

Weather and its Relation to the Economy  
How much has the Weather Cost the Average American?

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**Abstract**

The cost of living has fluctuated in the most recent months. Common commodity prices have been inflated to keep the sinking economy a float. The weather which has fluctuated from the normal (i.e. hurricanes, tornadoes, and droughts) has had an impact on the economy. As gasoline prices have lowered as of late, I look to relate this to weather around the world. In examining the costs of common commodities across the world, I look to determine exactly how much the economic crisis is costing the average American. After analyzing several charts that juxtapose crude oil and common commodities, it was concluded that the correlation between them is directly proportional, as the price of commodities change, oil prices also change. Therefore, I think that weather conditions have made Americans spend more money yearly on common commodities as weather conditions change around the country. The New York City food crisis that is currently plaguing many working class people has 48 percent of New York City residents struggling to buy the necessary food to live.

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### **Background Information**

Weather has a huge effect on the cost of common commodities (Bernanke, 2005). If the temperature of an area increases or decreases dramatically, it can directly affect the production of goods. For example, a crop that needs a cool climate for optimum growth wouldn't be able to grow in India during a drought, where temperature reaches close to 45 degrees Celsius! (Parishdad 2004). Therefore, when analyzing the climates of places where crops are grown, it can be concluded that the climates have been rising and as a result the production rates have decreased (Bernanke, 2006).

Corn, which is unswervingly related to gas prices, is affected tremendously by weather. According to Dewey Lee, a University of Georgia professor, corn is equally influenced by temperature as it is moisture. Thus, rainfall is critical in the growth of corn. From 1998 to 2002, a severe drought plagued Watkinsville Georgia, during which the average rainfall fell some 400 millimeters below the 1240 millimeter average. This drastic change caused corn production to drop greatly; as a result, ethanol became more expensive, which would cause gas prices to rise drastically. This is a prime example of how weather affects the economy.

Hurricanes, and rainfall also help determine the amount of crop production, which ultimately affects the economy. According to Ben Bernanke (2005), Hurricane Katrina, "shook a vital portion of our nation and our economy." Also, he adds that prior to Katrina, GDP or the country's gross domestic product (the amount of goods a country produces) was steadily increasing. If countries do not address global warming, it could cause damage in the quadrillions in the distant future (Andy Pollack personal

communication 17 March 2008). This further enforces the notion that weather affects the economy.

Currently, the country is suffering from a recession that has made the cost of living higher. Even though the price of a gallon of oil is down to 60 dollars per barrel as of October 28<sup>th</sup>, 2008, in some markets, economists are still worried about the world's economic future (Bernanke, 2008). As top tier companies such as AIG, Lehman Brothers, and Washington Mutual file for bankruptcy, the government is trying to find solutions that will help keep other companies a float. However, banks are not able to loan money because they themselves are in debt. Therefore, the government has begun to institute bailouts for larger companies, most notably, Citigroup, which was recently resurrected with the worst case scenario being a mere 306 billion dollars (Partnoy, 2008). According to Partnoy (2008), the bailout could cause a 29 billion dollar loss to the government, all of this is tax payer's money.

Deflation has aroused due to the higher cost of living. More people have decided that they will save their money and as a result, for companies to stay in business they must make prices lower. Avoiding bankruptcy, rather than make profit has been the strategy of some businesses. Isn't it amazing that it cost, more to make a nickel than the nickel's actual value? (Hickey, 2008). This is a prime example of deflation as the value has become less than the cost. Weather has encouraged deflation in that now that the weather has reverted back to its normal path in some areas, they are now producing more than can be sold and the value of products have gone down (Wheatley, 2008)

Corn is the most prominent crop that can be related to gas prices, because it is a vital ingredient in producing gasoline. In President Bush's Energy Independence and Security

Act (2007) he called for ethanol production to be 56.8 billion by 2015. In return, the production of ethanol has scorched; resulting in new innovative methods that include using poultry litter and ammonium nitrate, these methods have enhanced corn production by 31 percent (Endale, 2007). However, ethanol production has been delayed for two main reasons. First, ethanol has been discovered to increase greenhouse gasses by 93 percent (Searchinger, 2008). Second, the Southeast climate zone in which ethanol is produced has suffered severe droughts which have impeded production (Endale, 2008). According to Dewey Lee, a University of Georgia professor, corn is equally influenced by temperature as it is moisture. Thus, rainfall is critical in the growth of corn. From 1998 to 2002, a severe drought plagued Watkinsville Georgia, during which the average rainfall fell some 400 millimeters below the 1240 millimeter average. This drastic change caused corn production to drop greatly; as a result, ethanol became more expensive, which would cause gas prices to rise drastically. Also, in the state of Georgia corn production has decreased from 1.64 million acres in the 1970s to 300,000 million acres in 2006. The prices are directly related as the price of corn and ethanol both have similar patterns; the patterns mirror the patterns of the oil prices. Corn is not the only crop that is related to the economy.

