If you were to walk away from this course with the knowledge of only one concept, I would want you to walk away understanding the concept of “opportunity cost.” It is a very powerful concept that will alter your perspective regarding decision making. Economists believe that anything you choose to do has a cost associated with the choice. Choosing to sit in class and listen to me, or sit in front of your computer and read what I am writing, has a cost. You could be doing something else with your time and effort. The opportunity cost of doing one thing is the value of what else you could be doing.

Instead of sitting in class or in front of your computer, you could be working and making some money for example. If working were to be your next best alternative to sitting in class or in front of your computer, then your opportunity cost of sitting in class or in front of your computer is the wages you forgo by not working.

Are you getting a handle on this?
OPPORTUNITY COST

Upon High School graduation you had to choose whether to go to college or go to work.

You have to choose whether to plant corn, soybeans, or both.

By choosing to go to college, you have given up the opportunity to begin a career and the associated income that is lost by attending college. Later, I hope to demonstrate for you that the opportunity cost of going to college is very expensive. It may even be the most expensive element in obtaining a college education.

If you are an agricultural producer, you know that when you plant corn on a tract of land, you can’t plant soybeans on that same tract of land. When you choose to plant corn, you give up the income that could have been earned by planting soybeans. An opportunity cost. Heck, when you plant anything on a tract of land, you give up the opportunity to rent that land to another agricultural producer. Therefore, you incur another opportunity cost, the rent you could have received. Assume you could have rented an acre of your land out at $60.00 per acre, but chose to put in a crop of corn yourself. At the end of the season you determine that you cleared $35.00 an acre accounting for all operating and ownership costs. Did you really make money? An economist will tell you no, that you really lost money. You could have rented that land for $60 per acre, sat back, and enjoyed life during the growing season. Instead, you busted your backside, worried yourself about the weather and the market, and cleared $35.00 an acre. An economist would point out that you really lost $25.00 an acre from your choice ($35 - $60 opportunity cost).
Not understanding opportunity cost can lead you to making some inefficient decisions. Constantly thinking about opportunity cost will keep you on your toes as you evaluate the alternatives that confront you daily. Since all economic resources are scarce, we have to make choices. Economics and the concept of opportunity cost are tools that have been developed to help us analyze the choices that we confront, and help us make the choices that are in our best interest over time. Tools to help us wisely use the scarce resources we control.
Before we can continue, we must realize that “life” is just not about economic costs and benefits. Life, and people, are much more complicated and complex. The choices that we make in “real life” not only have to deal with the scarcity of resources, but those choices must also be made within the context of the law, “who we are” and “what we believe in.” So, our choices are also constrained by legal concerns, political concerns, ethical and moral forces, and our traditional belief system in general. These are the elements that help mold and shape our personalities, our inner selves, what and who we are as individuals. These characteristics of our “being” are non-economic in nature. So, there are also numerous non-economic forces at work that mold and determine the choices that we make in our lives. These are also the elements that can make some choices gut wrenchingly tough to make. We must consider these elements because they have value, special value, value that only you can determine. Only you.

**OPPORTUNITY COST**

Choices that are made in real life are constrained not only by scarcity

but also by political, legal, traditional, ethical and moral forces.
The “Emotional Overcoat”

- Your personal collection of morals, ethics, values, traditions, culture, political beliefs, etc.
- What makes you, you.
- Determines what you perceive to be “right” and “wrong”

I collectively refer to the non-economic forces that affect our choices or decisions as the “Emotional Overcoat.” Most all of us have one. There may be a few who do not, like sociopaths or psychopaths for example that lack a moral compass or conscious. We all wear it day in and day out. Without it, we would probably not be very pleasant people. It is probably one of the most important “articles” of your personality and existence as a human being. Treat it accordingly. Treat it with the respect and dignity that it deserves.

