STANDARD LEVEL
HIGHER LEVEL

WORKSHEETS

PEARSON BACCALAUREATE

Economics

SEAN MALEY • JASON WELKER

Supporting every learner across the IB continuum

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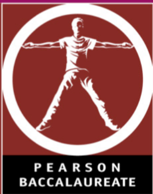

Worksheet 1.1

The Economics of Zoo Keeping

This activity can be done individually or in small groups. You may do it as a homework assignment or as an in-class activity.

Directions: You are the manager of a new business that has decided to open a zoo. Your zoo is a private, profit-seeking business that will charge admission to visitors. The purpose of the zoo , as with any business, is to earn a profit.

Your task is as follows:

1. You have to decide which animals to include in your zoo, but space is limited.
2. You have 25 acres on which to build your zoo.
3. Each type of animal requires a different amount of space, so you must choose which animals to put in your zoo. Remember, you need at least one male and one female of each animal so they can reproduce.
4. With your business partners, choose which animals you will put in your zoo.

Below each animal is the number of acres just one of the animals requires. For example, one lion requires two acres of land. If you want four lions, therefore, you must use eight of your 25 acres for lions.

Take a large piece of paper (at least A3) and using a marker, design the layout of your zoo. The paper represents the 25 acres you have for animals. Once you have decided which animals to include, how many of each animal, and calculated how many acres are to be used for each animal, cut out the animals you have chosen and paste each animal into its dedicated enclosure.

Once you have completed construction of your zoo, answer the discussion questions that follow.

Take 8–10 minutes to make your selections.

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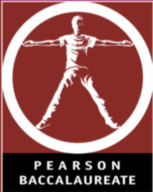

Lion – 2 acres

Giraffe – 1 acre

Camel – 1/2 acre

Seal – 1/2 acre

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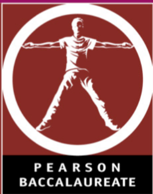
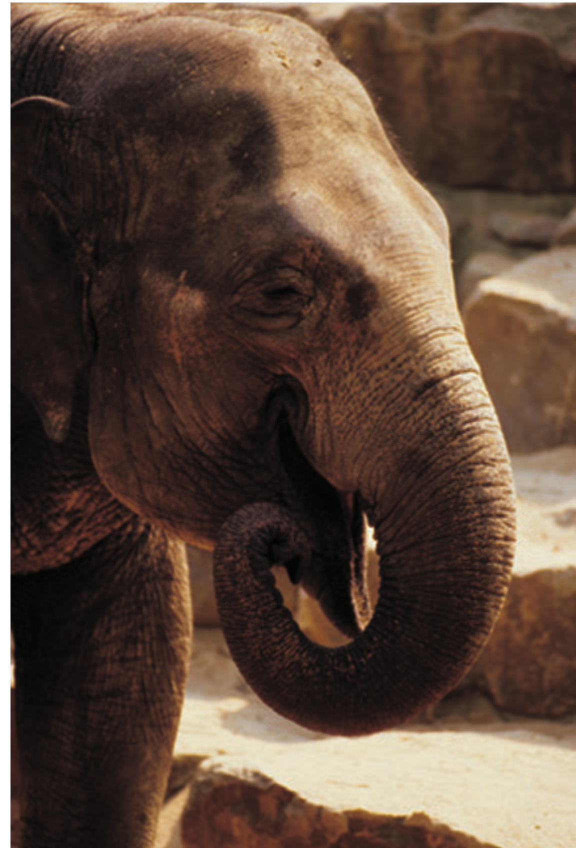


Cheetah – 1 acres

Cow – 1/3 acre

Monkey – 1/2 acre



Asian Elephant – 1 acre

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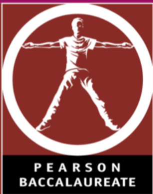

African Elephant – 3 acres

Reptile House – 5 acres

Hammerhead Shark – 1/2 acre

Kangaroo – 1/2 acre

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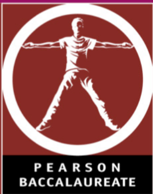

Tiger – 1 acre

House of Birds – 5 acres

Discussion Questions

1. Did every animal make it into your zoo? Why or why not?
2. Did you include a turkey or a cow in your zoo? Why or why not?
3. Why didn't you have a zoo with only monkeys?
4. Which type of elephant did you choose? Why did you choose the type you did and not the other?
5. What was the last animal to make the cut for your zoo?
6. What was the animal that just missed the cut for your zoo?
7. Did everyone in your group agree to include the same animals?
8. Would everyone in your group have made the same choices if they did it alone?

Once you have answered the discussion questions, download the presentation titled 'Zoolinomics – discussion questions and answers'.

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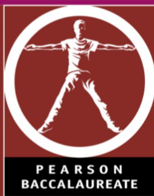

Worksheet 1.2

The Hidden Costs of War

In the United States, the Obama administration officially put an end to US combat in Iraq in the summer of 2009. Seven years after the US invasion, both politicians and economists found themselves looking back and asking themselves, was the invasion into Iraq and the ensuing occupation of coalition forces actually worth it? Or in economic terms, was the benefit of the war greater than the costs of fighting it?

What were the benefits of the US being in Iraq? Were there any and if so how can we measure them? There are some clear explicit benefits that can be measured such as companies that profited from the war as well as evidence of increased investment in the Middle East due to the presence of the coalition forces. But there are also benefits that are hard to measure such as the creation of democracy, freedom or the removal of a ruthless dictator.

On the cost side there are explicit costs for the war in Iraq such as the total amount spent by the US Government which by summer 2009 had come to around US $748 billion. Like the benefits there are also costs that are hard to place a number on such as the human cost, with an estimate of over 100,000 total deaths, close to 4400 of which were Americans. For a more detailed look at these costs you can view the American Progress website.

But as you know, economists do not only look at the explicit or obvious costs. In order to get a better understanding of the true costs of a decision, economists must look at the 'could have beens' or the opportunity costs. In their article 'The true cost of war - $3 trillion and beyond' Nobel Economics recipient Joseph Stiglitz and Harvard Professor Linda Bilmes do just this. They calculate the costs of the war not only based on the explicit costs, but on the hidden ones. Several years ago, the authors estimated that the costs of the war in Iraq would eventually reach US $3 trillion. In this article, they claim that they may have underestimated the amount. Read the 3rd and 4th paragraphs, from 'Moreover, two years on...' to '...was not available elsewhere'.

Economists believe that if we can get a sense of what the 'true costs' of a decision are, then we can make a more rational choice when faced with a decision. Read the following two articles, 'The true cost of war - $3 trillion and beyond' by Joseph Stiglitz and Linda Bilmes and 'Iraq, weighing the costs and benefits' by Tim Kane and answer the following questions:

Questions

1. Why is it important to look at the hidden costs when making a decision?
2. In your opinion, what would be some of the opportunity costs associated with *not* invading Iraq? What are some that are associated *with* invading Iraq?

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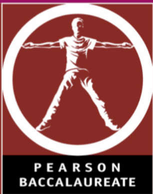

3. In your opinion, is it possible to properly do a cost–benefit analysis of a war? Are there some things that we cannot put a price on? Is it possible to use opportunity costs as 'true costs' when they are essentially 'could have beens'?

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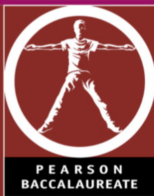

Worksheet 1.3

A National Energy Grid and a Production Possibilities Table

A great advantage of production possibilities tables is that they allow you to consider only the mathematical implications of your course of action, i.e. to get three more of these you must give up one of those. A great disadvantage is that they cannot reflect the political and ethical considerations of determining whether society should, could or even wants to give up one of those to get three more of these!

Study the table and the rules below then answer the questions that follow.

British Government - where the money goes (pence per pound)

	A	B	C	D	E	F	G	H	I	J	K
Energy Infrastructure	45	43	41	38	35	31	27	22	16	9	0
Social Welfare	0	5	10	15	20	25	30	35	40	45	50

Rules

1. For each pound the government takes in, it has spending discretion only in the two areas shown above: all other expenditures are fixed.
2. As the government switches from one combination to another, any increase in total discretionary spending must be offset by increased taxation. Any decrease may result in tax reduction.

1. Illustrate the information from the table above in a production possibilities curve diagram.
2. Briefly describe what you feel the consequences would be for a society that elected:
   a. Combination A
   b. Combination K
   c. Combination F
3. Is one of the three choices above superior to the other two? Why or why not?
4. You are the prime minister. The country is currently at combination H. Some of your top scientists tell you that they believe that given sufficient funding, they can develop a 'smart grid' energy infrastructure that within ten years would make the nation energy independent, in other words, it would no longer depend on imported energy to support its economy. To get sufficient funding for this system, the economy would have to shift from combination H to combination D for at least that

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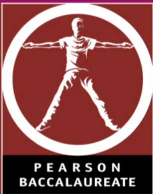

ten-year period. Other highly respected scientists tell you that the development of such a system is impossible and could only lead to an increased dependence on foreign energy sources. If successful, the first group of scientists say, after ten years energy infrastructure expenditures could be reduced by at least one half at all combinations. What are some of the possible consequences to the nation (and you as prime minister) if:

a. You evaluate the arguments of each group of scientists and decide the second group is correct and the energy infrastructure system is not feasible?

b. You agree with the first group of scientists, the economy shifts, and the system works?

c. You agree with the first group, the economy shifts and the system doesn't work?

d. You agree, the economy shifts and before it can be determined if the energy infrastructure system works, voters vote you and your party out of office because of dissatisfaction over reduced social welfare spending?

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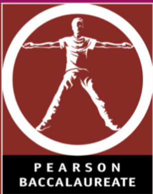

Worksheet 1.4

Rational Behavior, Opportunity Cost, Marginal Analysis - An Intro to the Economic Way of Thinking

Are humans always rational? Rational beings, it should be assumed, would always pursue activities that add to their happiness, or *utility*. Work, we could assume, is an activity that does not make us happy, while play makes us happy. Why, then, do some people willingly do what appears to be work when it could be done by someone else?

In the blog post, 'Laid-back Labor', this question is explored in some detail.

Since rational beings are interested in maximizing their happiness, work can be viewed as a means to an end, a way to make the money you need to do the things you enjoy, things which can be called *leisure.* So why do so many people willingly choose to spend so much time and money doing things like cooking, knitting, gardening, working in the yard, and other tasks that appear to be *work,* when they could easily pay others to do these menial chores for them, thus giving them more time for *leisure?*

Where does the line between work and leisure exist? This seems like an apt question to explore from an economic perspective. Below is some analysis of this question from the *Freakonomics* article, 'Laid-back Labor', read the first sentence in paragraph 4 and then paragraphs 5 and 6.

Why a professional (let's say a lawyer) who spends 50 hours a week in his office, earning somewhere in the range of $100 an hour for his labor, would *choose* to spend two hours mowing his lawn on a Saturday, rather than hiring his neighbor's son to do it for him, truly poses an economic paradox.

Let's see why: If this man's labor is worth $100 and hour, then we can calculate the ***opportunity cost*** of mowing his own lawn as $200 plus the value to this man of the leisure he could have enjoyed by *not* mowing his lawn. The man probably could have hired his neighbor's son to mow his lawn for $20, which would have then freed him up to pursue his own leisure activities (reading, working out, golfing, watching a movie, etc.) during those two hours, and compared to the $200 value of his own labor the $20 seems like a bargain. So is a lawyer who mows his own lawn acting irrationally?

It would seem the line separating leisure from work has blurred in modern times. A hundred years ago an activity such as sewing or caring for a lawn would certainly have been viewed as *work*, but today the behavior of millions of people would indicate otherwise. As a science rooted in the belief that humans are rational pursuers of their own happiness and leisure, the paradox of the lawn mowing lawyer poses several interesting questions for students of economics.

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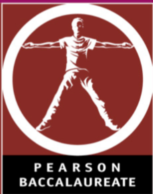

Questions:

1. Is the lawyer who mows his own lawn defying a fundamental rule of economics, that people act rationally? Is he making a mistake by not hiring his neighbor's son to do it for him?
2. What is meant by ***opportunity cost***? Give an example of a decision you have made recently that involved an opportunity cost.
3. How is the lawyer's decision whether or not to mow his lawn rooted in ***marginal analysis***? Describe a choice you've made recently that involved marginal analysis.

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Worksheet 2.1

Luxury goods: the biggest rip off in the world or the 'must have items' for any self-respecting European?

Unit 1 in IB begins by examining the interaction of supply and demand in product markets, and the importance of these factors in determining the equilibrium price in any particular product market.

In this article from the NY times – 'The Devil Sells Prada' the author reviews a book that exposes the diminished quality and attention to detail among manufacturers of luxury goods (think Prada, Gucci, etc...) The era of globalization and off-shoring of manufacturing has aided luxury firms in their quest for profits, as they've been able to significantly cut costs while maintaining exorbitant prices for their product.

The author takes issue with the alleged demise in the luxury market of attention to detail and craftsmanship, as competition and profit seeking behavior have led to an industry where the back alley workshops of Milan and Paris have been replaced by the factory floors of China and Vietnam. Free trade has allowed European luxury brands to produce more of their products at lower costs, which leads the author to her current question: 'Why is this stuff still so expensive even as the cost of producing it goes down?'

Despite her accusations of poor quality and greedy, profit seeking managers in the luxury goods industry, the author seem unable to resist the luxury goods she claims to despise: read from 'When, I asked myself...' to the end of paragraph 1 and then paragraph 3.

It appears that the author never took an introductory economics course. If she had, she would clearly understand that price is not determined by the level of craftsmanship, the attention to detail, nor the level of exclusivity represented by a particular purse, shoe or dress. Rather, price is determined by the interaction of ***Demand*** *and* ***Supply*** in the market for all goods, *even* luxury goods!

When she claims that 'the merchants who served this pampered class aimed chiefly "to produce the finest products possible"', the reviewer is forgetting some of the basic teachings of capitalism's founding father. Adam Smith himself could have corrected the NYT reviewer when he said 'Whoever offers to another a bargain of any kind, proposes to do this. Give me that which I want, and you shall have this which you want, is the meaning of every such offer,' *Source: Adam Smith The Wealth of Nations.*

Smith knew, as any economics student should, that exchanges in any market happen not because of a mutual appreciation for craftsmanship or artistry, rather because a producer (firm) wants to make a profit by charging as high a price as possible to a consumer (household). In the case of luxury goods, Gucci and Prada never made high quality goods because they *loved* making high quality goods, rather they made them cause consumers *demanded* them and were willing to pay top dollar for them.

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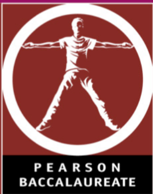

What the author is missing is a basic understanding of the ***determinants of demand***. The price a good commands in the market has little to do with how much it cost to produce or where it was produced, and everything to do with the level of demand relative to the level of supply.

Discussion questions:

1. Why do Prada, Gucci, Cartier and other luxury brands command such high prices relative to cheaper substitutes widely available to consumers?
2. As nothing else changes and the price of luxury goods goes up, how is demand affected? Explain.
3. What are some of the determinants of demand that have kept the price of luxury brand goods high even as the costs of production have been reduced due to cheap overseas manufacturing?

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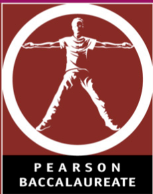

Worksheet 2.2

It's All About Demand

If it's ever unclear whether a change in demand for a good or a service can actually affect the price, the article 'Airfares of India show no signs of slowing', makes it perfectly clear that demand is a powerful market force. In an industry where it has seemed recently that prices only rise, a recent fall in market demand has driven prices downward, as firms have responded to consumer demand in order to sell their product, which in this case are seats on short and long-haul flights within and from India. Read article and answer the questions below.

Discussion questions:

1. What factors are driving demand for air travel down within, to and from India?
2. Why are airfares 'up 3 percent in the second quarter of 2011'?
3. Create a diagram that illustrates the changes in demand for air travel within India.
4. Identify three factors that could slow the growth of demand for air travel within India.
5. Identify three factors that could slow the growth of demand for air travel between India and other nations.
6. (Bonus): Using a diagram, explain how 'the influence of fuel surcharge, high taxes and steady economic environment in the region are attributing to this overall rise in airfare in India.'

Worksheet adapted from: Welker's Wikinomics

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Worksheet 2.3

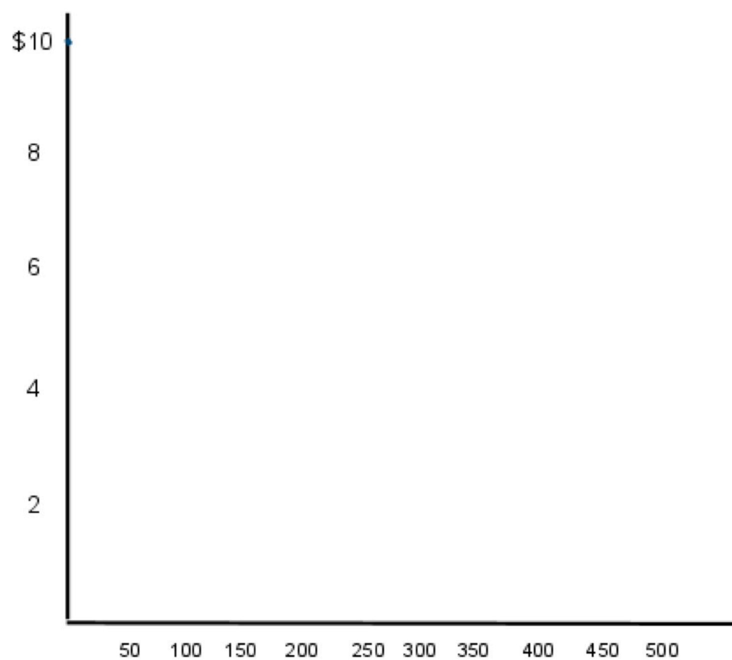
HL Practice with Linear Functions

Linear Demand Functions

Using the following linear demand functions, fill in the appropriate quantities on the demand schedule and then plot the demand curve accordingly.