Soy is a product that can be correlated with gas prices. Soy, which is grown mainly in the US and Brazil might be on the decline in the coming year (Wheatly, 2008). According to Wheatly (2008), temperature will raise 1 to 2 degrees Celsius, resulting in 11.3 tons of soy being lost and nearly 7 billion dollars lost. As a result in gas prices might be increasing again in the near future. Thus, another example of weather effecting the economy.

With commodities being directly related to oil, the prices of oil can fluctuate. According to the Defense Energy Support System Fact book 2007, the United States Army spent 7.899 billion dollars on Petroleum Oil from just their top ten suppliers, this is an amazing fact. With the US Army purchasing so much oil and the amount of oil being directly related to weather, the price that the everyday American pays at the pump can be hugely affect. For example, oil has dropped to \$40.29 as of December 23<sup>rd</sup>, 2008 (FT.com, 2008) this means that there is so much oil being produced that OPEC regulates companies to sell oil at that ridiculously low price or the companies will go out of business. This being said, OPEC recently restricted the amount of oil being produced so that the supply would decrease, causing the demand and price to increase.

When accounting for all factors, one may wonder where the economy is heading next. With new government bailouts being instituted everyday and global warming approaching, the future doesn't look very bright. However, where things are headed is solely based on one's point of view. The three major groups are Neoliberals, Keynesians, and Marxists (Andy Pollack personal communication 17 March 2008).

Neoliberals believe that with small, timely adjustments the economy will begin to run itself again (Andy Pollack personal communication 17 March 2008). Keynesians think that after a large stimulus package the economy should be just fine. However, they believe in a little bit more government regulations to ensure that this doesn't happen again. They also believe that large spending on all parts will fix the economy, however this philosophy didn't work during The Great Depression. Marxists believe that we are in a downward spiral that will be very hard to stop (Andy Pollack personal communication 17 March 2008). From there perspective, there is too much capital

around and not enough of it is being bought. Companies have too much supply in stock and as a result cannot sell it all, and then a worker is laid off. This begins a domino effect as that worker that is laid off won't have the money to buy something from another company (i.e. toys, electronics, clothing, automobiles) and as a result, that company will have too much in stock that won't be sold; so they will lay off workers that are creating these items in excess. The cycle is devastating (Robert Schwartz personal communication 16 December, 2008) According to Peter Siris (2008) when stores such as Circuit City, Steve And Barry's, and Linen And Things closed down it did indeed hurt the shareholders and the employees. However, in the long run it helped the economy because it allows similar stores to pick up all of its business. This basic idea of supply and demand is what still runs the country today. Currently, there are too many stores that create an overload of products that cannot be sold and therefore contribute to this downfall.

In my opinion, the road to a better economy has several bumps, some of which must get worse before it can get better. It might seem odd to say that the American Dream plays a huge part of this problem. In America, almost anyone can get a job that is vital to society, from educators, to sanitation, to correction officers. This being said, too many people are being employed, which causes the amount of goods produced to increase. When these goods cannot be sold, the spiral effect that is extremely dangerous comes into effect. Thus, I believe that some people will have to lose jobs, and some companies will have to close down in order for things to get better. In fact, in my opinion, the people who become unemployed should look into other careers such as science and see if they can find ways to deal with global warming and making the world greener. This is similar to the socialist, planned economy that prevents an overflow of particular