At the beginning of the semester we discussed “positive economics” as being the objective look at economic issues. Objective meaning without emotion or value judgement. As a positive economist, we are trained to temporarily remove our “emotional overcoats” and look at economic choices based on their objective costs and benefits. I will ask you to do the same thing in here from time to time. It is difficult to do, because your emotional overcoat is stuck to you like glue. It does not like to come off of you. It is as if it is magnetized to you. But sometimes our emotional overcoat can cloud our ability to make choices, interfere with our rational thought processes. Sometimes we need to look at things from a very “cold hearted” perspective first in order to clearly evaluate our choices. Once we have a “cold hearted” evaluation, then we can put our emotional overcoats back on and make the a final decision based on the economic and non-economic forces at hand.
The best way that I know to more fully explain the concept of the emotional overcoat and the evaluation process that I am trying to explain is through the use of an example. The example itself is highly controversial to say the least. It polarizes people to extremes in some cases. It is very emotional in nature and has been and will be a major social issue in this country for some time. I hesitate to use the example at the risk of being misinterpreted and misunderstood in its use. My intention is not to offend anyone or minimize the complexity of this issue. I continue to speak or type with trepidation.
When you see the word “abortion” above, most everyone “feels” something. What you are feeling is most likely your emotional overcoat. Most folks fall into two camps regarding this issue, pro-life and pro-choice. Both groups have fervent and dedicated beliefs regarding the issue. We are not going to discuss these beliefs or the issue of “right” or “wrong” regarding this issue. We are not going to go there. That is not the intent. I simply want you to recognize, to “feel” what we have been discussing in terms of the emotional overcoat.

If I add government subsidized to the abortion debate, I turn up the volume or fan the fire so to speak among many people as well. I add “government subsidized” here only to intensify the emotional overcoat. I only want you to “feel” what it is that we are talking about with respect to the emotional overcoat. You all can tell that I am nervous about this. Well, I am. I am as nervous as an ant caught in the rain.

Alright. Has everyone experienced their emotional overcoat. Now, I am going to ask you to take it off for a moment. Hang it up in a safe and secure place where nothing can happen to it, and remember where you put it. Give it a pat before you walk away and remind it that you will be back for it. Tell it you are going to miss it, and you won’t be gone long.
How much does an abortion cost if the procedure is done in the first trimester of pregnancy? $1,000? Now rustle back in your notes and look up how much it cost on average to raise a child from birth to 18 years of age within a low income family in 1999. If the estimate is not adjusted for inflation, you should have found a figure of $117,390. If adjusted for inflation, using 4.3% annual inflation, the figure is $174,090. If the family is on public assistance, then we are looking at tax payer dollars being primarily used to support this child. Look at the two figures for a moment, consider the probabilities. Note, I did not say possibilities, I said probabilities.

Which is a less expensive alternative for society in terms of monetary resources?

O.K., I know this his “cold hearted.” Some folks that have not removed their emotional overcoat probably want to start throwing things at me and call me all sorts of names and maybe even threaten me. Please remember what the purpose of this example is.

Now that we have looked at this issue without our emotional overcoats, we now put our emotional overcoats back on, and make a decision, a choice that you are comfortable with, that you can live with, that you can sleep with etc. In doing so, you are now starting to impute a value on your emotional overcoat. I, nor can any economist, place a value on your emotional overcoat. Only you can determine what it is worth to you and what you are willing to “pay” to live by its virtues.
We can take this example another step to clarify the personal value placed upon the emotional overcoat. We realize that there are two basic camps, pro-life and pro-choice in this debate. We are going to assume that one side or the other “wins” its argument with conditions. This example is purely hypothetical and is probably not practical, but it will illustrate an important point to consider. Normally, in a classroom, I present these two words and ask a student, any student to randomly call out one or the other to begin the example so that the choice of which to consider first is not construed by anyone as my endorsement of one or the other.

Let us consider Pro-Life first only because it is listed on the slide second. Let us assume that the Pro-Life group “wins” the debate regarding the abortion issue. But, as a condition of “winning” all Pro-Life persons must register with the Internal Revenue Service (IRS). The agreement negotiated with Pro-Choice persons required that Pro-Life persons must pay additional taxes to support the children that are born to low income families on public assistance. Let us assume that we can statistically determine how many additional children would be born each year due to abortion being illegal. We would then take the number of registered Pro-Life persons and divide it into the social cost of raising these additional children resulting in a surtax to be imposed on all Pro-Life persons. How many Pro-Life persons would register with the IRS? How many Pro-Life persons would even agree to a “deal” that would require that they bear the cost of their convictions rather than imposing the cost of their convictions on all Americans?
Now it is time to “pick” on the other group.