1. $Qd = 400 - 16P$

P	Qd (Qd = 400 - 16P)
0	
2	
4	
6	
8	
10	



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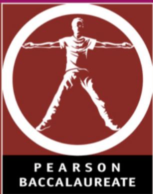
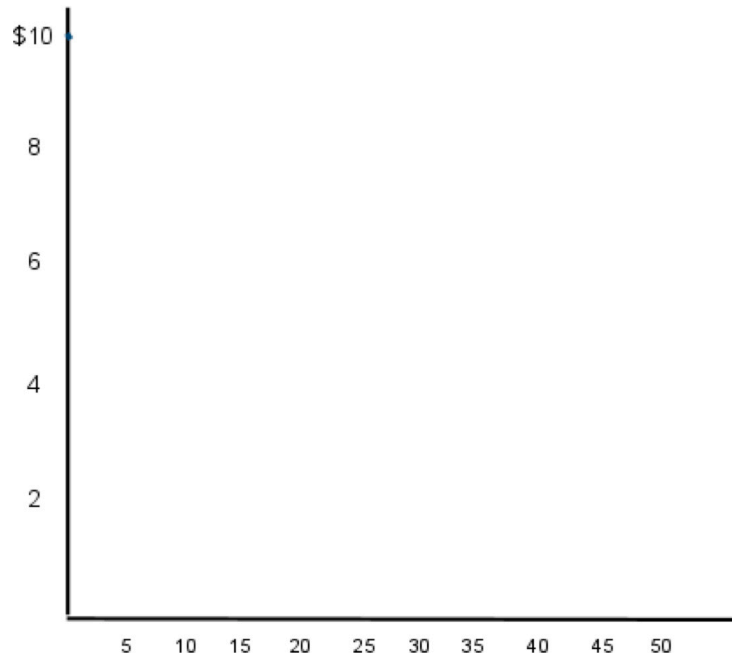


2. $Qd = 45 - 3P$

P	Qd (Qd = 45 -3P)
0	
2	
4	
6	
8	
10	



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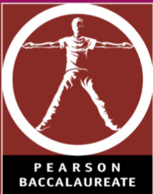
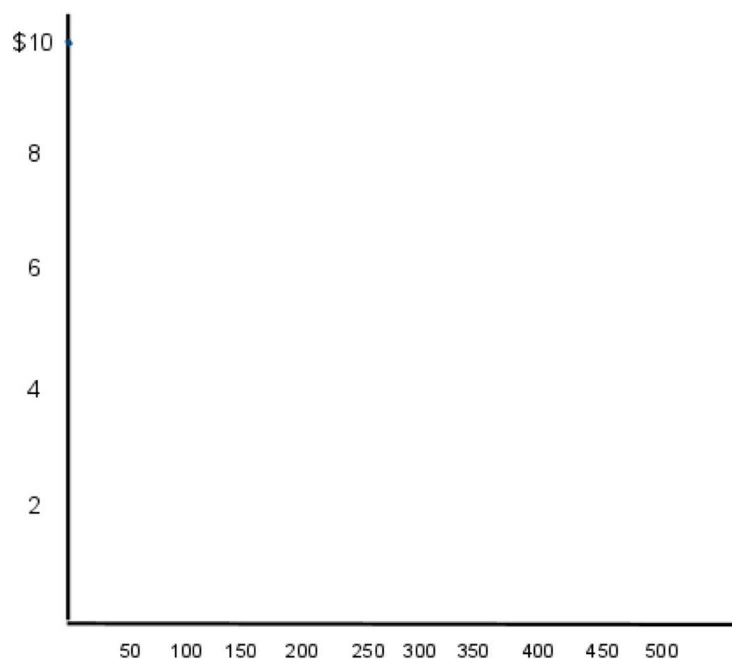


Linear Supply Functions

Using the following linear supply functions, fill in the appropriate quantities on the supply schedule and then plot the supply curve accordingly.

1. $Qs = -100 + 40P$

P	Qd (Qs= -100 +40P)
0	
2	
4	
6	
8	
10	



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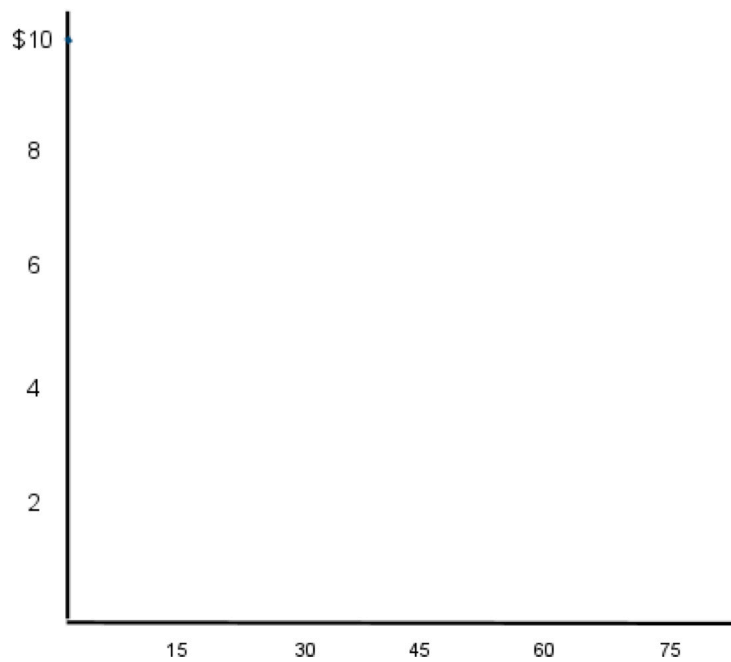
2. $Qs = -10 + 7P$

P	Qd (Qs= -10 + 7P)
0	
2	
4	
6	
8	
10	



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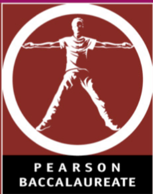
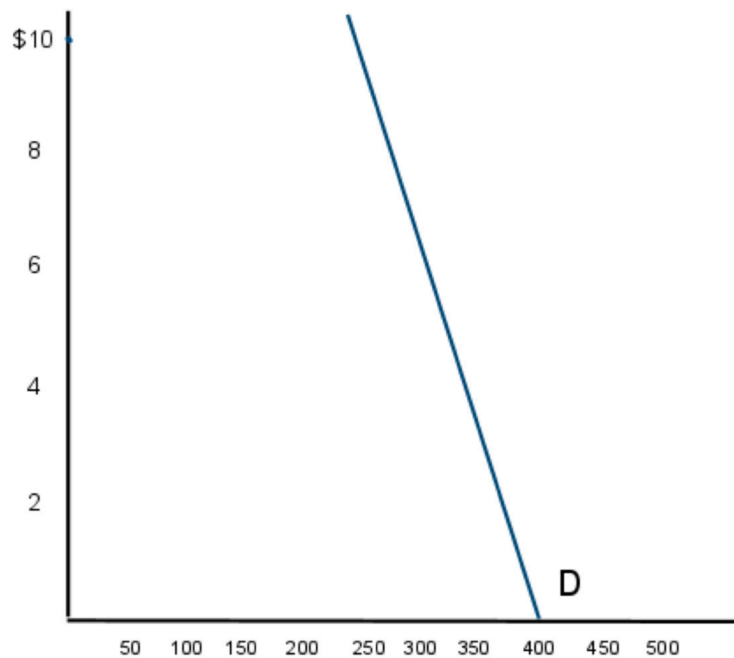


Answer Key

Linear Demand

1. $Qd = 400 - 16P$

P	Qd (Qd = 400 - 16P)
0	400
2	368
4	336
6	304
8	272
10	240



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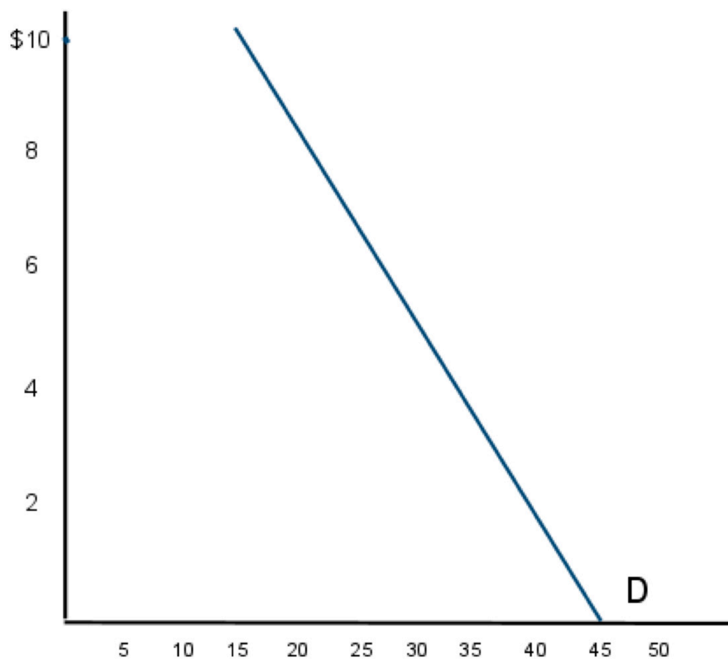
2. *Qd = 45 - 3P*

P	Qd (Qd = 45 -3P)
0	45
2	39
4	33
6	27
8	21
10	15



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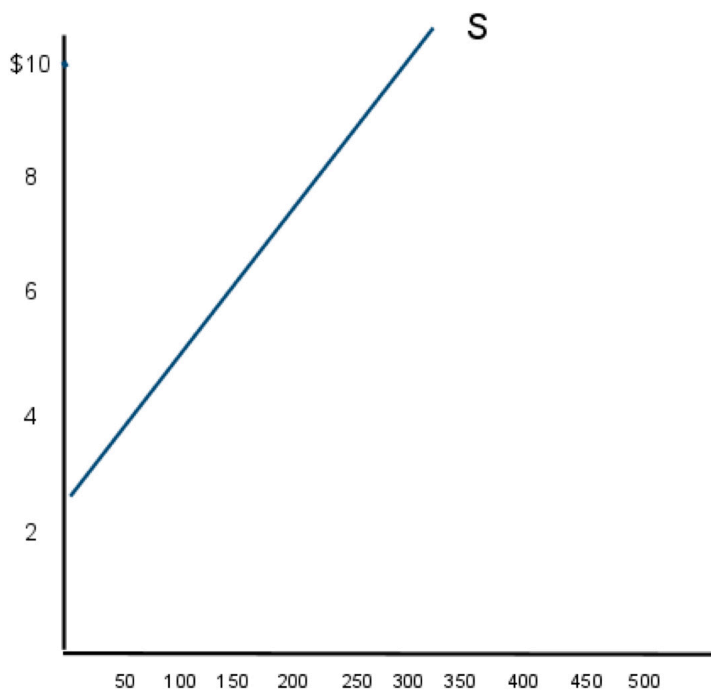
Linear Supply

1. $Qs = -100 + 40P$

P	Qd (Qs= -100 +40P)
0	-100
2	-20
4	60
6	140
8	220
10	300



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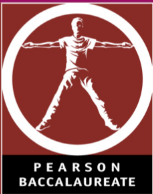
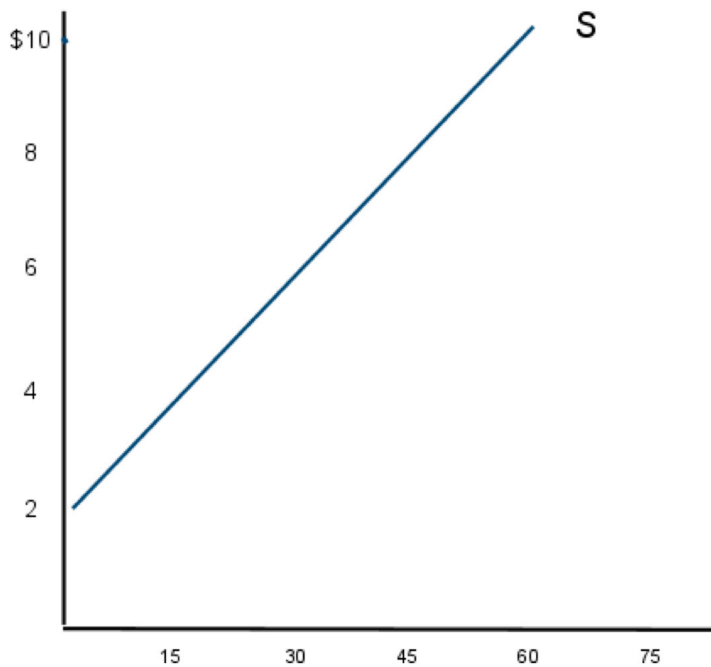


2. $Qs = -10 + 7P$

P	Qd (Qs= -10 + 7P)
0	-10
2	4
4	18
6	32
8	46
10	60



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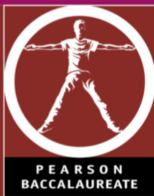

Worksheet 3.2

Gas Prices: From Disequilibrium to Equilibrium

From the Wall Street Journal comes a great example of a market in disequilibrium: read the quick roundup here.

We learn in IB Economics that markets are generally efficient thanks to the signals that prices send from consumers to producers to determine where scarce resources should be allocated. We've also learned how supply and demand interact in a market (such as that for natural gas) to determine equilibrium price and quantity. In the above example, there exists a disequilibrium, where either the quantity demanded exceeds the quantity supply (a shortage), or the quantity supplied exceeds the quantity demanded (a surplus). Based on your initial reading of the situation, which do you think it is?

The signals sent by the price system help society answer the question 'What to produce?' Producers of goods whose prices are rising receive very different information than those for whom the price is falling. Based on the excerpt above, discuss the causes and effects of the disequilibrium in the natural gas market.

Discussion questions:

1. What is meant by 'soft prices' in the natural gas market? Assuming output by gas producers remained constant, what must have changed to cause the soft prices? Using a diagram show this change in the market.
2. How have firms responded to soft prices? Does the reaction of the gas companies support the law of supply? Explain
3. With the soft prices in effect, are resources being under-allocated or over-allocated towards gas production at the moment?
4. In the next month, what will happen to supply of natural gas? Why?
5. What may happen in the natural gas market if firms reduce capital spending in the next two years?

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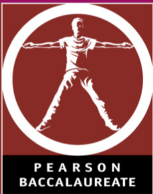

Worksheet 4.1

From Heart Transplants to Watermelons: Understanding Price Elasticity of Demand

Consumers are interesting creatures to study. Economics offers us a unique set of tools for understanding the behavior of consumers in various markets. Elasticity allows us to compare the responsiveness of consumers of various goods price changes in those goods. If demand is elastic, we know consumers are highly responsive to price changes; if it is inelastic, we know consumers are relatively unresponsive to price changes. Some of the questions about consumer behavior that elasticity helps answer are:

1. Why do governments place such huge taxes on cigarettes?
2. Why did Apple cut the price of the new iPhone in half from the original one, despite the fact that it had so many new features?
3. Why do movie theaters seem to raise their prices so steadily over the years, rather than doubling the price of tickets each year?

These and other questions can be answered by knowing something about the relative price elasticities of demand for the goods in question. ***Price elasticity of demand refers to the sensitivity of consumers to a change in price***. For some goods, even the slightest increase in price will scare consumers away, while for others, price can go up and up and up and the quantity demanded won't budge!

Here's just one illustration of a good for which consumers are extremely sensitive to changes in price: every autumn, around the city of Shanghai thousands of small farms harvest the Chinese watermelon; a small, green, juicy melon that looks and tastes the same regardless of which farm it came from. The farmers sell their melons to one of the hundreds of melon vendors who drive their big blue trucks into the city of Shanghai for about two weeks in October. These vendors then sell the watermelons to the city folk who love their refreshing taste.

During the two weeks of the melon harvest, there are hundreds of blue trucks parked two or three per block all over the city. The hundreds of melon vendors sell an identical product, acquired at identical costs from thousands of farms using identical techniques for farming. In other words, the melon market in Shanghai during these two weeks is close to being *perfectly competitive*.

The price of melons is established through competition at something very close to the exact cost to the vendor of getting the melons into the city. Consumers know this, and therefore if one vendor tries to sell his melons for more than the equilibrium price, consumers will respond by buying NONE of that vendors' melons. Conversely, if a vendor were to lower his price at all, rationally EVERY consumer would want to buy from that vendor, but since the price is already at the cost to the vendor, no vendor is able to lower the price without losing money. The outcome in the market for melons in Shanghai is

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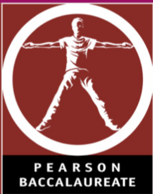
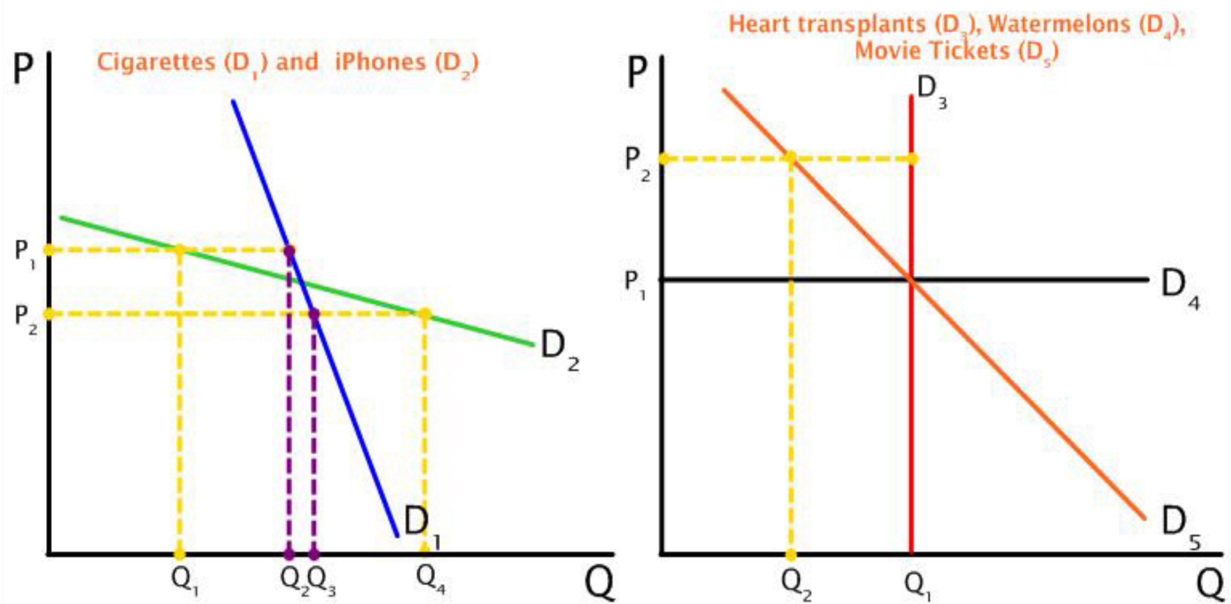


that demand for melons is close to being perfectly elastic, meaning that consumers are completely sensitive to changes in price of watermelons.

Not all goods are like watermelons. In fact, for some goods demand is close to perfectly inelastic. Study the graph below, showing the relative elasticities of five different products, then answer the questions below in your comment.



Questions:

1. For which product is demand perfectly inelastic? Perfectly elastic? Unit elastic?
2. What relationship exists between relative slopes of demand curves and elasticity?
3. What are two characteristics of cigarettes that make demand for them inelastic?
4. What are two characteristics of heart transplants that make demand perfectly inelastic?
5. What are the characteristics of a good for which demand is perfectly elastic?

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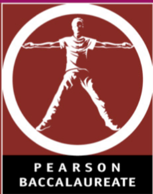

Worksheet 4.2

Natural Gas PES

Calculating PES from data

Using information from this WSJ article, we can actually calculate the price elasticity of supply (PES) of natural gas. In this case, since the price of natural gas went down, producers decreased the quantity of gas supplied. Once we know the price of natural gas before and after the price decrease, we can calculate the PES of gas. A little research from the time the article was published reveals that the price of gas fell from $7.50 to $5.75, so:

P1 = $7.50
P2 = - $5.75

The article tells us how producers responded to this price change: read the first two sentences again.

Now we can calculate PES:

$$PES = \frac{\%\ change\ in\ Quantity\ supplied}{\%\ change\ in\ price}$$

Using this formula, calculate the PES for natural gas:

PES = ___________________

Questions:

1. What was the PES for natural gas at the time the article was written?
2. Based on the result of your PES calculation, how would you describe the responsiveness of gas producers to changes in price?
3. Do you think the PES for natural gas would remain constant over time if the prices were to remain low? Why or why not?
4. What are the primary determinants of PES for natural gas?