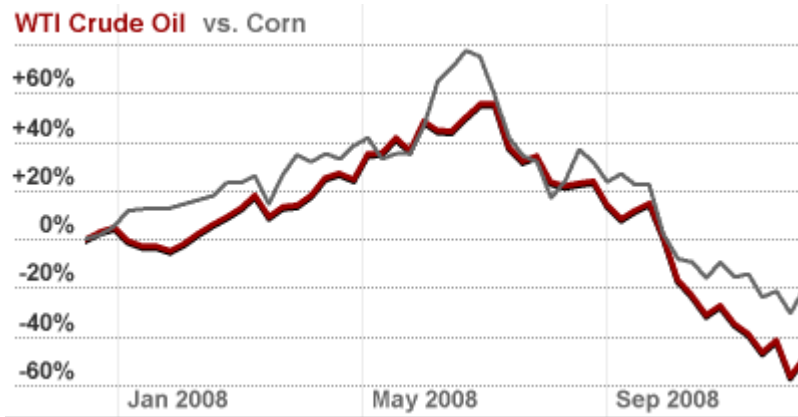


professions and spreads work so that the workforce is versatile (Maurico Gonzalez personal communication 06 January 2009). Volunteering, trying to find scientific ways to solve the world's oil problems, or a new innovation that will replace fossil fuels, or the fertilizer that will help crops grow using less natural resources. The only things stopping this from occurring are a lack of funding, and the fact that most people aren't qualified enough to perform these acts with success, which raises the question how they got their jobs. Greed! Everyone is trying to expand so rapidly that they have gone overboard. Also, these ideas seem far fetched because these scientist aren't filthily rich or famous, and as a result most Americans just do not want to help the world while living a simple life, they prefer the glitz and glamour the American Dream promised them!

### Objectives

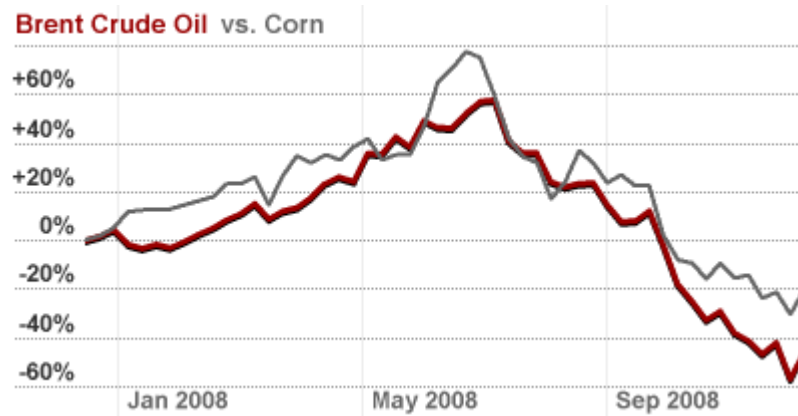
- Determine the economic relationship between weather and food production
- Trace the relationship between corn production and gas prices over a sustained period of time
- Compare the data and find out how corn is related to gas prices. Then find out how much this is costing the average American

### Results



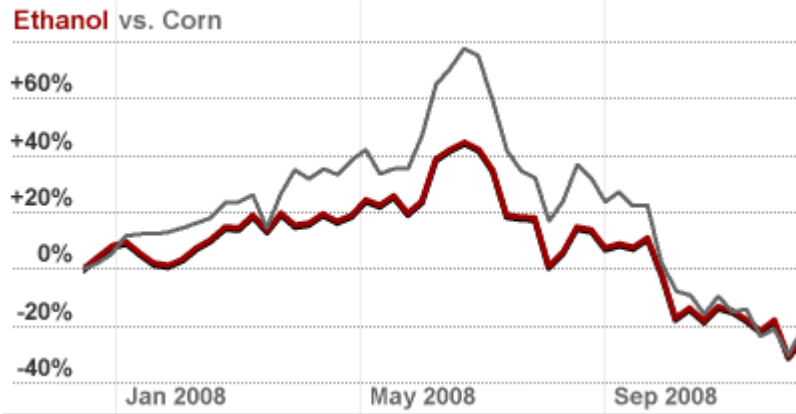
Source: Financial Times

Graph One: This shows WTI Crude Oil in its relation to Corn from January 2008 to September 2008. The correlation is apparent as the lines mirror each other, when corn prices rose, oil prices rose, and vice versa.



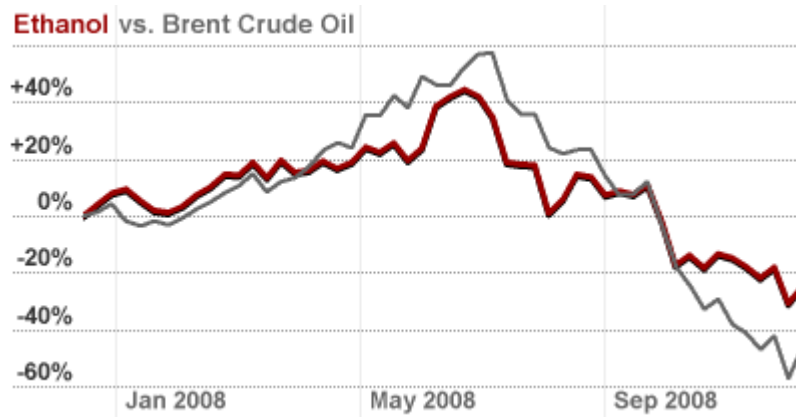
Source: Financial Times

Graph Two: Again, a comparison of Crude Oil prices with Corn from January 2008 to September 2008, the graphs mirror each other, and thus corn production affects gas prices directly!



