? Very badly
- Many trace the founding of health economics to Kenneth Arrow's 1963 article describing the unique characteristics of the health care market
- Please read the article. Also, take into account that his language is the language prevailing at the time (around 1960). We can't rewrite history
- For Arrow, the main difference between the health care market and a perfectly competitive market (i.e. the unicorn) was the underlying issue of **uncertainty**
- One way to see this is that uncertainly implies that that there is **no perfect information**

Uncertainty

- The need for health care is largely random. We don't know when we will need health care
- Doctors face uncertainty in making decisions
- Most of you know how to buy an apple or pho or pizza. Do you know who is the best doctor? Do you know what would be the best nursing home for your grandparents?
- Do you even know what is the price of any of those things? We will talk about co-insurance, co-pays, etc
- In the US, we need to even worry about surprise medical bills, which means that sometimes we do not even know the price of services. How are we supposed to make decisions?

Asymmetric information

- Some of the issues I mentioned under uncertainty are actually "classified" under **asymmetric information** in economics
- When consumers and producers interact in the unicorn market, we assumed both know the same information
- But what if *one knows more relevant information than the other*? That's asymmetric information
- When you buy a used car, the seller knows more than the buyer. George Akerlof showed that markets should not exist (his famous paper The Market for Lemons started a field of study and got him a Nobel)
- In the same way, we do not know the **quality of providers**, so we could make wrong decisions
- When a person wants to buy health insurance, the insurer knows less than the consumer about her health (another asymmetric information issue)

Externalities

- Externalities result when the actions of a person or firm create either costs (**negative externalities**) or benefits (**positive externalities**) to other person or firm (sometimes we call them economic "agents")
- Pollution is an example. A firm dumping waste on a river is affecting people downstream. The firm is not "internalizing" the cost of pollution so it dumps more that it would if the firm had to pay for the cost of polluting
- Stubborn, obnoxious people who refuse to wear a mask are creating negative externalities because their behavior is negatively affecting other people
- Infectious diseases are clear examples. Use of antibiotics less clear
- Health care in general is an example: **we are all paying in one way or another for the treatment of everybody else in society** (in taxes, health care premiums, lower wages)
- We would all be better off if people would eat better and stopped smoking

Regulation

- This is another key distinction
- No free entry. Providers –doctors, hospitals, nursing homes– are heavily regulated
- Hospitals are essentially monopolies in some areas. Very little competition. Recent wave of hospital closures is a major concern in rural areas
- We even have regulations restricting the number of medical schools. The American Medical Association severely limits the number of medical providers
- Only recently there is more flexibility for nurses and PA's to prescribe medications
- Insurance companies? Dominated by few large players, which are essentially monopolies in some areas
- So not a lot of free entry into the health care market, thus limiting competition

Prices

- As we saw, prices are central in the allocation of resources
- The price that you pay for medical care is not the same price that a provider receives
- Most of us have some form of insurance
- People without insurance either don't get care or probably won't pay for the emergency care they receive
- We will talk about **moral hazard**: lack of incentive to guard against risk where one is protected from its consequences
- If you have good fire coverage for your house, you might be more tempted to play with fireworks

Consequences

- We will cover all these topics over the semester
- One truly annoying thing is how many politicians and others have this knee-jerk reaction and argue that the problem with health care is that we are not letting the market work its invisible hand
- That may work in the wheat market, but in general doesn't work well in the health care market, although some policies that encourage competition can make the market work better
- We will see why sometimes the market doesn't work well, but the short answer is **uncertainty, asymmetric information, externalities, moral hazard, high prices (affordability), among other issues**
- But **that doesn't mean that the only solution is government intervention**, although solutions require at the very least some sort of regulation
- **It doesn't mean either that a single payer system is the only answer**

Economics beyond 101

- The study of monopolies, oligopolies, cartels, nonopsony
- Externalities - environmental economics
- Information economics
- Strategic behavior (game theory)
- Industrial organization
- The provision of public goods
- Welfare economics
- Relaxation of the rational assumption: behavioral economics
- Macroeconnomics
- International trade