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Worksheet 5.1

Politicians Beware: Romania's Witches Resent Being Taxed

This story about Romania taxing its witches, and the witches fighting back, appeared in the Associated Press in January of 2010 and turned into something of an Internet sensation. In many ways, it seems to be telling an unsurprising story: a desperate government seeks new sources of revenue and outraged citizens protest that their taxes will increase. So, why all the fuss? Most notably, the outraged citizens are witches: self-proclaimed, proud, and sincere practitioners of what are called the 'dark arts'. Moreover, to show their outrage, they intend to curse the politicians who tax them.

But first, a little background on the story is in order. Romania's government had recently experienced a severe budget crisis as a result of the Great Recession. They, of course, were not alone: the UK, Ireland, Greece, Spain, Portugal, and Iceland, to mention just a few, experienced combinations of internal and external debt that threatened to bankrupt each country. Romania, like others, requested loans from the International Monetary Fund. The IMF, in turn, would only lend to Romania if it proved creditworthy, which meant slashing government spending (on the salaries of teachers and doctors, for example) and raising taxes, including the VAT.

It was then noted that some professions, like the embalmer, driving instructor, and witch were left out of previous labor listings. In other words, their jobs did not exist, according to the government, and therefore could not be taxed. And so it came to pass that the government announced plans to add them to the rolls and to begin taxing their income the following year.

Furthermore, as a resident of Bucharest, the tax on witchcraft appears to be a cynical attempt to appeal to anti-gypsy resentment, a feeling that runs high here. It would be as if the US state of Louisiana were to suddenly start taxing the practice of voodoo, what happens to be a cultural and religious practice of the Creole people who have lived there for centuries.

TOK-related Discussion questions:

1. Most government leave such activities to the 'informal' or 'parallel' markets. Is Romania justified in levying this tax?
2. One witch, quoted in the article, did not mind the ruling because it gives her profession some legitimacy in the eyes of the state. Romania, as many countries do, offers tax exemptions for religious organizations. To what degree could their profession qualify for tax exemptions in this fashion?

Application questions:

1. Assume that the government chooses not to tax incomes but the services themselves with an excise tax. For example, say the government taxed each 'hex' placed on behalf of a customer at 20 RON (about 5 euro). Using a diagram, show this tax on a diagram with an average price of 100 RON

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(abut 25 euro). Show the respective producer and consumer burden, along with the area of deadweight loss.

2. Assume that during an economic expansion, the demand for curses is strong because of competition between businesses (and perhaps politicians), and demand is relatively inelastic. Explain how your answer to number 2 might change as a result.

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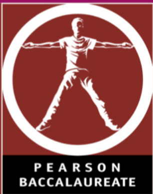
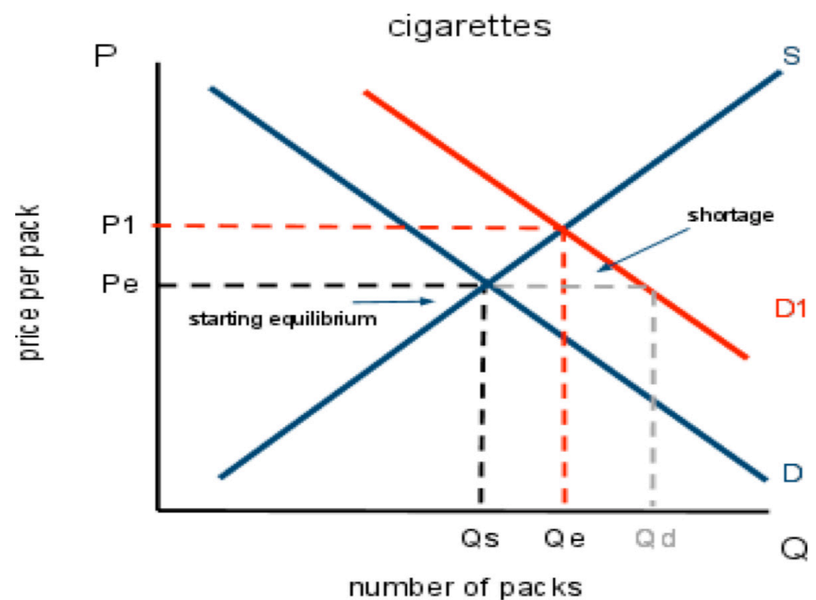


Worksheet 5.2

Taxes and Cigarettes: Scramble to Buy Before Tax Kicks In

In Australia, it appears that the tax man is coming for the cigarettes. When the government announced a large hike on the tax for cigarettes, consumers responded in typical fashion. They rushed stores and bought up as much as possible before the deadline. This is an example of the determinant of demand that says consumers respond to the *expectation* of future price changes, not just the price changes themselves. Knowing that cigarettes will be significantly more expensive just a few days later, many smokers stocked up.

Figure 1 shows this effect at work. A surge in demand takes place in the days before the tax becomes law, shown by D1. At that current equilibrium price of Pe, there is suddenly a shortage, a gap between the quantity demanded (Qd) and the quantity supplied (Qs). Look at this article, then read from 'He said that stock would...' to 'It's so busy...'.



This burst of extra demand will not last, however. When the law goes into effect, demand should return to normal (or might decrease a bit since many smokers will have reserve cigarettes to smoke for a short period).

However, the market will change significantly. Like all tax increases, the tax on cigarettes is going to shift supply left by the amount of the tax, which is estimated to be about $2.16 on a typical pack of 30. How will this affect the market? The government expects the tax and other policies like negative advertising to reduce the number of smokers by as many as one million people over several years.

This suggests that the government and health officials regard smoking to be relatively price elastic. In other words, the price increase will create a strong negative response in smokers, encouraging them to stop buying cigarettes. However, at the same time, the government expects to raise nearly $5 billion in revenue from the tax, suggesting that it will be a major and reliable source of income as well. This indicates that the government believes that smoking may well be very price inelastic, so much so that a 25% hike will not discourage smokers enough to stop paying the tax.

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Questions:

1. Using a diagram, explain the effect on various stakeholders of this tax assuming that demand is relatively inelastic. Be sure to use specific values wherever possible.
2. Using a diagram, explain the desired market effect of the planned negative advertising campaigns.
3. Evaluate the effectiveness of government excise taxes on cigarettes.

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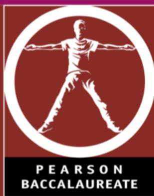


Worksheet 5.3

Letting Markets Work - the Malaysian Fuel Subsidy Goes bye bye

One of the recurring themes the IB Economics course is the conflict between good politics and good economics. Often when it comes to government, smart economic policy is sacrificed in order to achieve political favor with voters. Whether it's price ceilings on petrol in China, Zimbabwe's slashing of food prices, harmful import restrictions to benefit domestic producers, or the proposed suspension of gas taxes in a time when fuel conservation is really what's needed, politicians often act in economically stupid ways to bolster or hang on to their popularity.

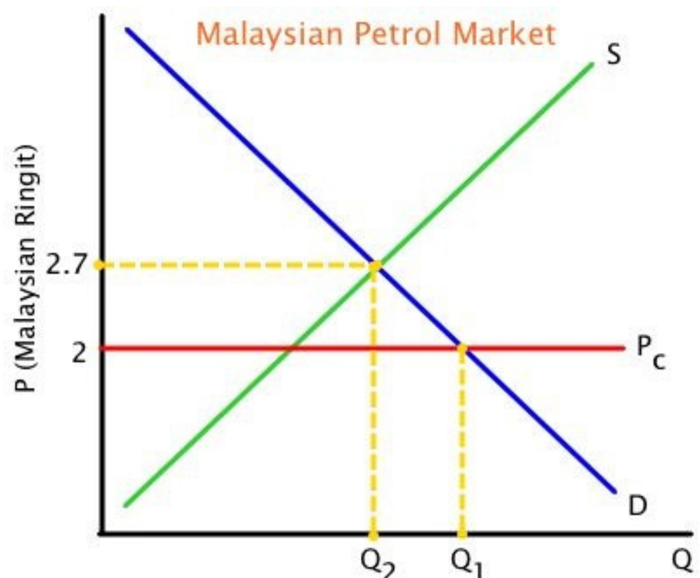
So when a government makes a bold move that is economically sound, it sometimes comes as a surprise. The Malaysian government has for years subsidized domestic fuel prices, which at under 2 Malaysian Ringgit per litre have been the equivalent of roughly $0.60 US per litre, far below the average price in the United States and Europe. Drivers benefited from this subsidy, but were not forced to bear any of the burden of rising oil prices, nor had they any incentive to conserve or switch to more fuel efficient automobiles or alternative forms of transportation. The Malaysian government, on the other hand, has had to allocate more and more of its limited budget towards subsidizing petrol prices.

In 2009, however, all price supports for petrol were cancelled. At the time, the effect of cancelling price supports was expected to be drastic in the Malaysian economy: look at this article, then read the second paragraph.

The subsidy would have cost the Malaysian government 56 billion Ringgit (around $17 billion) in 2009. With the money it saved by ending the subsidy, the government would begin making public transport cheaper and more convenient for commuters who wish to avoid paying for the more expensive petrol to fuel their personal automobiles: read the seventh paragraph from the article.

Malaysia is not the only country taking measures to end government fuel-price supports: read the ninth paragraph from the article.

As more and more countries allow the market mechanism to work, and in the



With petrol subsidy, drivers paid 2RM per liter. After subsidy, price rises to 2.7RM, reducing quantity demanded to Q2.

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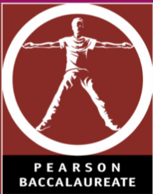

short-run fuel prices rise with the price of oil, the chances are that the long-run equilibrium price of petrol will actually begin to fall.

Price controls and subsidies distort market demand. In Malaysia, where a government subsidy kept the price consumers paid around 2 RM, the quantity demanded exceeded the free market quantity. With the removal of the subsidy, consumers will respond by driving less, reducing overall quantity demanded for petrol. As other Asian nations follow suit, global quantity demanded for petrol will decline, while higher prices incentivize producers to increase output. New production facilities will come online, just as drivers begin to find alternative ways to get to work, either through carpooling, public transportation, cycling or walking.

The combined effect of slowing increases in demand (or perhaps even a decline in demand if enough substitution of alternative forms of transportation takes place), and increases in supply as new production facilities come on line will be a stabilization and eventual fall in the price of oil.

The future fall in oil prices is explained in more detail here.

Malaysia's repealing of the fuel subsidy is one example of how markets work to restore equilibrium in a market such as that for oil.

Questions:

1. Why does a subsidy create disequilibrium in a product market like the petrol market in Malaysia?
2. Give two examples of how consumers may respond to the 40% increase in petrol prices once the subsidy is removed in Malaysia.
3. How could making fuel more expensive to consumers in the short-run actually lead to a fall in oil and fuel prices in the long-run?
4. What other policies could the Malaysian government implement to make transportation more affordable to commuters in Kuala Lumpur or elsewhere in Malaysia?

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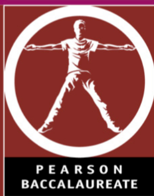

Worksheet 5.4

Price Controls Cause Petrol Shortages in China

In the fall of 2007, oil prices were hitting record levels worldwide, leading to rising petrol prices for drivers in most places. At the time, one could spot an unusual site at petrol stations across China: enormous queues of blue trucks (the ubiquitous means of cargo transport in China), snaking up and down the block.

Why the long lines? As it turns out, there was a simple explanation rooted in the principles of supply and demand that any first semester IB economics student would understand! The Chinese government had been forced to ration petrol (limiting the amount that a driver can buy at one go) due to the shortages resulting from the government's price controls in the petrol market. Read the fourth and seventh paragraphs from this article.

China is a major importer of oil. With an economy growing around 12% in 2007, much of the country's growth depended on the availability of crude oil at reasonable prices, which China's oil refining firms turn into diesel and petrol, needed to get Chinese manufactured products from factory to port and from port to overseas consumers.

The problem with the oil market in China, however, was that as 'Chinese refiners cannot pass the souring crude costs on to consumers'. Oil is an input needed to make a finished product: diesel. As the price of oil rose in 2007 (it reached a record of $92 per barrel in October of that year), the resource costs to petrol and diesel producers also rose, shifting the supply of petrol and diesel to the left, putting upward pressure on the equilibrium price. As a first semester AP or IB student knows, resource costs are a determinant of supply, and as oil (the main resource in the production of petrol and diesel) increased in price, the supply of these important commodities invariably decreased.

In a free market, a decrease in supply leads to an increase in price. Herein lies the answer to the riddle of the long lines at petrol stations in Shanghai: ***the Chinese petrol and diesel market is not a free market***. The government plays an active role in controlling prices paid by consumers for the finished product refiners are producing, petrol fuel: read 'Beijing fears…' to the end of the paragraph from the article linked to above.

As the costs to petrol and diesel producers rose in 2007, the government in Beijing took the side of consumers and forbade fuel producers from raising the price they charge consumers. The Chinese government essentially imposed a *price ceiling* in the market for petrol. A price ceiling is a *maximum price* set by a government aimed at helping consumers by keeping essential commodities like fuel affordable. As you have learned so far in IB Economics, price controls such as this end up hurting BOTH producers AND consumers, since they only lead to a *disequilibrium* in the market in which the quantity demanded for a product rises while the quantity supplied by firms falls. The *shortage of petrol and diesel* resulting from the government's price control are the perfect explanation for the long lines of blue trucks and motor scooters at all the gas stations in Shanghai during October of 2007.

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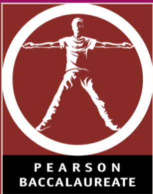
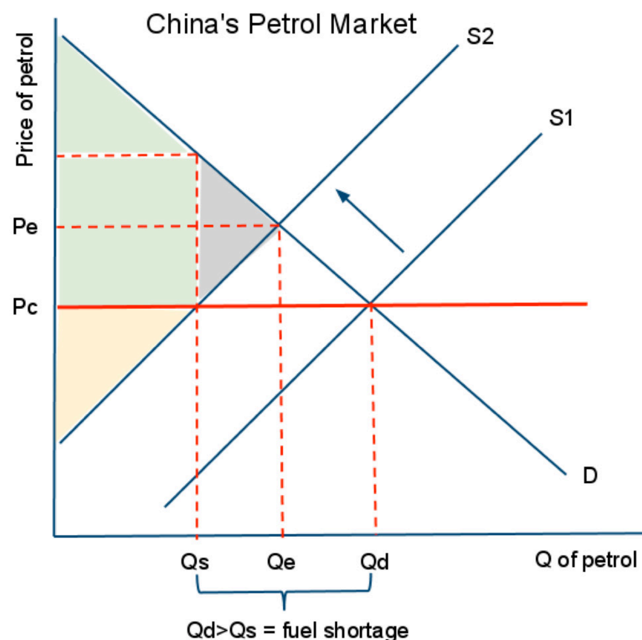


So why, exactly, does the government's enforcement of a lower than equilibrium price result in such severe shortages that truck drivers are only allowed to pump 20 litres of petrol per visit and made to wait hours each time they need to refill? Below is a supply and demand diagram that illustrates the situation in the Chinese fuel market in 2007:



In the graph above, the supply of petrol has decreased due to the increasing cost of the main resource that goes into petrol: oil. This decrease in supply means that petrol has become more scarce, and correspondingly the equilibrium price should rise. However, due to the government's intervention in the petrol and diesel markets, the price *was not allowed to rise* and instead remained at the *maximum price* of Pc.

At the government-mandated maximum price of Pc, the quantity of fuel demanded by drivers far exceeds the quantity supplied by China's petrol producers. The result is a shortage of petrol equal to Qd-Qs.

The government's intention for keeping petrol prices low is clear: to make consumers happy and keep the costs of transportation among China's manufacturers low so as to not risk a slow-down in economic growth in China. However, the net effect of the price controls is a loss of total welfare in the petrol market. Notice the colored areas in the graph above. These represent the effect on welfare (consumer and producer surplus) of the price control.

1. The total areas of the green, orange and grey shapes represent the total amount of consumer and producer surplus in the petrol market assuming there were NO price controls. At a price of Pe, the quantity demanded and the quantity supplied are equal (at Qe) and the consumer surplus and

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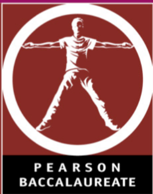

producer surplus are maximized. The market is *efficient* at a price of Pe. Neither shortages nor surpluses of petrol exist.

2. However, at a price of Pc (the maximum price set by the government), the amount of petrol actually produced and consumed in the market is only Qs. Clearly, those who are able to buy petrol are better off, because they paid a lower price than they would have to without the price ceiling. But notice that there is a huge shortage of fuel now; many people who are willing and able to buy petrol at Pc simply cannot get the quantity they demand, because firms are simply not producing enough!
3. The total consumer surplus changes to the area below the demand curve and above Pc, but only out to Qs. The green area represents the consumer surplus after the price control. It is not at all obvious whether or not consumers are actually better off with the price ceiling.
4. The total producer surplus clearly shrinks to the orange triangle below Pc and above the supply curve. Petrol producers are definitely worse off due to the government's action.
5. So how is the market as a whole affected? The black triangle represents the *net welfare loss* of the government's price control. Notice that with a price of Pe, the black triangle would be added to consumer and producer surplus, but with a disequilibrium in the market at Pc, the black triangle is welfare lost to society.

Price controls by government's clearly have an intended purpose of helping either consumers (in the case of a maximum price or price ceiling) or producers (in the case of a minimum price or price floor). But the effect is always predictable from an economist's perspective. A price set by a government above or below the equilibrium price will *always* lead to either a shortage or a surplus of the product in question. In addition, there will always be a loss of total welfare resulting from price controls, meaning that society as a *whole* is worse off than it would be without government intervention.

Questions:

1. Why has the supply of petrol decreased?
2. With a fall in supply of a commodity like petrol, does the demand change, or the quantity demanded? What is the difference?
3. Define 'consumer surplus' and 'producer surplus'. Why does a government's control of prices reduce the total welfare of consumers and producers in a market like petrol?
4. How would a government subsidy to petrol producers provide a more desirable solution to the high oil prices than the maximum price described in this post? In your notes, sketch a new market diagram for petrol and show the effects on supply, demand, price and quantity of a government subsidy to petrol producers. Does a subsidy create a loss of welfare? Why or why not?

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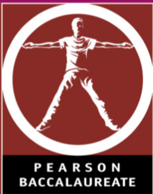

Worksheet 5.5

Price Controls research activity

Complete the following:

1. Using the Internet, research different examples of price supports or subsidies that are offered to firms in your home country.
2. Research the minimum wage laws that prevail in your home country.
3. Based on your understanding of economics, and the information you find in your research, write two paragraphs:
   a. The first paragraph should present the economic arguments FOR the government interventions you discovered in your research.
   b. The second paragraph should present the economic arguments AGAINST the government interventions you discovered in your research.
4. Evaluation: Based on your research and the economic analysis provided in part 3, evaluate the use of price controls and the minimum wage in your home country. Evaluation requires that you make a conclusion including your own judgment based on all the evidence and analysis you have gathered.