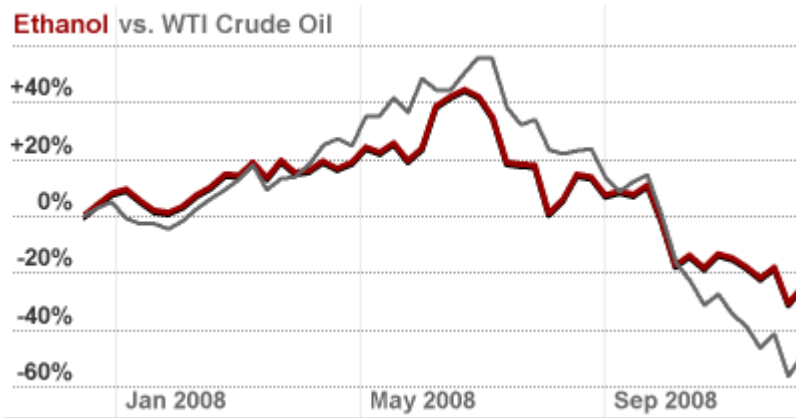
Source: Financial Times

Graph Three: This graph of Ethanol prices and Corn prices from January 2008 to September 2008 again shows how much corn affect ethanol, which ultimately affects gasoline prices



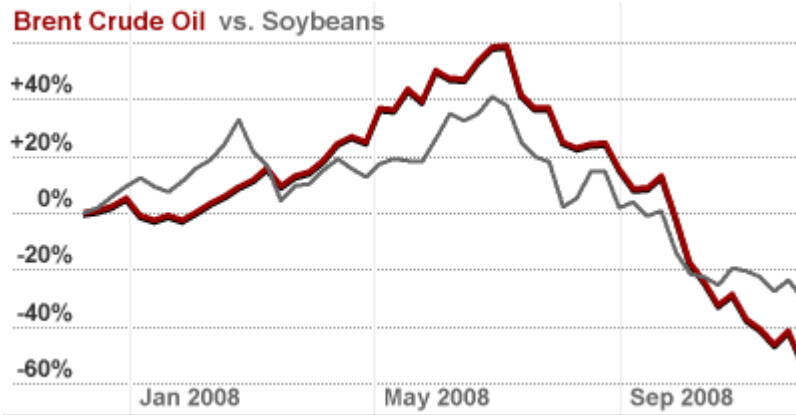
Source Financial Times

Graph Four: Ethanol which is directly affected by Corn, mirrors the cost of Brent Crude Oil also, from January 2008 to September 2008.



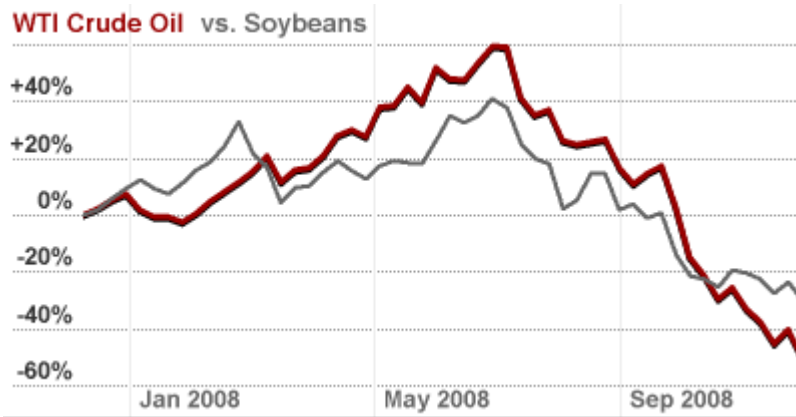
Source: Financial Times

Graph Five: Ethanol in comparison with another type of oil still has the same affect from January 2008 to September 2008.