Let us consider Pro-Choice second only because it is listed on the slide first. Let us assume that the Pro-Choice group “wins” the debate regarding the abortion issue. But, as a condition of “winning” all Pro-Choice persons must register with the Internal Revenue Service (IRS). The agreement negotiated with Pro-Life persons required that Pro-Choice persons must pay additional taxes to fund the subsidized abortions. Let us assume that we can simply count the number of subsidized abortions performed each year and determine the total cost of these procedures. We would then take the number of registered Pro-Choice persons and divide it into the cost of subsidized abortions resulting in a surtax to be imposed on all Pro-Choice persons. This way, Pro-Life persons do not have their tax dollars going to a procedure that they oppose. Pro-Choice persons have legal abortions, but they pay the social cost of the procedures. How many Pro-Choice persons would register with the IRS? How many Pro-Choice persons would even agree to a “deal” that would require that they bear the cost of their convictions rather than imposing the cost of their convictions on all Americans?

How much are our “emotional overcoats” worth, and how much are we willing to pay for the convictions associated with them? I can’t answer that question for you. Only you can. What are things like honor, honesty, integrity, reverence and freedom worth? To some they are priceless, to some they can be purchased if the price is right.

“Emotional Overcoat”

◆ Pro-Choice

◆ Pro-Life

Note: The order of the above words are presented alphabetically and not in any order of significance expressed or implied.
OPPORTUNITY COST

1. There are numerous non-economic forces that determine and mold the decision making process.

2. We will concentrate on how economic forces affect our choices, the importance of the non-economic forces must be valued by

YOU
OPPORTUNITY COST

Choosing one thing usually requires giving up something else.

1. Whenever resources are scarce, the choice to produce a particular commodity involves an opportunity cost.
OPPORTUNITY COST

2. *Opportunity cost:* the highest valued alternative that had to be sacrificed for the option that was chosen

OR

The cost of using scarce resources for a certain purpose, measured by the benefit forgone by not using those resources in their next best alternative use.
Though you sacrifice some income while attending college, you hope to more than offset that lost income by being able to earn more over your lifetime with the college education. The next slide provides some supporting evidence to this assertion.
Click on the link above, “Study Finds College Costly, But Worth It” to learn a little more about the payoff to a college education.
The figures provided above are for North Carolina residents and are based on tuition and fees as of spring, 2000. The most up to date tuition and fee information can be found at the cashiers office on campus:

http://www.fis.ncsu.edu/cashier/undergraduate.htm

The room charge of $1,200 per semester is for a basic residence hall with double occupancy and 9 month lease. The meal plan assumed here is 14 meals per week with $300 of Board Bucks at a cost of $1,075 per semester.

Residence Hall Rates: http://www.ncsu.edu/housing/halls/pricing0001.html
Meal Plan Rates: http://www2.ncsu.edu/ncsu/univ_dining/

The figures provided above, and the recreation figure that you must provide, added together constitute the accounting cost of going to school. Recreation includes a lot of things. Going out with your pals to eat and a movie, driving home every weekend to see family and friends, hunting, fishing, shopping, playing sports, camping, hiking, etc.
Are we missing a very important cost in our analysis? The alternative to going to school is working and making some money. How much money could you have made this year, after taxes, if you had gone to work rather than come to school? Write that figure down? You don’t know? Didn’t you evaluate your alternatives before you made the decision to come to school? You should have.

The after tax, lost wages from going to college is the opportunity cost of going to college.
Do room, board, and recreation really represent a cost of going to school? No they really are not. What are the alternatives? You are going to want a place to sleep whether you go to school or not. You are going to eat whether you go to school or not. And, you are going to recreate whether you go to school or not. So, they are not really a cost of going to school. Now, if you could live somewhere cheaper than a dorm room, and eat cheaper than on the meal plan, then the cost difference would be a cost of going to school. Let us take a look at the monthly cost of room and board at N.C. State for the dorm room and meal plan specified in our example.

The room is $2,400 for a 9 month lease. That is $266.67 per month and includes basic utilities (water, heat, cooling, electricity). Now you could probably live at home with mom and dad cheaper than that, but eventually folks, most moms and dads are going to show you the door. The meal plan is $2,150 for 9 months. That is $238.89 per month, or $7.96 per day (using 30 days per month). Now admittedly, the amount of eating folks do is highly variable. But for a fellar like me, $7.96 per day is a deal. All you can eat. Cooked for you, dishes washed for you. You just come and eat and eat and eat. I can spend $7.96 for one meal at a fast food restaurant and still be hungry!
Since room, board and recreation are not really costs of going to school, the true cost of going to school, or the economic cost of going to school includes tuition and fees, books, and the opportunity cost (after tax lost wages). Tuition and fees and books are costs of going to school because if you don’t go to school, you do not incur those costs.