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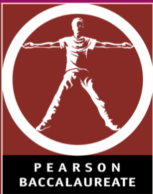


Worksheet 6.1

Obama’s Carbon Market

Some say that Global Warming may be the greatest market failure of all. This podcast was originally broadcast in January of 2007 during the US presidency of George W. Bush. The commentator claims that global warming is ‘nothing but one giant market failure’, arguing that the United States therefore must get serious about tackling the problem.

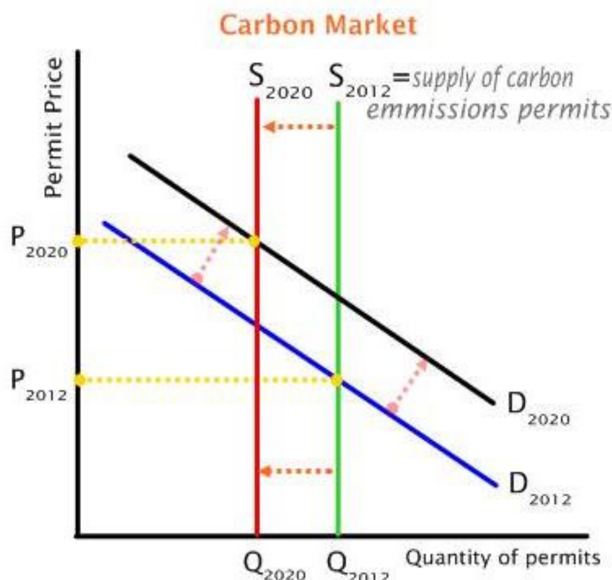
The allocation of resources towards carbon emitting industries has almost undoubtedly contributed to the warming of the planet over the last half century. Only recently have governments begun taking active measures to reduce the impact of industry on the environment through greater regulation of polluting industries, employing corrective taxes in some instances and market-based approaches to pollution reduction in others.

US President Barack Obama, unlike his predecessor George W. Bush, initially appeared to be serious about correcting the ‘market failure’ represented by global warming: read paragraphs four to seven from this link.

Below is a diagram that illustrates precisely how the Obama cap and trade plan was meant to work. Notice that between 2012 and 2020 the cost to firms of emitting pollution will increase dramatically, while at the same time the total amount of carbon emissions in the US economy will fall due to regular reductions in the number of permits issued to industry.

A Market for Pollution Rights

"Cap and Trade"



"Funding comes from elaborate carbon "cap and trade" program, which puts a price on emitting pollution and is the core of Obama's plans. Starting in 2012, the government would sell permits giving businesses the right to emit pollution, generating $646 billion in revenue through 2019.

During those years, the number of available permits would gradually decline, forcing businesses to buy the increasingly scarce, and costly, rights to pollute on an open market. Obama hopes that the rising cost of permits will encourage businesses to invest in clean technologies as a cheaper alternative to meeting pollution mandates, helping to cut greenhouse gas production to 14% below 2005 levels by 2020."

-Inside Obama's Green Budget - Forbes.com, 2.27.2009

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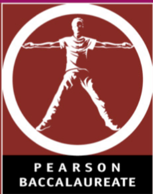

The Obama cap and trade scheme would not have been not the first experiment with such a market based approach to externality reduction: read from 'Europe established...' to the end of the paragraph from this article.

Europe's cap and trade program took a few years before it began having any noticeable impact on the emission of carbon by European industry. While unpopular among the firms who are forced to pay to pollute, the fall in emissions in Europe shows that a market for carbon may be effective in forcing firms 'internalize' the costs of carbon emissions, which until now have been born by society and the environment in the form of the negative effects of global warming.

Questions:

1. Why do you think tradeable pollution permits are more politically viable than a direct tax on firms' carbon emissions?
2. Why did Europe's carbon emission permit market fail to reduce emissions over its first couple of years of implementation?
3. Is making firms pay to pollute a good idea in the middle of a recession? Do you think that we should even be worrying about the environment when millions of people are losing their jobs and entire industries are struggling to survive?

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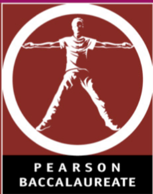

Worksheet 6.2

Gold's Glitter and Hidden Costs

This article points out some disturbing facts about the production of humanity's favorite adornment. This called to mind how, as a young economics student, one of my professors told me a story. Being Lebanese, and living in the Midwest of the United States (Indiana) at the time, he enjoyed the homespun wisdom he sometimes heard from the mouths of us Hoosiers. He was in a bar and a guy told him that the only money to be made was in real estate and gold. 'Why those two things?' my professor played along. 'Because,' the fellow said, 'they ain't making the stuff anymore'.

With apologies to the Netherlands and Singapore (who actually are making more of that land stuff), his quote had the ring of truth. And if the current economic crisis, with house prices everywhere, seems to have taken the lustre out of real estate, it has done the opposite with gold. As of this writing, gold sits high above the price quoted in the article, now at $1800 per ounce!

But, as the article painfully demonstrates, that gold is harder and harder to find. Mining it, which companies have a greater incentive than ever to do, can do heavy damage to the surrounding environment.

Application questions:

1. Using a diagram, explain why the price of gold had been increasing during this period.
2. How would you explain, using a diagram and appropriate market failure terminology, the cost of cleaning up the metal mining pollution of the American West.
3. Explain why some advocate a sales tax on gold. Would this be effective?
4. Explain how World Bank subsidies appear to be counter productive in this context. So why does the World Bank do it?
5. Evaluate other means of solving the issue, using information from this text and your own knowledge of economics.

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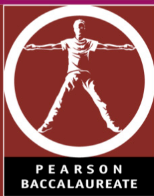

Worksheet 6.3

Wall Street, Used Cars and the Market Failure of Asymmetric Information

What do Wall Street investment bankers and used car salesmen have in common? Sometimes, the less their customers know about the products they're selling, the more profits they both stand to earn. Imperfect information in markets can lead to market failure, and at its core, the failures of global financial markets during 2008 - 2009 was a result of *imperfect information.*

In 2011 the film 'Inside Job' won the Academy Award for Best Documentary. The film focuses on the changes in the financial industry in between 2000 and 2007 that led to an overall increase in the level of risk undertaken by home mortgage lenders, investment banks, and ultimately the broader investment community the banking system serves.

The misaligned incentives motivating Wall Street banks and the asymmetry of information between the buyers and sellers of financial products, as well as the creation of new, complex derivative markets that allowed investment banks to bet against the very assets they were assembling and selling off to investors, contributed to the collapse of credit markets in 2007 and 2008 and ultimately a contraction of the level of economic activity worldwide during the 'Great Recession' of 2008 and 2009.

Below is an attempt to introduce the seemingly incomprehensible nature of global financial markets and understand what occurred in them between 2000 and 2007 in the context of an introductory Economics unit on Market Failure.

Part 1: Imperfect Information as a Market Failure

Imagine this. You're in the market for a used car. You go to the used car dealership, speak with a salesman, and he takes you through rows of automobiles, telling you the features of each one and assuring you that each of his cars has been inspected by a third party garage for reliability. You find this reassuring; after all you wouldn't want to buy a car that hasn't passed a basic inspection, since you don't want it to break down once you've driven it off the lot.

After an hour or so of poking around the lot, you pick out the perfect car. A silver 2006 Audi, a great year for Audis, says the dealer. You have his word that it has been closely inspected and is in top notch shape. So you hand over $20,000 for the Audi and drive it off the lot, satisfied with your purchase.

What would you say, however, if you knew that soon after driving off the lot, the very salesman who convinced you to buy that Audi purchased an insurance policy that would pay the salesman $20,000 in the case that it broke down. Would that knowledge have made you question your purchase?

What would you say if you found out that the 'third party garage' the salesman used to inspect the car actually followed orders from the dealer himself, and was 100% dependent on that dealer's business.

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Therefore, the mechanic was under significant pressure to give each of the cars sent to him a high mark in its inspection. By doing so, the garage mechanic assures that the dealer is able to easily sell cars to the buyers who trust that the mechanic has given an honest appraisal of the car's mechanical reliability. Since the dealer can sell cars given high inspection marks for higher prices, the dealer is then able take out insurance policies that pay a greater amount when the car ultimately breaks down.

Would all of this knowledge have made you question your purchase and the price you paid for your Audi? Chances are, if there had been ***perfect information*** in the market for used cars, you, and countless other people, would not have been willing to pay the price you paid for your Audi. Fewer used cars would have been sold, and they would have sold for lower prices. The existence of *asymmetric information* results in an over-allocation of resources towards the market for mechanically unsound used cars.

So what does the story above have to do with the global financial crisis? Believe it or not, the fundamental cause of the near collapse of the global financial system in recent years is almost identical to our story about the used-car salesman, the corrupt garage mechanic, the dubious insurance policies and the sucker buyer, who was stuck driving a crappy car that broke down within days of driving it off the lot.

Part 2: Financial Market Failure

Between 2000 and 2007, financial innovation led to unprecedented increases in the availability of low interest loans to millions of low income American households for whom home mortgages traditionally would have been unobtainable. Banks which issued these 'sub-prime' loans to households with very poor credit were able to sell them to Wall Street investment banks, which were repackaging individual home mortgages with thousands of similar loans from all over the United States into *asset-backed securities*, a form of bond that could then be sold to an investor to whom the interest payments made by the homeowners would accrue over the lifespans of the mortgages included in the bond.

Investment banks turned to the big credit rating agencies (Standard and Poors, Moody's), who inspected the make-up of these asset backed securities, declared them *investment grade* and gave them AAA ratings, essentially giving a thumbs up to the institutional investors who ultimately bought these bonds from the investment banks. An AAA rating assured investors who bought the bonds that they were very safe investments, in essence that they were in 'good mechanical order', just like the Audi you drove off the lot after being told it was in good mechanical order.

The investors who ultimately bought these bonds were not small time investors like you and me, rather they were *institutions,* such as state pension funds, hedge funds, money market funds, sovereign wealth funds, and so on, who often times used taxpayers money to buy bonds from big investment banks on Wall Street (such as Morgan Stanley, Goldman Sachs and Bear Stearns). These investors were assured by the banks that the bonds were of the highest quality and would therefore earn the investors interest payments for years, even decades. In addition, because of the high ratings given to these bonds by the

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rating agencies, the investors believed they would always be able to sell the bond if they needed the money back they had originally used to buy it.

The information given to investors was not always correct, however, it turned out that many of Wall Street banks assembling and selling these bonds were also *betting against them* in a parallel market for derivatives known as *credit default swaps.*

Here's the catch... the Wall Street banks that bought millions of low-income Americans' mortgages (the 'sub-prime' type) were just like that used car salesman. They knew the bonds of their creation were of poor quality, but just had to get the investors to believe they were in good mechanical order to 'get them off the lot' into the hands of an investor.

And just like the sleazy car salesman, as soon as the banks started selling these bonds to investors, they began taking out insurance policies against them in the case that they should lose their value. An insurance policy that pays out when the value of a bond collapses is called a 'credit default swap' (CDS), and the market for these became a multi-billion dollar industry in which big Wall Street banks bought insurance on the very bonds they created and sold to institutional investors, essentially betting that their own bonds would collapse in value. Of course, none of the investors knew the banks were betting against their own bonds, because this knowledge would have surely wiped out demand for them and led to collapse in business for the Wall Street banks.

The rating agencies inspecting the asset backed securities assembled from bad mortgages were just like the corrupt garage mechanic giving all the 2006 Audis a 'thumbs up' to make them easier for the car dealership to sell. By giving sub-prime mortgage backed securities 'investment grade' AAA ratings, the rating agencies made it easier for investment banks to sell them to sucker investors for high prices, which in turn enabled investment banks to take out insurance policies (CDSs) against them. And since the rating agencies knew the banks wanted AAA ratings for bonds that should have been given 'junk bond' status, the agencies continued to give them the highest rating, since they were dependent on the Wall Street banks for their business.

In the end, just like the 2006 Audi you drove off the lot was of poor mechanical integrity and broke down just days after you dropped $20,000 on it, most of the bonds assembled and sold on to investors by Wall Street banks were themselves of very poor quality. The underlying assets, the sub-prime mortgages themselves, were made to American households who could not possibly pay them back, Americans whose incomes were so low that the monthly payment for the home loan often exceeded the income of the borrower himself.

Ultimately, when sub-prime mortgage borrowers began defaulting on their loans, the Wall Street investment banks that had assembled them into asset backed securities and the institutional investors who bought these bonds found themselves holding trillions of dollars worth of loans that were no longer being repaid. For the banks, however, things weren't all that bad, because just like the corrupt car salesman, they had taken out hundreds of billions of dollars in insurance on the bonds, which assured that when they finally went bad, the banks, which had passed on most of the bonds to investors, could simply collect the insurance payouts from the issuers of credit default swaps.

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Who were the insurance companies stupid enough to insure crappy bonds, you ask? You may have heard of AIG (American Insurance Group). This was the insurance company insuring most of the sub-prime mortgage backed bonds. When all the bonds started to go bad AIG quickly ran out of money as it paid the investment banks out the insurance they owed. When AIG ran out of cash, the US government stepped in and gave AIG $85 billion of taxpayer money in September of 2008, assuring that the Wall Street banks with insurance through AIG collected 100% of their insurance money.

Part 3: Show Me the Market Failure

So what makes this a 'market failure' in the economic sense of the term? Well, the existence of *imperfect information* in the automobile market led to an over-allocation of resources towards the market for used cars. Because the buyers were being duped by the sellers and the corrupt garage mechanics, demand for used cars was *too high* and the price they were being sold for was *too high.* With more perfect information, consumers would have demanded fewer cars and they would have been sold for a lower price.

With more perfect information in the financial markets, far fewer investors would have been willing to pay the prices they did for the bonds the Wall Street banks assembled from sub-prime mortgages. Far less credit would have been made available to low income American home buyers. Far fewer sub-prime mortgage loans would have been made, and fewer Americans would have purchased homes that they could not afford in the first place.

In addition, if the institutional investors who were ultimately stuck holding these bonds had known that the investment banks selling them were simultaneously buying insurance policies against them, the investors would have been much more wary about investing in them. Also, if the investors had known that the rating agencies giving the bonds AAA, investment grade ratings were essentially *following orders* from the investment banks, giving the bonds the high ratings the Wall Street bosses wanted them to get, then the investors would have been less willing to buy the bonds and less credit would have ended up in the hands of low-income American home buyers.

The market for financial services failed because *too many resources were allocated towards the provision of loans to low-income American households.* With more ***perfect information*** about the value of the underlying assets included in the bonds being sold by Wall Street banks (the sub-prime mortgages), and with the knowledge that the banks themselves were betting against the bonds they assembled and sold, far fewer investors would have been willing to buy the bonds and far less credit would have been made available to American home buyers.

A market failure exists anytime the free market produces at a level of output greater or lesser than that which is deemed socially optimal. Given the huge surplus of unsold homes in the United States right now, and the collapse of many institutional investors' portfolios on whose financial strength hundreds of millions of real people around the world depend for their very livelihoods, it can be safely argued that the ***imperfect information*** in the market for mortgage-backed securities (bonds) led to an over allocation of resources towards homes for low income Americans.

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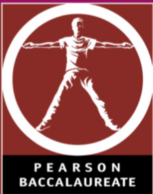

Questions:

1. Why is perfect information needed for a market to be perfectly efficient? How does *imperfect information* lead to a misallocation of resources in a market?
2. In the case of financial markets, what information, if known by those who invested in sub-prime mortgage-backed securities, would have helped correct the market failure and prevented the global financial crisis?
3. Another type of market failure we study in Microeconomics is *negative externalities*. Did the over-allocation of resources towards home loans for low income households create any *negative externalities* when the assets backed by the loans ultimately lost their value? What are some of the social costs of too many loans being made to low income borrowers in the early 2000's?
4. Some argue that the financial crisis was not a market failure, but a regulatory failure, meaning the government failed to notice the actions of Wall Street banks and stop them before they caused a financial crisis? To what extent should the government intervene in the functioning of free markets to assure that information asymmetry does not lead to similar crises in the future?
5. Suggest one regulation the government could have enacted to prevent the over-allocation of capital towards the sub-prime mortgage market?

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Worksheet 7.1

American Auto Makers insult the intelligence of high school Econ students

In 2008, the American automobile industry was in trouble. In the face of a nationwide recession, the 'big three' auto makers found sales falling and losses mounting. Ford Motor Company announced in December 2008 its ambitious plan to cut costs and restore its profitability as it appealed to Washington for a $25 billion 'low-interest bridge loan' (aka bailout). Read the section entitled **Salary cuts** and also **More hybrids...no more corporate jets** in this article.

So the CEOs of the three largest auto companies agreed to be exploited for one year by accepting a salary of one dollar. The combined savings from the salary cuts of the three companies' CEOs would equal roughly $6 million, or about 0.024% of the sum the companies were asking for from the government. Selling corporate jets during a recession when demand for such frivolous luxuries was at a record low would also do little to cut the costs of the incredibly inefficient US automakers.

As for any serious cost cutting plans, Ford had little to report. Real cost savings will only be achieved by the further closing of plants. With the economy in a deep recession and auto sales at their lowest in decades, the demand for new cars was just not there in late 2008. Ford and its American competitors would have to adjust their plant capacities to the realities of weakened market demand if they were to return to profitability.

Firms, as IB Economics students know, are profit maximizers. In fact, all companies are trying to make the same thing as all other companies, *profits.* When a firm experiences negative profits, or *losses*, as American auto makers were in 2008, it can do one of two things to restore profitability: 1) increase its revenues or 2) lower its costs. Since demand for new cars was so low, the revenue increasing option was just not there, so American auto makers were in a situation in which they had to reduce costs to return to profitability.

There are two main types of costs we study in microeconomics. Short-run and long-run costs. In the short-run, which in the case of the auto industry we can consider the few months before this article was written and since the financial crisis in the United States had begun, firms can do one thing to lower their costs: reduce the use of labor. Workers can be asked to take unpaid vacations, jobs can be eliminated, work hours can be cut back. In the short-run, plant size is fixed, meaning firms cannot add or eliminate capital and land resources. The only variable resource is labor. By reducing the number of employees over the past few years Ford had taken steps to lower its short-run costs of production.

Long-run costs must also be considered when firms are faced with negative profits. The long-run in the automobile industry is considered the period of time over which auto makers can either add new plant facilities or shut down existing facilities, lowering the costs of capital and land to firms. Long-run cost

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reductions had also been undertaken by Ford by December of 2008, including closing a number of plants over the past three years.

Clearly, Ford had made an effort to reduce short-run labor costs and long-run capital costs by eliminating some of its work force and closing some of its factories in recent years. In 2008, as the US had entered a recession, Ford's announcement that it would cut costs by paying its CEO one dollar and making him drive around the country in a hybrid car should be viewed as IB Econ students as a sorry attempt at returning the firm to a profitable situation.

Questions:

1. What is the 'variable resource' that firms can use less of in the short-run if cost reductions are needed?
2. In microeconomics, we sometimes refer to the long-run as the 'variable plant period'. Explain the meaning of this concept.
3. The law of diminishing marginal returns would indicate that if Ford were to close additional factories, it would almost certainly have to simultaneously lay off thousands of additional workers. What is the law of diminishing marginal returns and why does it require firms to lay off workers as plants are closed?
4. What is meant by 'diseconomies of scale'? If Ford and the other US auto makers were to close plants, how could this actually reduce their *average* costs of production? Refer to the concept of diseconomies of scale in your response.