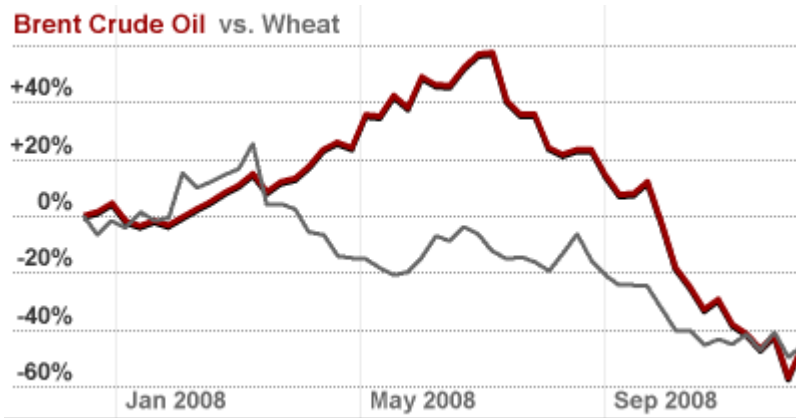
Source: Financial Times

Graph Six: Soy, another crop useful for oil, has a graph that mirrors Brent Crude Oil from January 2008 to September 2008.



Source: Financial Times

Graph Seven: Soy being compared to WTI Crude Oil, with similar trends during the same period (January 2008 to September 2008).



Source: Financial Times

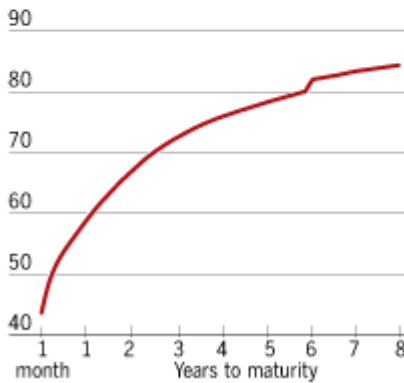
Graph Eight: Wheat, another major crop is being compared to Brent Crude Oil, the correlation isn't as close as Corn or Soy, but wheat still has some small affect on Brent Crude Oil prices from January 2008 to September 2008.

**Store wars**

Nymex oil front-month price (\$ per barrel)



Nymex oil futures curve\* (\$ per barrel)



\* As at 8 Dec 2008

Source: Thomson Datastream

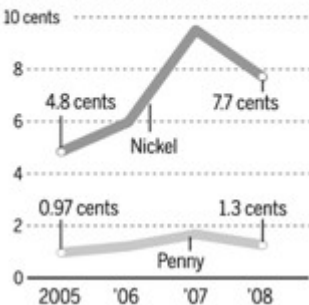
Source: Thomson Datastream

Graph Nine: This graph from December 8<sup>th</sup>, 2008 compares the cost of Nymex oil's monthly average price from 1998 to 2008, the price steadily increases. The bottom graph predicts that oil will be back up to about 80 dollars per barrel by June 2009.

**Costs for coins**

The U.S. Mint pays more to make pennies and nickels than their actual value.

Production cost, fiscal year



Source: Hickey, 2008

Graph Ten: This shows the cost to make a nickel. In 2005 it was 4.8 cents, less than the nickel's value. Currently, it is 7.7 cents, 54 percent more than its actual value. Deflation at its best!

### **Analysis of Results**

All of the graphs that compare corn and various types of oil mirror each other. As corn prices increase, oil prices increase. Ethanol has a similar correlation because corn is used to make ethanol, and therefore, as ethanol goes up corn does the same, and oil follows. This domino affect is a prime example of how weather affects the economy.

Corn needs a certain temperature, in addition to moisture from the rainfall to grow (Lee, 2008). Once the corn has grown, it is used to make ethanol. Ethanol is turned into gas. When weather changes, and the corn cannot be produced at an acceptable rate, the production of ethanol goes down and gas prices increase. A prime example is Georgia, which suffered a loss of 1,610,000,000 acres of corn in the last 35 years, thus ethanol production was greatly affected (Endale, 2008). The loss of corn was attributed to the severe drought that caused a loss of up to 400 millimeters of rainfall in some areas (Lee, 2008).

With global warming approaching, weather can directly affect the lives of humans in the next hundreds of years. This seems a long way into the future, however it is closer than it looks and the rate may increase if humans continue to pollute the earth. Due to President Bush's act, if a state like Illinois suffers any severe weather, gas prices would rise drastically! These results prove that weather is related to the economy. Weather controls the production of crops that provide for our lifestyles!

For example, according to a report by The Food Bank for New York City, in New York City four million residents, or one in every two residents stated that they had trouble in purchasing food necessary for survival. The middle class is struggling, as 43% had problems in affording food. The working poor has been hit the hardest, when nearly

75% have struggled to afford food. One out of five residents that rely on soup kitchens daily is employed. An even more astonishing fact, 36% of New York City college graduates had difficulty affording food. These eye opening facts are prime examples of how weather affects the average American, particularly, New York City residents. With New York City being arguably the richest and most world renowned place in the world, if its residents are struggling due to weather, imagine the poverty stricken areas and the total devastation caused to the world!

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