Add ‘em up. Most of you will find that the true cost of going to school exceeds the accounting cost of going to school, and that the opportunity cost of going to school is the largest cost of all.

### THE "TRUE COST" OF GOING TO SCHOOL

4. The "true" cost of going to school one year:

- **Tuition fees** = $8,600
- **Books** = $200.00
- **Opportunity cost** = $25,000

**TOTAL** = $33,800
Recent changes in the tax code allow you to reduce your tax liability with as much as a $2,500 tax credit each year for the first four years of college. A tax credit is a dollar for dollar reduction of your tax liability. Suppose when you finish filling out your tax return, the form indicates that you owe $3,000 in taxes to the federal government. The American Opportunity Tax Credit will allow you to reduce this tax liability by as much as $2,500. $3,000 taxes owed - $2,500 tax credit = $500 taxes owed after applying the credit. The savings are significant.

The following are links to information regarding two income tax credits that you and your family may find useful:

- **American Opportunity Tax Credit**
- **Lifetime Learning Credit**
- **More Details**

For the typical, resident, first year student, tuition and fees for fall 2015 are $4,290. Apply the Hope Tax Credit: 100% of the first $2,000, and 25% of the next $2,000 not to exceed a total tax credit of $2,500 for the tax year. This comes out to be $2,000 + (.25 x $2000) = $2,500 tax credit for the year 2015. After tax tuition and fees for the fall semester end up being $1,790.

Spring semester begins a new tax year for most folks, so another $2500 maximum tax credit is available for 2016. Assuming tuition remains unchanged (unlikely), again your after tax tuition and fees for the spring semester 2015 would end up being $1,790. Your first year of college winds up costing you $3,580.00 for tuition and fees after taxes.
If the scholarship pays only for tuition, fees and books, the answer is simply no. The lost after tax wages are not offset by the scholarship. If you received scholarship funds in excess of tuition, fees, and books, then the scholarship begins to offset some of the opportunity cost of going to college.

An Microsoft Excel spreadsheet is available for you to determine the cost per course and cost per lecture. Just click on the link (Go to Spreadsheet). Your browser will ask you where to download the spreadsheet on your hard drive for you to use.
Thinking Like An Economist?

6. Now, if you are thinking like an economist, you should be asking yourself,

"What is OL' HERM doing teaching here, when he might be making more money in the private sector?"
Let us assume that I make $35,000 a year teaching at N.C. State. This is not how much I really make, but we will use this as an illustration. If I were to be offered a job in the private sector with the same benefits for $45,000 and I decided to continue teaching, then the private sector employment becomes my opportunity cost of teaching. The difference between what I am paid for teaching and the private sector job is the net gain or loss from the decision made. In this case, to continue teaching resulted in a net lose of $10,000. In other words, it is costing me $10,000 per year to continue teaching at N.C. State, or I am paying $10,000 per year for the privilege to teach at N.C. State.

This example does not make me look too bright does it? So what gives here?
Thinking Like An Economist?

7. Remember the non economic factors we discussed with choice?

In the Private Sector I Perceive:

More stress, less leisure time, less security, less challenge, more political structure, and more supervision.

Remember the “emotional overcoat”? There must be something about N.C. State and teaching that is worth at least $10,000 to me, or I would be gone.

In private sector employment I perceive that environment to be more stressful. I would like to live a long and fruitful life. Stress can have detrimental effects on ones health and state of mind. I perceive that I might have less leisure time to spend with my family. I perceive the private sector to offers less employment security. I have friends tell me over and over again that they are just a number or a “piece of meat” that could be gone tomorrow. I perceive more of a political structure (corporate culture) in the private sector. I don’t do well with politics and back stabbing, climb to the top behavior. It does not fit my personality very well. I perceive more supervision in the private sector as well. Someone watching me all the time, keeping track of my every move. Freedom is valuable to me.
Thinking Like An Economist?

<table>
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<th>Thinking Like An Economist?</th>
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<tr>
<td>Teaching I Perceive:</td>
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<tr>
<td>Less stress, more leisure time, more security, more challenge, less political structure, and less supervision</td>
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<tr>
<td>That’s the way it used to be. Now I’m not so sure.</td>
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With teaching, I perceive less stress, more leisure time with my family, more employment security, more challenge (what could be more challenging than teaching economics and not have everyone falling asleep?), less political structure, and less supervision or more freedom. It is basically the closest thing to working for yourself with out the risks of being in business for yourself. And, I simply enjoy teaching. It is a blast! So, I perceive all of the above items to be at least worth $10,000 to me. I consider myself to be a very fortunate individual to have the kind of job that I do. I am very, very fortunate indeed, but I had to work pretty hard to get here!