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Worksheet 7.2

Paper Chain Factory Simulation

The law of diminishing returns is a basic microeconomic concept that explains how a firm's costs of production change in the short-run as it varies the amount of labor employed. As workers are added to a fixed amount of capital, the productivity of additional workers decreases beyond a certain point due to the lack of available capital.

To test the law of diminishing returns, it is possible to create a factory floor right in your own classroom. Follow the instructions below to determine whether the law applies to your own imaginary firm.

Introduction: Your classroom is about to turn into a factory that manufactures paper chains (to hold paper anchors for paper boats, of course!). A paper chain is made by taking two long, narrow strips of paper, folding one into a ring and stapling the ends together, then folding the other into a ring and connecting it to the first ring to make a chain. Two loops of paper stapled together make a chain. The longer your chain, the more productive your factory and its workers are. The goal of your paper chain factory, of course, is to make the longest chain possible in a fixed amount of time using a fixed amount of land and capital, with labor as your only variable resource. This is therefore an experiment to test the short-run law of diminishing marginal returns.

Resources:

1. Land resources: You will need one table or a couple of desks pushed together. This is your factory floor. Additionally, you will need a box of paper, preferably recycled or used paper. These are your land resources.
2. Capital resources: Every factory needs tools. The tools you'll have for this activity are two pairs of scissors and two staplers. Since this is a short-run simulation, the amount of land and capital cannot be varied, therefore you may NOT use more scissors and staplers as more workers join the production process.
3. Labor resources: These will consist of the members of your class. The simulation will start with just one worker, and in each successive round one additonal worker will be added until at least eight members of your class have joined the factory floor.

TIME: The time for each round of production is limited to one minute. Your teacher or a member of your class should be designated as time keeper.

Data Collection: Each student in the class should record the following down in a data table. If you have access to laptops, the data can be collected in Microsoft Excel or in Google Spreadsheets. This way you can create graphs of the data to assist with your analysis later on. Each student should record the following data during the simulation.

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# of Workers (QL)	Total Product (TP)	Marginal Product (=change in TP)	Average Product (TP/QL)

Conducting the simulation: When your land and capital resources are ready and your recorder and time keeper have been designated, you may begin the simulation.

1. In round one, only one student should come to the table. The timekeeper must start the clock and give the worker one minute to cut and staple as many links into one paper chain as he or she can. At the end of the minute the recorder must count the number of links in the chain, record it in the production table, and then take the chain and any links that were cut but not stapled aside in preparation for the next round.
2. In round two, a second worker should join the first and the two may work together for one minute to make as long a chain as they can. Again, the recorder will count the number of links in the chain at the end of one minute, record this under 'total product', then remove the chain and any unstapled links from the table.
3. In rounds three through eight, an additional worker is added in each round and the new production team is given exactly one minute to make as long a chain as they can. At the end of each round, the recorder must count the number of links and record this under 'total product'.
4. At the end of the eighth round the factory must close its doors and the simulation is over. Now the class as a whole should look at the total product data and together help the recorder calculate the marginal product and average product for each of the eight rounds.

Data analysis: With your productivity data tables complete, you may now plot your data for total, marginal and average product on a graph similar to those earlier in this chapter, with the quantity of labor on the x-axis and the firm's output on the y-axis. Using Microsoft Excel or Google Spreadsheets you can create a graph that should look something like the following

created using real data from Mr. Welker's class recorded in a Google Spreadsheet):

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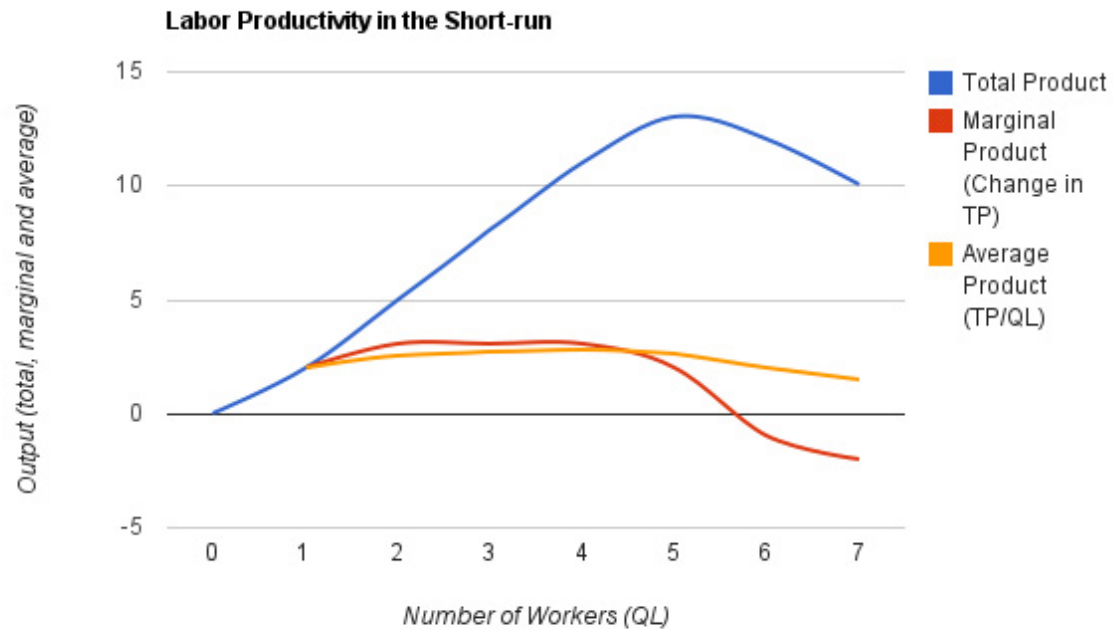
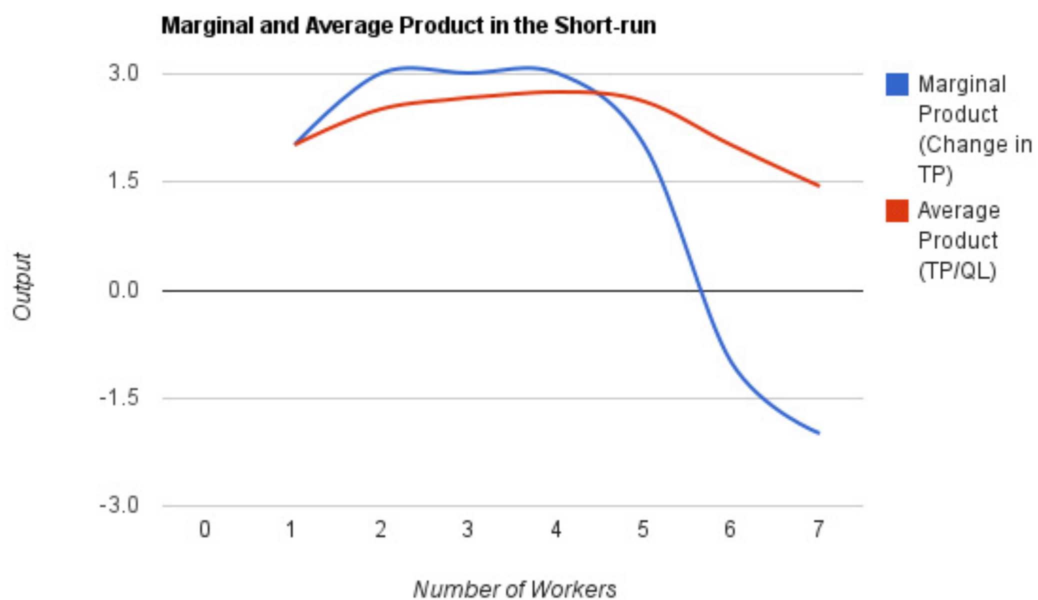


- As a class, analyze the relationships between total and marginal product.
- Determine whether your paper chain factory ever experienced increasing returns and whether it ever experienced diminishing returns.
- Discuss the reasons for the changes in total product during each round of production.



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- The graph above illustrates just marginal and average products. Discuss the meanings of marginal product and average product and determine how they changed as workers were added to your factory floor.
- What is the relationship between marginal product and average product?
- Decide whether the law of diminishing marginal returns applied to your factory. If so, why? If not, why not?

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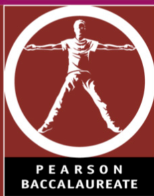

Worksheet 7.3

Costs of Production Presentation

The following presentation can be completed individually or in small groups, as a homework assignment or as an in-class activity.

Learning Objectives:

1. Distinguish between fixed and variable costs of production.
2. Understand how the law of diminishing returns affects the shape of a firm's short-run total costs and short-run average costs.
3. Understand the relationships between marginal cost and the average costs faced by a firm.
4. Distinguish between the short-run and the long-run and understand how economies of scale determines the shape of a firm's long-run ATC curve.
5. Evaluate the importance to a business firm of understanding its short-run and long-run costs of production.

Process: Work on your own or with a partner in the class to prepare a presentation on the theories behind and the relationships between a firm's short-run and long-run costs of production. Pairs will create a shared PowerPoint or Google Presentation and collaborate on creating a presentation demonstrating your understanding of the topics outlined below. The presentations that are created will be shared among group members, and edited in class and over the weekend.

The assignment: You will make a presentation on the difference between short-run and long-run costs of production.

Guidelines for presentation:

1. Presentations must be at least 10 slides long, but no more than 15.
2. Presentations must include definition, explanations, illustrations and examples (when possible) for the key concepts identified below.
3. Presentations must include graphs from the resources provided to illustrate concepts where necessary.
4. Presentation must use each group's own words. Copying and pasting text from the resources provided is not permitted.

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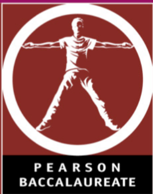

Short-run Key Concepts

- Short-run
- Total, average and marginal product
- Law of diminishing returns
- Short-run total costs
- Short-run marginal and average costs

Resources on Short-run Costs of Production:

- Chapter 7, page 152 - 160

Long-run Key Concepts

- Long-run
- Long-run Average Total Cost
- Economies of scale/Increasing returns to scale
- Minimum efficient scale
- Constant returns to scale
- Diseconomies of scale/Decreasing returns to scale

Resources on Long-run Costs of Production:

- Chapter 7 pages 161–163

Grading Presentation: Total – 30 marks

Area of assessment	High marks (7-10)	Medium marks (4-6)	Low marks (1-3)
Organization	Easy to read. Font size varies appropriately. Text is appropriate length. Presentation falls within the required length limits (10-15 slides).	Overall readability is difficult. Too much text. Too many different fonts. Presentation falls within the required length (10-15 slides).	Text is difficult to read. Too much text. Inappropriate fonts. Small font size. Presentation is either too short or too long.

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Graphs	All graphs are related to content. All graphs are appropriate size and good quality. Graphics are explained clearly and illustrate the concepts from the presentation.	Some of the graphs are unrelated to content. Too many graphics on one page. Some of the graphics distract from the text. Graphs are explained, but explanations are incomplete or unclear.	Most of the graphs are unrelated to content. Too many graphics on one page. Most of the graphs distract from the text. Explanations are incomplete and unclear.
Concepts	The economic concepts that were assigned have been completely and accurately incorporated into the presentation. Definitions, explanations, illustrations and examples fully reflect the team's understanding of the concepts.	The economic concepts assigned are all addressed in the presentation, but analysis is superficial and lacks original insight from the team members.	The economic concepts assigned are not all addressed in the presentation. One or more have been left out completely, and those that were addressed were explained or illustrated incorrectly.

Mark Bands:

27-30: A

23-26: B

19-22: C

15-18: D

0-15: F

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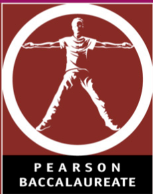
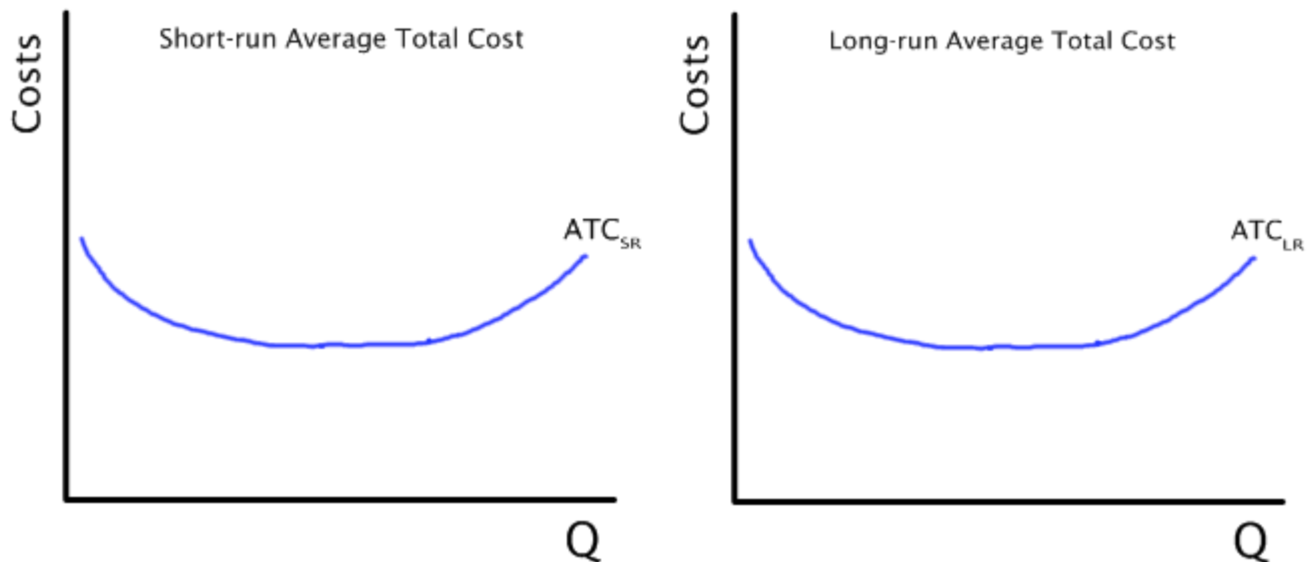


Worksheet 7.4

From Short to Long: Economies of scale and the Long-Run Average Total Cost Curve

Look closely at the two cost curves below:



The curve on the left is a firm's short-run average total cost curve. The one on the right represents a firm's long-run average total cost curve. See the difference?

I didn't think so. The shape of a typical firm's short-run and long-run ATC curves may in fact be identical. But there are some very important differences to understand about the short-run costs and long-run costs faced by firms.

The Short-Run: In microeconomics, we define the short-run as the period of time over which a firm's plant size is fixed. The only variable resource is labor and raw materials, meaning that when demand increases for a firm's product, the firm is able to increase employee work hours, hire more workers and use existing capital more intensively, but it does not have the time to acquire new capital or expand factory size. Likewise, when demand falls for a firm's products, it can cut back on work hours, fire workers, but cannot downsize its plants or factories.

The Long-Run: The long-run is defined as the *variable-plant period.* A firm can adjust the number of all its inputs: land, labor and capital. One way of thinking about the difference between the short-run and the long-run is imagining the long-run as several different short-runs spread out over a larger range of output. The graph below will illustrate this concept for you.

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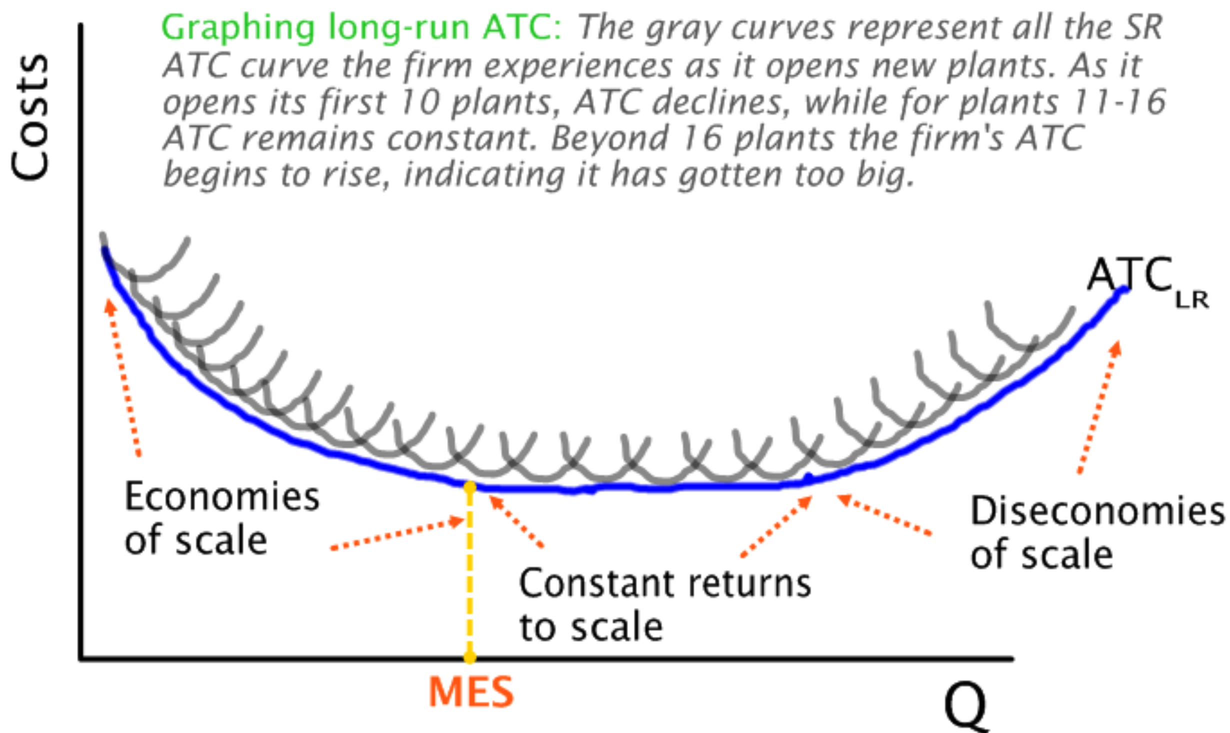

When we examine the long-run ATC more closely, it becomes apparent that there are in fact lots of little short-run ATC curves along the length of the long-run curve. Each of the gray lines in the graph above represent a short-run period in which this firm opened a new factories. There are three distinct phases of this firm's long-run ATC:

1. **Economies of Scale:** As this firm first begins to grow and open new factories, it becomes better and better at what it is producing, is able to get more output per unit of input, and thus experiences lower and lower average total costs as it grows larger. 'Scale' is a synonym for size. The bigger the firm's size, the lower its costs of production: this is called 'economies of scale'. My favorite illustration of the concept of economies of scale is to think about two shoe companies: Nike and Luigi's Fine Italian Shoes. Nike makes shoes in giant factories in Indonesia and ships them in giant containers to all corners of the world in shipments containing 100,000 shoes each. Luigi makes shoes in his basement in Milan, has two employees, and ships shoes one at a time to customers around Europe. Who will have a lower average total cost of producing shoes? Luigi or Nike? Clearly, Nike has economies of scale, Luigi does not. If Luigi were to grow his business, chances are his average total costs would decline.
2. **Constant Returns to Scale:** For the firm above, economies of scale assure that the larger it becomes, the lower its average total costs get. Efficiency in production improves whether through the lower price of inputs achieved through bulk-ordering, its ability to attract and hire skilled managers, the lower per unit cost of shipping larger quantities of products, or other such benefits of

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being big. At a certain point, however, the benefits of getting larger begin to diminish. This firm's tenth factory is its *minimum efficient scale:* the level of total output this firm must achieve to minimize its long-run average total cost. Beyond this level of production, as this firm continues to grow, it will see no further cost benefits; in other words, it will achieve *constant returns to scale (size)*.

3. **Diseconomies of Scale:** Why did the Mongol, the British and the Soviet empires collapse? Some historians argue it was because *they became too big for their own good*. When an organization (whether it's a country or a firm) becomes TOO big, it begins to experience inefficiencies. When a firm grows so large that it has factories in all corners of the world, a dozen levels of management, and countless opportunities for corruption and miscommunication, its efficiency decreases and its average total costs begin to increase. In the 1980's General Motor Company began to lose lots of business to smaller Japanese rivals. The outcome was the gigantic corporation broke up into smaller divisions, which then began to operate as different firms. For a while, GM remained competitive, partially because as a smaller firm, it was more efficient and able to compete on cost with its foreign rivals.

Diminishing Returns versus Economies of Scale: A common area of confusion for economics students is the difference between these two seemingly similar concepts. The difference lies in the two curves above, the short-run ATC and the long-run ATC.

1. The shape of short-run costs (MC, ATC and AVC) are determined by the law of diminishing returns. Since short-run costs are determined by the productivity of the variable resource in the short-run (labor), diminishing returns assures that at first, since a firm can expect to get MORE output for additional units of labor (as fixed capital is used more efficiently) ATC declines as output increases. But beyond a certain point, diminishing returns sets in and the additional output attributable to more units of the variable resource declines. Inevitably, a firm will experience higher and higher average costs as its output continues to grow, since it's only able to vary the amount of labor used, not capital.
2. The shape of long run ATC is determined by economies of scale (and diseconomies of scale). All resources are variable in the long-run, but lower costs cannot be guaranteed the larger a firm gets. At first, efficiency is improved as the firm grows, but at some point it becomes ‘too big for its own good’ and costs start to rise as productivity of resources (land, labor and capital) is inhibited due to the firm's massive size.

Questions:

- What does it mean that a firm can become ‘too big for its own good’? Can you think of any other organizations (economic or otherwise) that have gotten so big that they've failed?
- Why does your hometown have only one electricity company? Why aren't utility industries such as water, natural gas, and garbage collection more competitive? How does the concept of economies of scale lead to certain industries being ‘natural monopolies’?
- Why don't more companies make jumbo jets?

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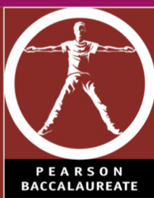

Worksheet 8.1

Review Lesson: Econ Concepts in 60 seconds on Perfect Competition

This assignment can be completed individually or in small groups as homework or as an in-class activity.

To review the characteristics and behavior of firms in perfectly competitive markets, you will join a small group and watch one of the four videos below. After watching and discussing one video with your group, you will be re-assigned to another group with students who watched a different video. You will then lead a short discussion on your original video with your new group.

With your first group – 15 minutes: As your group watches its assigned video, have your notes open in front of you and draw the graphs Mr. Clifford draws along with him. Pause the video where necessary to have time to draw graphs. Take notes while watching the video so you can teach it to another group. With your group, prepare a short discussion of the video's main points, including:

- What rule or lesson about Perfect Competition does the video focus on?
- What did you already know that this video reminded you of or reinforced your understanding of?
- What did this video introduce that was new to you?
- How were graphs used to teach the concepts?

With your second group – 20 minutes: For the second part of this assignment, there should be four new groups, each including one member of the four original groups.

- Each group member should lead a 2-3 minute discussion of the video he or she watched in the first group.
- Go over each of the discussion points from above.
- Answer any questions your new group members have about video you watched.

Group 1 – The Profit Maximization Rule – MR=MC

Group 2 – Perfect Competition in the short-run

Group 3 – Perfect Competition in the long-run

Group 4 – The Shut-Down Rule in Perfect Competition

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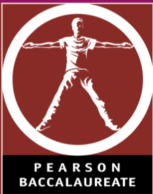
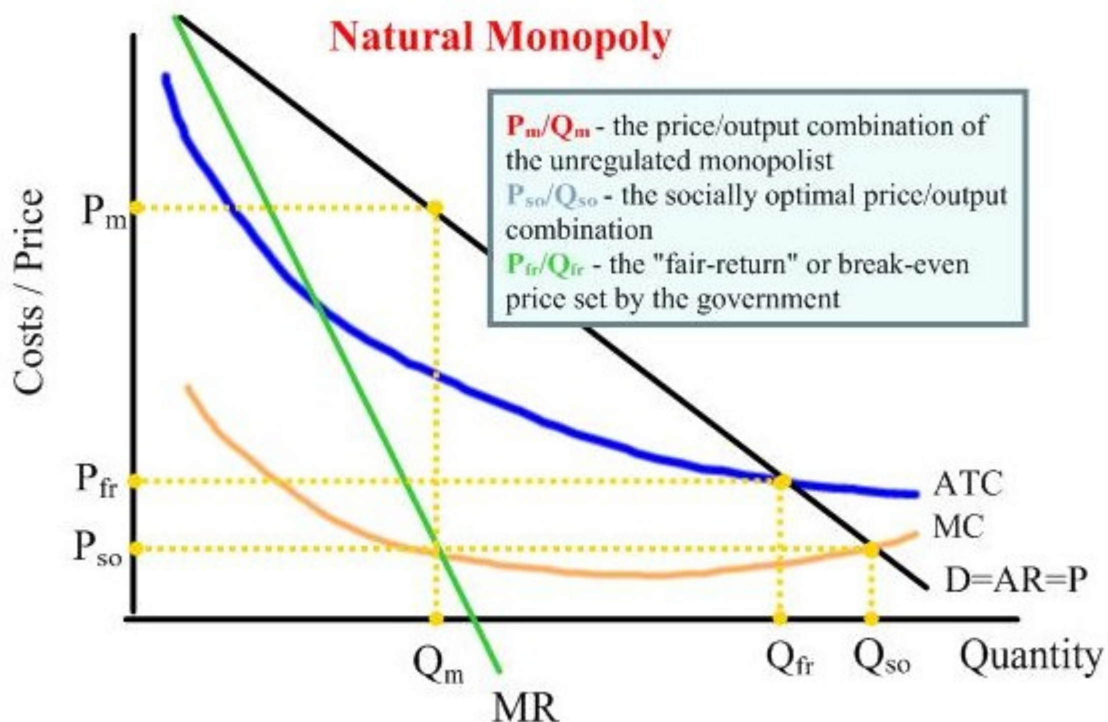


Worksheet 9.1

Monopoly prices, to regulate or not to regulate

The problem with monopolies is that a monopolistic firm, left to its own accord, will most likely choose to produce at an output level that is much lower and provide their product at a price that is much higher than would result from a purely competitive industry.



A monopolist will produce where its price is greater than its marginal cost, indicating an under-allocation of resources towards the product. By restricting output and raising its price, the monopolist is assured maximum profits, but at the cost to society of less overall consumer surplus or welfare.

Unfortunately, in some industries, because of the wide range of output over which economies of scale are experienced, it sometimes makes the most sense for only one firm to participate. Such markets are called **'natural monopolies'** and some examples are cable television, utilities, natural gas, and other industries that have large economies of scale.

Government regulators face a dilemma in dealing with natural monopolistic industries such as the electricity industry. A electricity company with a monopoly in a particular market will base its price and output decision on the profit maximization rule that all unregulated firms will produce at the level where their **marginal revenue is equal to their marginal cost**. The problem is, for a **monopolist its marginal revenue is less than the price** it has to charge, which means that at the profit maximizing

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level of output (where MR=MC), **marginal cost will be less than price**: evidence of **allocative inefficiency** (i.e. not enough electricity will be produced and the price will be too high for some consumers to afford).

Here arises the need for government regulation. A government concerned with getting the right amount of electricity to the right number of people (allocative efficiency) may choose to set a price ceiling for electricity at the level where the price equals the firm's marginal cost. This, however, will likely be below the firm's average total cost (remember, ATC declines over a WIDE RANGE of output), a scenario which would result in losses for the firm, and may lead it to shut down altogether. So what most governments have done in the past is set a price ceiling where the price is equal to the firm's average total cost, meaning the firm will 'break even', earning only a 'normal profit'; essentially just enough to keep the firm in business; this is known as the 'fair-return price'.

In this video, Economics teacher Jacob Clifford illustrates and explains this regulatory dilemma. Watch the video and see how he shows the effect of the two price control options on the firm's output and the price in the market.

This article examines the differences in the price of electricity in states which regulate their electricity prices and states that have adopted 'market' or unregulated pricing, in which firms are free to produce at the MR=MC level: read paragraphs three and four.

The idea of deregulation of electricity markets was that removing price ceilings would lead to greater economic profits for the firms, which would subsequently attract new firms into the market. More competitive markets should then drive prices down towards the socially-optimal price, benefiting consumers and producers by forcing them to be more productively efficient in order to compete. It appears, however, that higher prices have not, as hoped, led to lower prices: read paragraphs six, seven and sixteen from the article linked to above.

That $48 billion represents higher costs of production for other firms that require large inputs of energy in their own production, higher electricity bills for cash-strapped households, and greater profits and shareholder dividends for the powerful firms that provide the power. On the bright side, higher prices for electricity should lead to more careful and conservative use of power, reducing Americans' impact on global warming (since the vast majority of the country's power is generated using fossil fuels).

Here arises another question? Should we be opposed to higher profits for powerful electricity firms if their profits result in much needed energy conservation and a reduction in greenhouse gas emissions? An environmental economist might argue that if customers are to pay higher prices for their energy, it might as well be in the form of a carbon tax, which rather than increasing profits for a monopolistic firm would generate revenue for the government. In theory tax revenue could be used to subsidize or otherwise promote the development and use of 'green energies'.

Whether customers paying higher prices for traditionally under-priced electricity is a good or bad thing depends on your views of conservation. But whether higher profits for a powerful electricity company are more desirable than increased tax revenue for the government are beneficial for society or not seems clear. If we're paying higher prices, the resulting revenue is more likely to be put towards

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socially desirable uses if it's in the government's hands rather than in the pockets of shareholders of fossil fuel burning electricity monopolies.

Questions:

1. Why do governments regulate the prices in industries such as natural gas and electricity?
2. Why would a state government think that de-regulation of the electricity industry might eventually result in *lower* prices in the long-run?
3. How does economic theory support the view that a more competitive natural gas industry might lead to higher costs and therefore higher prices for consumers?
4. Give an example of a government policy that would increase efficiency in the market for natural gas, and one that would decrease efficiency in the market for natural gas. Draw a monopoly market diagram to illustrate the effects of both the policies you examined.

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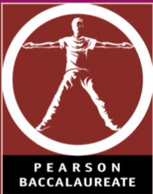
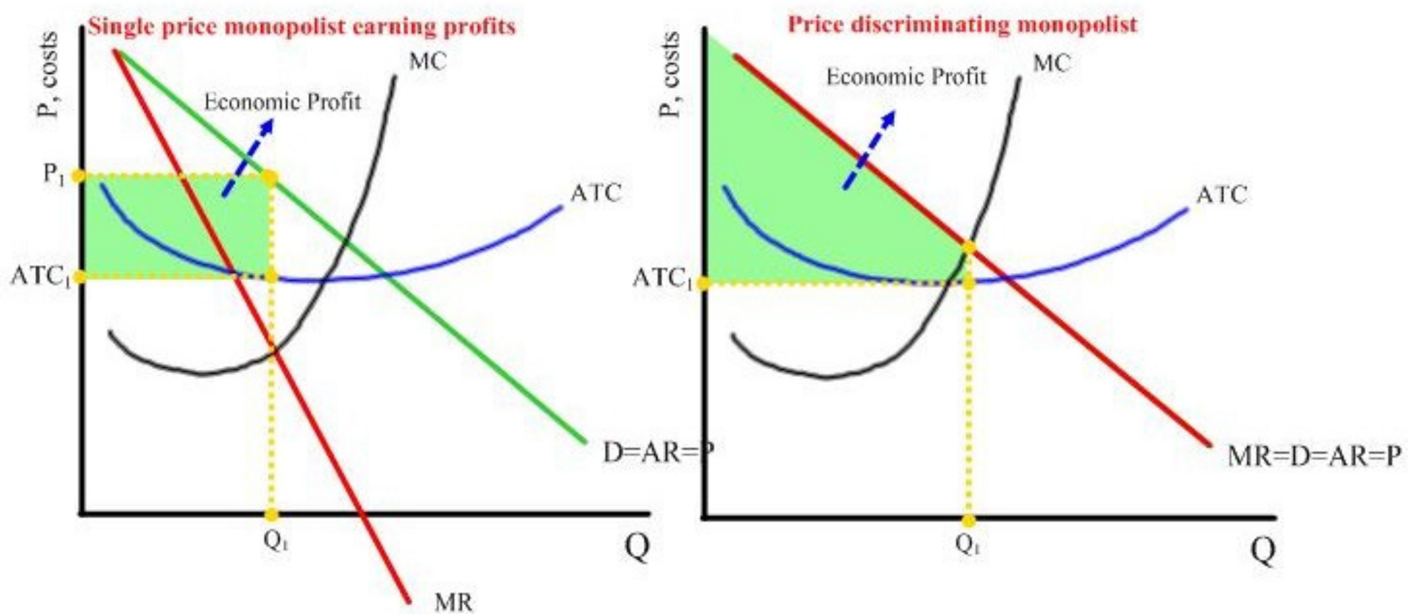


Worksheet 9.2

Monopoly prices, to regulate or not to regulate

This article gives a great introduction to and several examples of price discrimination among firms with market power. Read paragraphs two to five up to '...(small business, large business, home users)' then think about the questions that follow.

Graphical illustration of the effects of perfect price discrimination:



Questions:

1. Who suffers as a result of price discrimination?
2. Who benefits from price discrimination and how do they gain?
3. Have you been the 'victim' of price discrimination? When?
4. Have you benefited from price discrimination? How?
5. Is society as a whole better or worse off when a monopolist is able to price discriminate? Explain.

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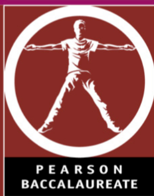

Worksheet 10.1

Bali's Oligopolistic Scuba Operators

Scuba diving is a popular activity on the Indonesian island of Bali. It should not come as a surprise that in a destination that attracts as many tourists as this beautiful island, local entrepreneurs will find many opportunities for revenues and profit. The market for scuba dive operators, depending on which town you are in, may demonstrate many of the characteristics of oligopolies.

In the town of Ahmed, for instance, in Bali's northeast corner, you will find there are around ten dive operators offering packages to the local dive spots (including one of Asia's most famous dives, the WWII-era USS Liberty wreck). Eco-Dive, one of the local operators, offers dives on the Liberty for $60 a day, which includes two dives and gear rental. After poking your head in some of the other local shops, you'd find that $60 is the average price for a day of diving among the ten operators in Ahmed.

Now drive three hours west along the coast of Bali to the town of Pemuteran, a remote and relatively undeveloped area on the northwest coast just across the straits from Java, also known for its great diving. Take a walk along Pemuteran's long, white sand beach and you will notice that there are only three dive operators to choose from! And guess what, they all charged between $95-$105 for a day of diving. That's around 60% more than the operators in Ahmed charge! The package offered for your $100 gets you two dives plus gear rental, exactly what was offered for only $60 in Ahmed.

Pemuteran's scuba operators are on the same island, employing dive masters with the same type of training, and renting equipment of identical quality to those in Ahmed. Yet they are charging a rate 60% higher than the dive operators three hour's drive to the east. Why might this be?

Questions:

1. What was the difference between the scuba diving markets in Ahmed and Pemuteran? Which market was more competitive? Which of the four market structures did the two markets most resemble: perfectly competitive, monopolistically competitive, oligopolistic or monopolistic?

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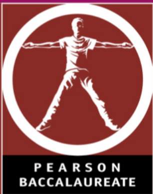

2. How were the dive operators in Pemuteran able to charge 60% more than the operators in Ahmed?
3. What do you think is keeping one of the three dive operators in Pemuteran from lowering their price to, say, $60 for a day of diving? How would the other two operators respond? Would this be good or bad for the dive operators of Pemuteran? Would it be good or bad for scuba divers?
4. Assuming that the cost of opening a dive operation was relatively low, and there were no government or other barriers to doing so in Pemuteran, what do you suspect will happen in the Scuba diving market as the tourism industry continues to develop in the remote town of Pemuteran? Explain.
5. Which village's dive operators do you think were more 'efficient' in their use of resources? Explain.
6. Using a kinked demand curve diagram, illustrate the market for dive operators in Pemuteran. Referencing your diagram, explain why the price for a day of diving in Pemuteran is likely to remain stable at around $100, and is unlikely to rise or fall in the short term.

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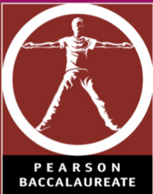

Worksheet 10.2

Understanding Oligopoly Behavior, a Game Theory Overview

Part 1:

What makes oligopolistic markets, which are characterized by a few large firms, so different from the other market structures we study in microeconomics? Unlike in more competitive markets in which firms are of much smaller size and one firm's behavior has little or no effect on its competitors, an oligopolist that decides to lower its prices, change its output, expand into a new market, offer new services, or adverstise, will have powerful and consequential effects on the profitability of its competitors. For this reason, firms in oligopolistic markets are always considering the behavior of their competitors when making their own economic decisions.

To understand the behavior of non-collusive oligopolists (*non-collusive meaning a few firms that do NOT cooperate on output and price*), economists have employed a mathematical tool called Game Theory. The assumption is that large firms in competition will behave similarly to individual players in a game such as poker. Firms, which are the 'players' will make 'moves' (referring to economic decisions such as whether or not to advertise, whether to offer discounts or certain services, make particular changes to their products, charge a high or low price, or any other of a number of economic actions) based on the predicted behavior of their competitors.

If a large firm competing with other large firms understands the various 'payoffs' (referring to the profits or losses that will result from a particular economic decision made by itself and its competitors) then it will be better able to make a rational, profit-maximizing (or loss minimizing) decision based on the likely actions of its competitors. The outcome of such a situation, or game, can be predicted using payoff matrixes. Below is an illustration of a game between two coffee shops competing in a small town.

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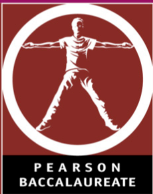

Game Theory and Oligopoly Behavior

Starbucks vs. San Francisco Coffee

The "players" are the firms: Two coffee shops, Starbucks and San Francisco Coffee.

The "moves" are the actions the firms can take: The coffee shops can either advertise around town or not advertise.

The "payoffs" are the profits the firms will earn: Advertising increases firms' costs, but can also increase revenues.