Times change and the job changes like everything else. Teaching loads have been increasing over the years. Stress is increasing as all university employees are being asked to do more with less resources. As the years on the job have increased, leisure time has decreased during the academic year. When the state budget is in deficit and cuts must be made, one always worries a little. Supervision has increased over the years as well with the new peer review process that faculty must under go. If the salary differential between teaching and the private sector continues to be large, and the “emotional overcoat” differences continue to shrink, what may happen?

What if a private sector opportunity came along at $55,000 per year. Then all those “emotional” factors will have to be worth $20,000 for me to stay.
What are the opportunity costs of being here?

- Less TV watching?
- Less studying for another course?
- Less partying?
- Lost wages from not working?

What ever is your next best alternative use of your time.
<table>
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<tr>
<th>What is the opportunity cost per acre of raising soybeans?</th>
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<tbody>
<tr>
<td>The value of corn that you could have produced per acre if corn represented the highest value of any of the alternative uses of land.</td>
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What is the opportunity cost of raising creeping red sedum in the greenhouse?

The value of the plant with the highest value of any in the uses of a greenhouse.
Let us assume that you are harvesting your corn crop for the season and are considering selling the corn in the current cash market, or buying some feeder pigs to feed out to slaughter. You check your accurate farm records and determine that it has cost you $2.50 per bushel to grow this corn crop. Assume the current cash market price for corn is $3.50 per bushel. If you hold the corn and feed it to hogs, what does each bushel of corn fed cost you?

What is the opportunity cost of feeding farm raised grain to hogs?

- The value of the corn if sold in the open market.

Assume the Accounting (production) cost of corn = $2.50 / bushel

Assume the Current market price of corn = $3.50 / bushel
What is the opportunity cost of feeding farm raised grain to hogs?

The true cost of using corn as feed is

$3.50 / bushel,

which is roughly the opportunity cost.

If you answered “at least $3.50 per bushel” you are correct. What the corn cost you to produce is not relevant. The corn is currently worth $3.50 per bushel, and that is what you will give up if you put that corn in the stomach of a porcine. I hope we recognize our old friend, opportunity cost. If we used $2.50 per bushel to determine the cost of corn, we would overstate the profitability of the swine enterprise (or understate the loss). That may lead us to making a mistake concerning the most efficient allocation of resources leading to maximum net revenues.

Money that has already been spent, cost that have already been incurred are referred to as “sunk costs”. Sunk costs are not relevant for making future decisions. Only the costs in which we still have control are relevant for future decision making. The $2.50 per bushel is gone. The corn is worth $3.50 per bushel in my hand. Do I sell it for $3.50 per bushel, or do I use it as an input in the swine operation to enhance profits? If I sell the corn, I make $1.00 per bushel. If I feed the corn to hogs, will I earn more or less than $1.00 per bushel? That is the logic behind this analysis.
What is the opportunity cost of feeding farm raised grain to hogs?

Did we account for all of the opportunity cost of feeding corn?

- If we sold the corn today, we would get $3.50 / bushel which could be used to pay debts, or to draw interest in the bank.
If I sell the corn today, I get $3.50 per bushel in my hand. I can use that money to pay off any debts I may have (saves interest expense), or I can put the money in the bank and draw interest or earn a return on an investment option. If I put that corn in the belly of a hog, it sits there a while. That hog takes time to grow from 40 or 50 pounds to a 250 or 260 pound hog ready for market. All that time, my corn is sitting not making me any money. Therefore, another opportunity cost of feeding corn to any livestock or poultry is the interest forgone during the time the critter is growing.

What is the opportunity cost of feeding farm raised grain to hogs?

- If we feed the corn to the hogs, we defer the use of that money.

- This adds an additional opportunity costs in the form of interest foregone.
If we produce corn and decide to store to it for 6 months,

What is the opportunity cost?