SF Coffee \ Starbucks	don't advertise	advertise
don't advertise	$15 $15	$10 $20
advertise	$20 $10	$12 $12

The equilibrium outcome of the game is that both firms will advertise. Even though both would be better off by not advertising, such an outcome is unstable since each firm would have an incentive to advertise if its competitor did not.
The outcome circled is known as the "Nash Equilibrium", or the outcome at which neither firm has anything to gain by changing only its own strategy unilaterally.

In the game above, both SF Coffee and Starbucks have what is called a *dominant strategy.* Regardless of what its competitor does, both companies would maximize their outcome by advertising. If SF coffee were to *not advertise,* Starbucks will earn more profits ($20 vs $10) by advertising. If SF coffee were to *advertise,* Starbucks will earn more profits ($12 vs $10) by advertising. The payoffs are the same given both options for SF Coffee. Since both firms will do best by advertising given the behavior of its competitor, both firms will advertise.

Clearly, the total profits earned are less when both firms advertise than if they both did NOT advertise, but such an outcome is *unstable* because the incentive for both firms would be to *advertise.* We say that *advertise/advertise* is a***Nash Equilibrium*** since neither firm has an incentive to vary its strategy at this point, since less profits will be earned by the firm that stops advertising.

As illustrated above, the tools of Game Theory, including the ‘payoff matrix’, can prove helpful to firms deciding how to respond to particular actions by their competitors in oligopolistic markets. Of course, in the real world there are often more than two firms in competition in a particular market, and the decisions that they must make include more than simply to advertise or not. Much more complicated, multi-player games with several possible ‘moves’ have also been developed and used to help make tough economic decisions a little easier in the world of competition.

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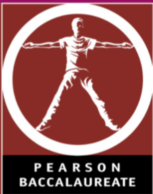

Game theory as a mathematical tool can be applied in realms beyond oligopoly behavior in Economics. In each of the videos below, Game Theory can be applied to predict the behavior of different 'players'. None of the videos portray a microeconomic scenario like the one above, but in each case a payoff matrix can be created and behavior can be predicted based on an analysis of the incentives given the player's possible behaviors.

Part 2:

Watch each of the videos below. For each one, create a payoff matrix showing the possible 'plays' and the possible 'payoffs' of the game portrayed in the video. Predict the outcome of each game based on your understanding of *incentives* and the assumption that humans act rationally and in their own self-interest.

'The Princess Bride' – Where's the poison?

'Golden Balls' – Split or steal

'Murder by Numbers' – Whoever talks first

Discussion Questions:

1. Why is oligopoly behavior more like a game of poker than the behavior of firms in more competitive markets?
2. What does it mean that firms in oligopolistic markets are 'interdependent' of one another?
3. Among the videos above, which games ended in the way that your payoff matrix and understanding of human behavior and rational decision making would have predicted?
4. How often did the equilibrium outcomes according to your analysis of the payoff matrices correspond with the socially optimal outcome (i.e. the one where total payoffs for all players are maximized or the total losses minimized)?

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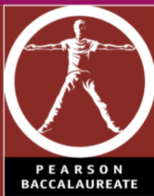

Worksheet 10.3

Creative Destruction: Google, Apple, Facebook and the future of competition in the market for our minds

Part 1 - Interview questions

In an interview with *The New Yorker,* Columbia University Law Professor Tim Wu, who coined the phrase 'net neutrality', shares his views on the 'cycles' of competition in the communications industry, from radio, telephone and television in the 20th century to the Internet and the 'mobile web' today.

The interview discusses many of the pros and cons of perfectly competitive markets (represented by the 'chaotic' period of any new communications technology) and imperfectly, more monopolistic industries (represented by the period later in the cycle of any communications technology when market power becomes concentrated among a few large firms).

Watch the interview and pause it along the way to think about some of the questions below.

Questions:

1. Why are new communications industries often characterized by 'chaos' in their early years? How did the internet industry reflect the perfectly competitive characteristics in its early days, or even 10 years ago?
2. How are consumers affected as communications industries go from 'chaos' to control under big companies like Apple and Google?
3. How does the behavior of firms like Google and Apple demonstrate the concept of *non-price competition?*
4. Would the technology industry be more efficient if it were more competitive?
5. Can you envision a world in which all of our online activities are done through one company, i.e. the 'Googlenet' or the 'Facebooknet' instead of the 'Internet'? Would that world be better or worse than what we have now? Why?
6. How is the communications industry today similar to the telephone industry 30 years ago? How is it different?
7. Tim Wu suggest that in the future there will be no internet. Discuss as a class what you envision as a possible successor to the internet.
8. If you had a time machine and could travel back to 1970, how would you try to explain to someone on the street how we communicate with one another in 2011. How would you have tried to explain the Internet and smart phones? Do you think someone from 1970 would believe your descriptions

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of products like Skype, like Google, like a phone you could watch movies on, like video chat, like 'Google goggles', etc…?

9. If someone from 40 years in the future arrived in 2011 and tried to explain to you how humans are communicating in 2050, do you think you would believe them?
10. Economist Joseph Schumpeter referred to capitalism as a system driven by a system of 'creative destruction'. How does the history of the communications industry demonstrate the concept of 'creative destruction'?

Part 2 - Imperfect competition in the news

Imperfect competition in the News: After watching the video and answering the questions go to Welker's Wikinomics Universe 'Econ News' section. Browse the headlines from the various news feeds and look for articles that you think may be about non-price competition between firms in a monopolistically competitive or an oligopolistic market.

When you've found one good article, read through it carefully and look for examples of non-price competition between the firms in the industry the article discusses. Write a one paragraph analysis of the article, indicating how it demonstrates competition between the firms. Turn this in to your teacher, or bring it to class to discuss with your classmates.

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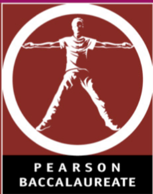


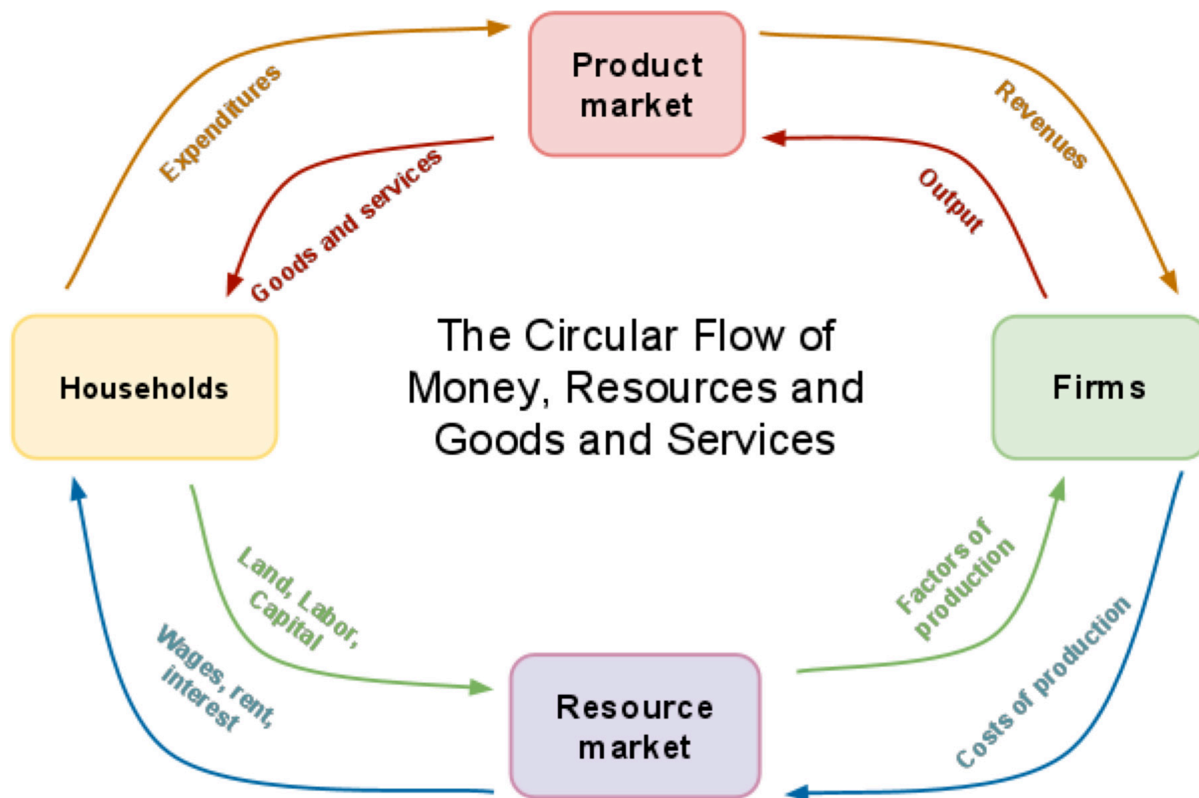
Worksheet 11.1

Circular Flow Simulation

Please note this is a class activity. Why not suggest it to your teacher?

Objective: To understand how productive resources, goods and services and money flow from households to firms and from firms to households through voluntary exchanges in a nation's product and resource markets.

Introduction: This lesson simulates the circular flow of resources, goods and services in a nation with a closed economy and no government sector. The simple circular flow model recreated through this simulation can be graphically represented as follows:



Instructions: The teacher will need to prepare several resources before beginning the simulation. These include:

1. **Money certificates:** These should be printed on green paper (perhaps four certificates per page), then cut into strips approximately the size of a dollar bill. I recommend four 'bills' from each sheet of paper. You'll need a paper cutter to quarter the photocopied sheets once they're printed. You

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should print at least 50 sheets of money, creating a total of 200 money certificates. On each certificate should be printed the words:

> *This certificate is a money payment for a good or service or a productive resource. In the resource market it represents the wages, interest, rent and profits households receive as income for their resources. In the product market it represents the expenditures households make for goods and services.*

2. **Resource certificates:** On a different color sheet of paper, make approximately 40 copies of a page with the three resources on it, separated vertically: 'Land, Labor, Capital'. Each resource should be on its own strip of paper. Make sure you create the same number of each of the three resources. For a class of 20 students, I would recommend making at least 50 copies of each resource (50 lands, 50 capitals, 50 labors, so you have a total of 150 resources in total).
3. **Product certificates:** On yet a different color sheet of paper, print and make approximately 15 copies of a page with the words 'Goods and Services' on it four times from top to bottom, so you have a total of 60 'Goods and Services' certificates. Again, use the paper cutter to quarter the pages so you have 60 strips with the words 'Goods and Services' on them.

For a class of 20 students, you must create 20 different paper clipped bundles ahead of time. 10 of your students will be **'firms'** and 10 will be **'households'**. Each of the households will receive a bundle of resource certificates. Each firm will receive a bundle of money certificates.

1. 10 Household bundles: Prepare 10 bundles of resources. Each bundle can contain a random combination of land, capital,and labor. It is important that some households receive far more productive resources at the start of the simulation than others. For example, you may give one student a bundle with 5 labors, 7 capitals and 8 lands. Another student may receive a bundle with 2 labors, 1 land and 1 capital. This may seem 'unfair', but will play an important role in your post-simulation debrief. *Be sure to use ALL of the resources you printed out, so you are sure there is an even number of land, capital, and labor.*
2. 10 Firm bundles: Each firm is run by an entrepreneur. The entrepreneurs who manage each firm start with a different quantity of financial capital. Divide your 200 money certificates into 10 different bundles, some containing larger amounts of money than others. The 'average' entrepreneur will have 20 money certificates to start, but be sure to give some firms far more than this and other firms far less.

The simulation: For the simulation, you will need a large open space. I recommend going outside where there are some trees you can tape signs to, or in a gym or a classroom with the desks moved to the center of the room.

- Begin by asking students 'Who are the two 'stakeholders' in a nation's economy portrayed in the circular flow model?' Once they've identified 'Firms' and 'Households', have a volunteer tape two signs on walls opposite from one another in your teaching area.

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- Next ask students to identify what it is that firms demand from households, and what it is that households demand from firms. Once they've identified 'Resources' and 'Products', have a volunteer tape the signs for 'Resource Market' and 'Product Market' opposite each other in your area. You now have four signs taped to the wall: 'Households' and 'Firms' are across from one another, and 'Resource Market' and 'Product Market' are across from one another.
- Next assign roles: Give each student a letter, either and 'H' or an 'F'. Half the class will become Households and will re-group at their sign, the other half of the class will be come Firms and meet at their sign. Explain to the Firms that they are entrepreneurs who want to start a business that will produce a good or service. As entrepreneurs, they are putting their own creative ideas towards a business venture, but must acquire land, capital and labor in order to begin producing their good or service.
- Ask the Households what they want, and where they will get it. They'll say 'Products' and they'll get them in the 'Product Market'. Ask firms what they want and where they'll get them. They should say 'Resources' and they'll get them in the 'Resource Market'.
- Next discuss the motives of firms and households. The entrepreneurs and their firms are seeking to maximize profits in the Product Market, which they will do by minimizing their costs in the Resource Market. Therefore firms must try to acquire the land, labor and capital at the lowest cost possible and then sell their goods and services for the highest price possible. Households are seeking to maximize their incomes in the resource market in order to maximize their consumption of goods and services in the product market. Therefore households should try to sell their resources for the highest price possible and buy their products at the lowest price possible.
- Ask the students: 'Now we're ready to begin our circular flow, but something is missing. What is it?'. They will know right away that 'MONEY' is missing. At this time, distribute the different sized bundles of money to the entrepreneurs. **Make each entrepreneur count his or her money so it knows how much it started with. This way each firm will know whether it earns a profit or a loss during the simulation.**

Time to FLOW! First comes the RESOURCE MARKET. In order to produce one product, business owners must acquire three resources: one land, one capital and one labor. Make sure they know that they must have one of each to produce one good or service, so that firms do not go out an buy nothing but labor or nothing but capital.

- The firms and the households must now meet in the resource market.
- Give the firms five minutes to bargain for and acquire as many resources as they can from household with their limited financial capital.
- Encourage firms to 'shop around' until they find a household willing to sell its resources for the lowest cost, or until households find a firm offering the highest income.
- Once a firm runs out of money, have the entrepreneur come to the 'FACTORY' (this is you, the teacher) where the firm will exchange the resources it acquired in the resource market for 'Goods

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and Services' certificates. Remember, one product (G&S certificate) costs three resource certificate, one of each of Land, Labor and Capital.

- After 5 minutes the resource market is closed and firms must report to the teacher's 'factory' to turn their newly acquired resources into Goods and Services. Give each entrepreneur one 'G&S certificate' for each bundle of land, labor and capital the entrepreneur acquired in the resource market. Households should return to their sign and count their money incomes and drool in anticipation as the firms produce their goods and services. Any resources unsold by households or unused by firms must be put aside, these may not be exchanged in the product market.

Time for the PRODUCT MARKET.

- Remind the households what their motive is in the product market: to acquire the MOST goods and services possible, therefore spend all their money but try to get the lowest price possible.
- Remind firms what their motive is. EARN A PROFIT! To do this they must now sell their products at the highest price possible.
- Give the students five minutes to buy and sell goods and services. Encourage the households to 'shop around' for bargains. Observe what prices products are selling for between different buyers and sellers.
- At the end of five minutes, the product market is closed. Send firms back to their sign and households back to their sign.

Analyzing the results:

- First ask the firms to count their earnings. Determine which firms earned profits and which firms earned losses.
- Determine how many resourced went unsold in the resource market or were bought by firms and then were unable to be used to produce goods and services.
- Determine how many goods and services went unsold in the product market. If all goods and services were sold, then determine how much money households had left over and were unable to spend.

Simulation debrief – Economic concepts to discuss: The following are just some of the economic concepts that you can discuss following your circular flow simulation. There may be others, but these are some of the most interesting and important.

- **The Circular Flow:** Ask students what, exactly, was 'flowing' in the circular flow.
  - *Resources* flowed from households to firms, were turned into goods and services, which then flowed from firms to households.
  - *Money* flowed in the opposite direction; first from households to firms in the form of Wages, Interest, Rent and Profit (the income payments for the four resources households owned), then

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from households to firms in the form of expenditures on goods and services, which translate to revenues from firms.

- **Efficiency and the PPC:** Were there resources that households had in the beginning but were unable to sell in the resource market or resources that firms bought but were unable to use? The existence of unused resources is evidence that our 'economy' was producing below its PPC.
  - Discuss with the class how the 'unemployed or underemployed resources' represent an 'excess supply' of productive capacity in the economy. The existence of unused resources is evidence that the price in the resource market was too high! If the price had been lower, then firms would have demanded a greater quantity of resources and this 'excess supply' would have been eliminated.
  - The unused resources represent the inefficiency of the nation's economy. If the market had been more efficient, then more resources would have been employed by firms and more goods and services could have been produced, meaning the economy would have been producing closer to its PPC.
  - Households with unemployed resources represent unemployment in the economy. There were mismatches in the resource market between firms and households, and the prevailing income level was too high, resulting in an excess supply of resources, i.e. a*surplus of land, labor and capital*.
- **Equilibrium price in the product market:** It is possible that following the product market round, some households will have money left to spend yet firms will be sold out of goods and services. This is evidence that the price goods were going for was too low.
  - If households were willing and able to buy, but there was not enough product to sell, then we had excess demand in the product market. The quantity demanded exceeded the quantity supplied.
  - The price in the product market was too low. A price below equilibrium leads to shortages. If firms had known there would be households willing to buy, then they would have charged a higher price and the shortage would have been eliminated.
- **Inequalities in the distribution of income:** Ask students why some households ended up with more goods and services in the end than others? Also, why did some firms end up with greater revenues than others?
  - Some households had higher incomes and thus enjoyed greater levels of consumption because *they were endowed with higher quality and a greater quantity of resources to begin with*. This is representative of the real world in which not all households have the same education levels, own the same amount of land or have the same amount of financial capital as others. Those with the greatest quality and quantity of resources earn higher incomes in the form of wages, rent and interest and therefore enjoy a higher level of consumption.
  - Some firms ended up with higher revenues than others, which is probably because they started with greater financial capital. The entrepreneurs with access to more financial capital when starting their business were able to produce more products and earn higher revenues. But an

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entrepreneur's having access to more money in the beginning did not guarantee he or she would earn profits! It's likely that even the smallest firms were able to earn profits, if they were good at negotiating their costs down and their prices up.

- **Competition and 'creative destruction':** Some firms will make losses while others make profits.
    - Firms that earn big losses will be forced to shut down or become smaller, because they'll be unable to buy as many resources nor produce as much output in the next round of the circular flow.
    - Firms that earn larger profits will be able to expand and grow since they can reinvest their profits into more inputs and greater output in the future.
    - Competition forces firms to be as efficient as possible. Only firms that produce in the *lowest cost manner* can survive in a market economy. This is good because it assures that resources will not be wasted and output will be maximized as firms pursue their ultimate motive of profit maximization. I call this *Economic Darwinism*: 'survival of the most efficient', a key characteristic of market economies.

Other possible questions for discussion: The following questions can be distributed to students following the simulation and assigned as a reflection for the next class period, or put on the board and discussed as a class.