OR

Well, if you stick that corn in a storage bin, it is not earning you any interest. It is just sitting there. If I store the corn for six months, I have lost six months of interest that I could have earned had I sold the corn and deposited the proceeds into some sort of financial instrument. The interest forgone, or the opportunity cost, is a true cost of storage that needs to be taken into account.
Well, if you buy turf fertilizer for the golf course 6 months before you are actually going to use it, that means you have pulled money out of the bank to pay for the fertilizer. Fertilizer does not pay interest. So when you pulled the money out of the bank, you started losing interest (an opportunity cost).

What if we buy turf fertilizer 6 months before we need it,

♦ What is the opportunity cost?

The return that we could earn on the money had we decided not to store.

If you borrow money to buy corn or fertilizer to store, the interest cost is an accounting cost.
Why buy fertilizer 6 months in advance?

$5,000 \times 0.06 = 300$

$150 \text{ of interest lost}$

add to that the $5,000 expenditure, and that fertilizer actually cost

$5,150 \text{ to acquire}$

The example above assumes a 6% annual interest rate. We divide by 2 in the equation above because six months is half of a year. If we buy fertilizer six months in advance, in this example we are giving up the opportunity to earn $150 of interest. So, if we buy fertilizer six months in advance, it actually cost us $5,150 to acquire.
If you expect fertilizer prices to increase 10% over the next six months and you have money sitting in the bank earning 6%, you may want to think about buying that fertilizer in advance. The cost increase will be greater than the interest that you sacrifice.

If you expected the price of fertilizer to decrease over the next six months, then I hope that you would conclude to keep your money in the bank earning interest.

Fertilizer sales persons often have more fertilizer market information available to them than perhaps you do. They are in the business, they have company analysts trying to predict the affects of market changes. If I were a fertilizer company and my analysts were telling me that they expected fertilizer prices to fall 20% in the next few months, I would probably tell my sales persons to take 10% off the top and push those sales and lower inventories to beat the anticipated price fall. Think you ought to keep your ear to the market as well?
Farm programs have historically had an affect on planting intentions. Planting intentions by producers affects their demand for fertilizer. So changes in farm programs and agricultural production around the world can have an impact on fertilizer prices.
Opportunity Cost

What ever you do, you are always trading off one use of a resource for one or more alternative uses.

The value of these tradeoffs is represented by opportunity cost.
Another example:

Assume:

\[ E(\text{soybean yield}) = 30 \text{ bu./ac.} \]
\[ E(\text{corn yield}) = 70 \text{ bu./ac.} \]

\[ E(\text{price soybeans}) = 6.00/\text{bu.} \]
\[ E(\text{price corn}) = 2.00/\text{bu.} \]

The notation above is new. \( E(\text{soybean yield}) \) means expected soybean yield. \( E(\text{price soybeans}) \) means expected price of soybeans. Where would a producer get an estimate of expected yields? From production records that he/she better be keeping. Agricultural prices are volatile and difficult, if not impossible, to accurately predict. Where would a producer get an expected price in the future from? One of the best sources is the futures market at the Chicago Board of Trade or the Chicago Mercantile Exchange. These prices are the markets best guess as to what the price of a commodity will be months into the future.
We have calculated the total revenue (expected price x expected yield) per acre for soybeans and corn. Let us arbitrarily choose to produce soybeans on this paper example. Once we choose soybeans to produce, the lost revenue from not choosing corn becomes our opportunity cost. By taking the difference between the total revenue from soybeans and the opportunity cost (lost revenue from corn), we determine that soybeans will produce $40 more revenue per acre than corn. Should we really choose to produce soybeans, or what?

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<th>Soybeans versus Corn</th>
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<tr>
<td>Soybeans</td>
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<tr>
<td>Total Revenue:</td>
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<tr>
<td>Look at soybeans:</td>
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That depends. We have not looked at the production cost of the equation yet. Remember, we want to maximize profits, not total revenue. Profits are equal to total revenue less all economic costs (accounting cost and opportunity cost). Now we have to budget the production cost for each crop.

If we find that soybean production is $40 per acre more expensive than corn production, then we would be indifferent as to which crop to really put in the ground. Why? Because there would be not difference in the profitability of the two alternatives.

If we find that soybean production is $30 per acre more expensive than corn production, then we would plant soybeans because we would make $10 more per acre than planting corn.
Now you would need to look at production costs of each crop:

3. If it costs greater than $40 more to grow soybeans, then you would choose to produce corn.

If we find that soybean production is $50 per acre more expensive than corn production, then we would plant corn because we would net $10 more per acre than planting soybeans.