1. What, exactly, 'flows' in the circular flow?
2. How is money spent by firms in one market end up being earned by firms in the other market?
3. What are the objectives of firms and households in a market economy?
4. Why did some households end up with more goods and services than others? Why did some firms end up with higher revenues or profits than others?
5. What role does self-interest play in a market economy?
6. What role does money play in the a market economy?
7. What would happen to the prices of resources and products if in the next round the amount of money firms started with doubled? What would happen if the amount of money were reduced by half?

Final thoughts: I have done this circular flow activity countless times with IB Econ students. Over the years it has evolved each time I've done it. I recommend you try it with your students and make small changes where you see they're needed. Throughout the IB course, however, I always find myself re-visiting our circular flow simulation in lectures, and students always recall immediately what I am referring to since they themselves were the households and firms engaging in voluntary exchanges motivated by their own pursuit of self-interest.

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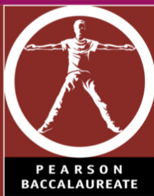

Worksheet 12.1

The Big 'C' – America's Crisis of Confidence and the Great Recession

In 2009 US President Barack Obama and the US Congress passed the American Recovery and Reinvestment Act (ARRA). Over the years that followed, debate raged over the degree to which the stimulus plan was successful or not. Supporters of the program claimed that it succeeded, arguing that the economy would be in much worse shape if no stimulus had been introduced at all. Some supporters argued that the ARRA stimulus was not sufficient for a full economic recovery and that more direct government spending was necessary.

Economists on the other side argued that the stimulus package did little for the economy except to delay the inevitable, self correcting forces of the economy needed to pave the road back to recovery. Some actually claimed that the US was in a worse situation two years later due to the massive increase in government debt resulting from the stimulus.

So the question is, is the US better off as an economy because the stimulus package was introduced? With US growth still sluggish and unemployment at 9.5%, many people have begun to question the success of the ARRA. Again, some say the $784 billion was insufficient while others say less regulation and more tax cuts should have been utilized.

In a 2010 Washington Post article, Neil Irwin argued that the obstacles towards economic growth may not be solved by more stimulus, lower interest rates or tax cuts for corporations. The problem, he claims, is not a lack of funds for investment, but in the uncertainty businesses have in future conditions. Read the first four paragraphs.

With consumers choosing to save or pay off their debts now rather than spend, many businesses find it in their interest to hold off on investments into new capital until consumers begin spending again. With no planned investment and no incentive to hire workers, unemployment stays high and economic growth remains stagnant. With inflation rates low and economists predicting deflation, it makes more sense to hold onto money as it is not losing its value.

So is there a solution? In this situation, expansionary monetary policy through lower interest rates will not have the desired effect as demand for loanable funds is low. As stated in the article: on page 2 read from 'For large companies such as Illinois Tool Works...' to '..."But what am I going to do with it?"'

Other executives claim that an increase in government spending would only provide a temporary fix but have no effect on long term consumer spending. On page 3 of the article read from 'David Speer is chief executive...' to '...growth in a sustainable way, not another Band-Aid.'

Another solution would be for the government to implement supply side measures such as less market regulation and lower corporate taxes. Again, without the much needed consumer spending and

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confidence, its difficult to say whether or not this will materialize into increased investment and employment.

The rest of the Washington Post article can be read here. Once you've read the article, answer discuss the questions below and share your thoughts in a comment on this post.

Questions:

1. Why is consumer spending and confidence so important for businesses?
2. What role does business investment into capital play in the economy and why is it so important in leading the economy towards recovery?
3. Is there any benefit in the economy for consumers to save and pay off their debts now? Is this a rational decision given the current economic conditions?
4. If fiscal and monetary policies along with lower taxes for corporations are not the answer, then what is? What other possibilities are available for the government to implement?

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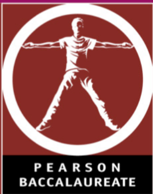


Worksheet 12.2

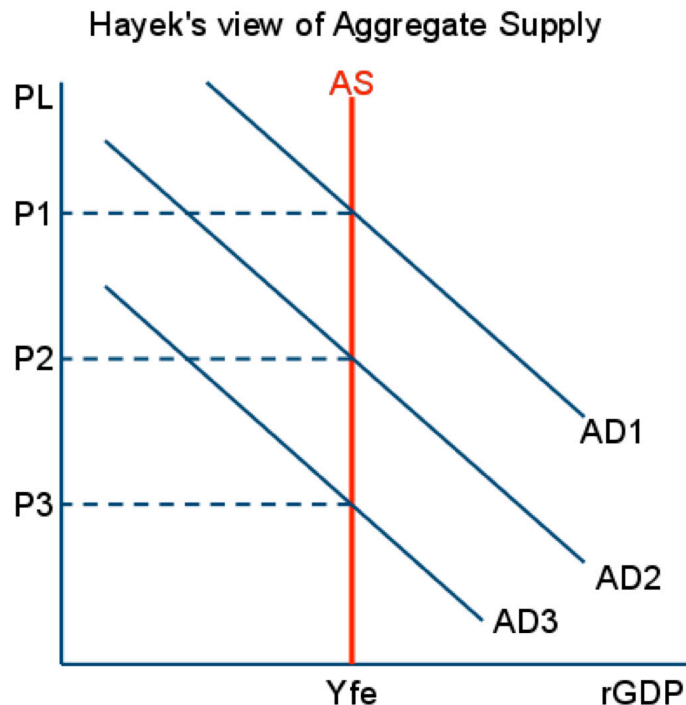
The Battle of Ideas: Hayek versus Keynes on Aggregate Supply

Introduction: The two models below represent two very different views of a nation's aggregate supply curve. The theories behind the two models represent the ideas about the macroeconomy of two schools of Economic thought, the 'demand-side' school, advocated by John Maynard Keynes and the 'neo-classical, supply-side school', advocated by Friedrich von Hayek.

Instructions: The documentary film, 'Commanding Heights - the Battle for Ideas' introduces some of Keynes' and Hayek's theories about the role a government should play in the management of a nation's economy. Before completing the activity below, watch the video up to 38:30. The entire video can be viewed here.

Questions: Once you've watched the first 38 minutes of 'Commanding Heights - the Battle for Ideas', study the different graphs below and answer the questions that follow each graph.

Figure 1: the neo-classical AD/AS model:



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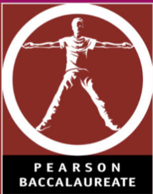
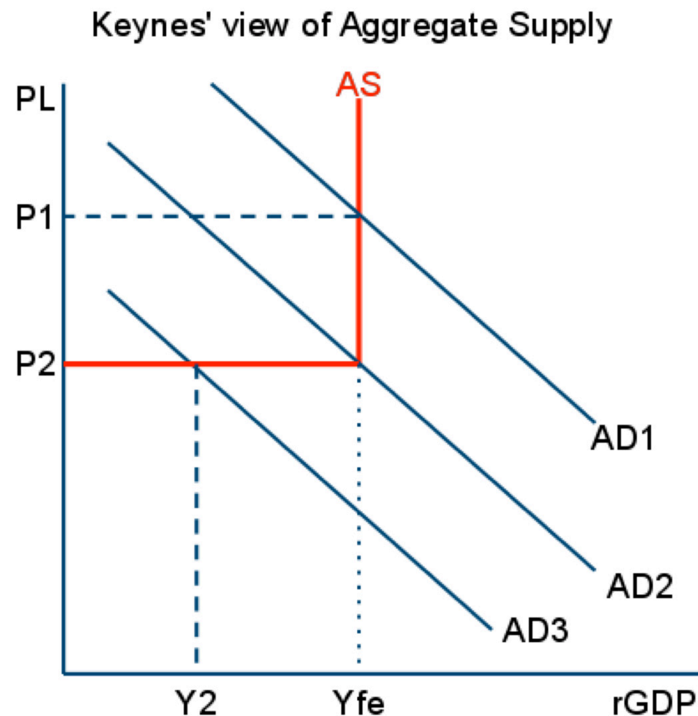


1. Why does the 'neo-classical' aggregate supply curve always lead to an equilibrium level of national output equal to the full-employment level of real GDP?
2. The vertical AS curve above is sometimes referred to as the 'flexible-wage and flexible-price' model of the macroeconomy. Why must wages and prices be perfectly flexible for this model to be an accurate representation of a nation's economy.
3. Hayek was an advocate for free markets, he felt that government intervention in a nation's economy would only interfere and disrupt the efficient allocation of resources. How does the model above reflect his belief that governments cannot improve a nation's level of output beyond what the free market is able to achieve?
4. Do you believe that the neo-classical model of aggregate supply is representative of the real world? Why or why not? What evidence is there from recent history that the model is or is not accurate?

Figure 2: The Keynesian AD/AS model



1. Based on the model above, which level of aggregate demand corresponds with the macroeconomic goals of 'full-employment and stable prices'?

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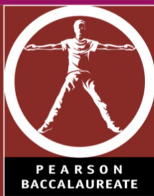
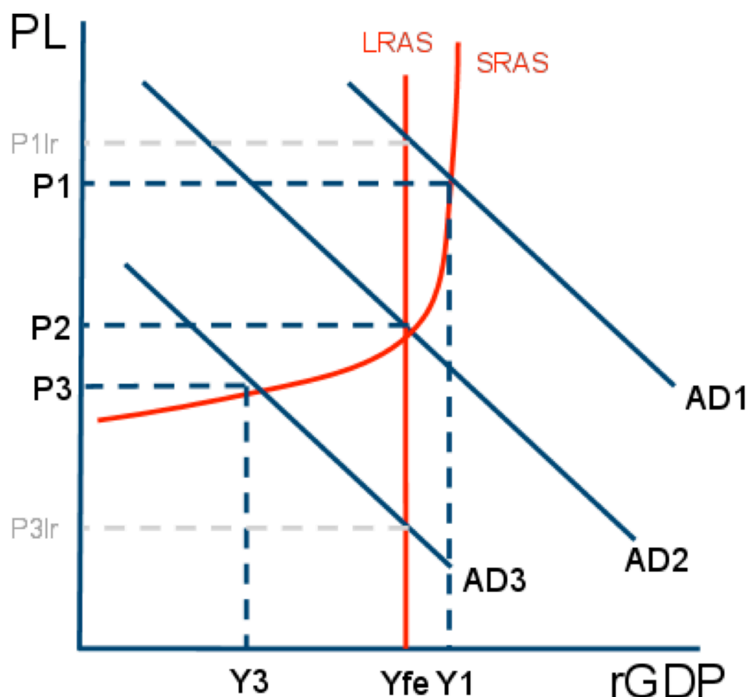


2. Changes in which factors could cause aggregate demand to shift from AD2 to AD3? If AD falls to AD3, what happens to the price level in the economy? What happens to the level of output of goods and services? What happens to employment and unemployment?
3. Sometimes the Keynesian AS model is known as the 'sticky-wage and sticky-price model.' How does the model reflect the idea that wages are downwardly inflexible, in other words, will not fall even if demand for goods and services fall? For what reasons might wages in an economy be downwardly inflexible (in other words, not fall even as total demand in the economy falls)?
4. How realistic is the Keynsian model of aggregate supply in the real world?
   a. Can you point to any evidence from the last few years that it might be correct (in other words, that a fall in AD will lead to decrease in national output)? Find data on the GDP's of two Western European countries from 2008 and 2009 to support your findings.
   b. Can you point to any evidence from the last few years that the model might be flawed (in other words, that a fall in AD actually does lead to a fall in the price level)? Find data on inflation in the same two Western European countries to examine whether or not wages and prices are completely inflexible downwards as the model suggests.

Figure 3: The IB Economics AD/AS model



The diagram above represents a compromise between the neo-classical AD/AS model and the Keynesian AD/AS model. This graph is the one we will use throughout the IB and AP Economics

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course when illustrating a nation's macroeconomy. Answer the questions that follow about the diagram.

1. How does the above model represent a compromise between Keynes' and the neo-classical view of aggregate supply?
2. Why are there two aggregate supply curves? What is the difference between the two?
3. What happens in the SHORT-RUN when AD falls from AD2 to AD3 to the price level and output? What will happen in the long-run? In macroeconomics, the short-run is known as the 'fixed-wage period' and the long-run the 'flexible-wage period'. The main factor that can shift the SRAS curve is the level of wages in the economy (in other words, a change in wages will shift the SRAS). How does this help explain the adjustment from the short-run equilibrium and the long-run equilibrium following a fall in AD?
4. What happens in the SHORT-RUN when AD increases from AD2 to AD1? What will happen in the long-run? How does the long-run flexibility of wages explain why output always seems to return to its full employment level of output in the long-run?
5. What does the model above indicate about the possible need for government intervention to help an economy achieve its macroeconomic goals of full-employment and price level stability in the short-run?

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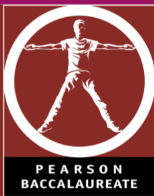
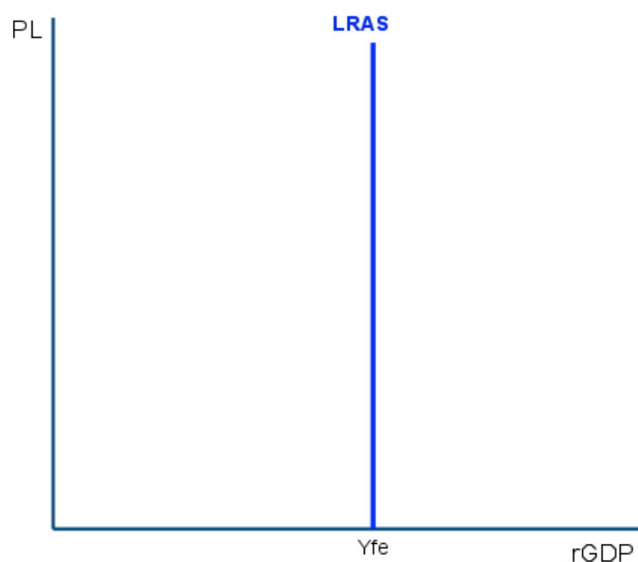


Worksheet 12.3

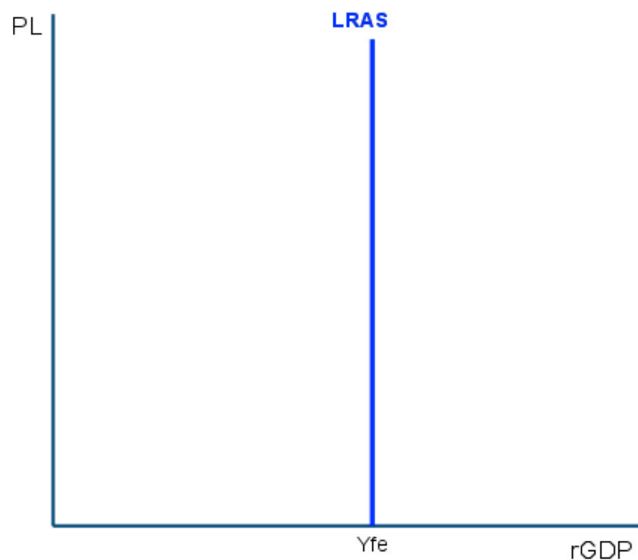
AD/AS Headlines Activity

This worksheet is all about diagram practice. There's so much analysis tied up with economics diagrams that it's critical to be practicing them as if they were your ABCs or multiplication tables. In this exercise, you are given several plausible headlines from the news. Your task is to create an appropriate diagram for each. Be sure to use the appropriate notation and to demonstrate the change caused by the event.

1. *'Decades of Mexican immigration transforms the capacity United States economy.'*



2. *'Croatian house price drop for the third straight year.'*



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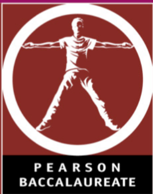
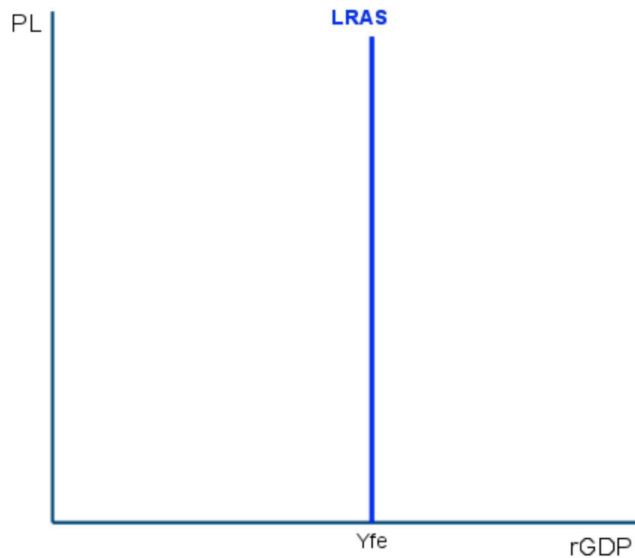
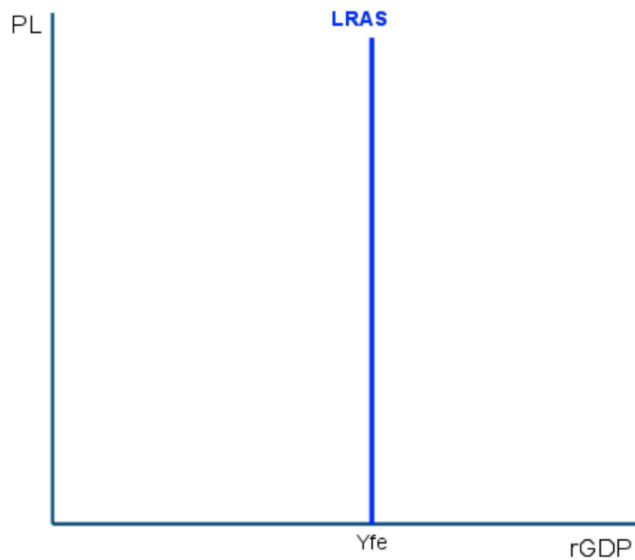


3. *China's trading partner Japan endures another 3 months of excellent GDP growth.*



4. *'Colombia's business leaders have low profit expectations for coming year.'*



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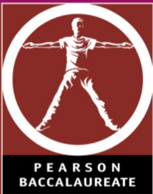
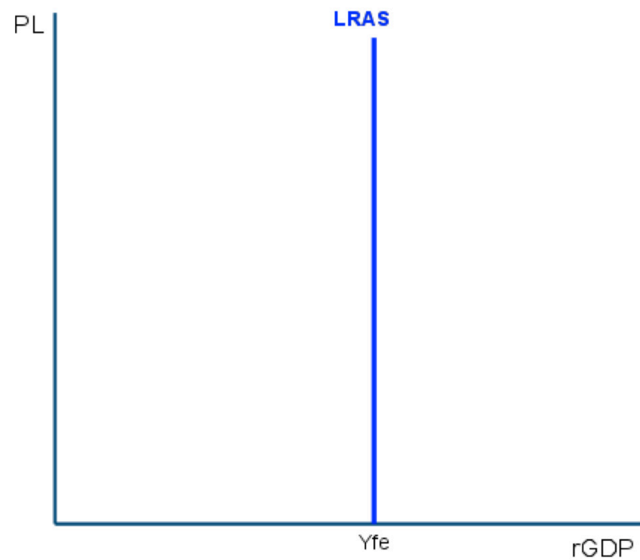
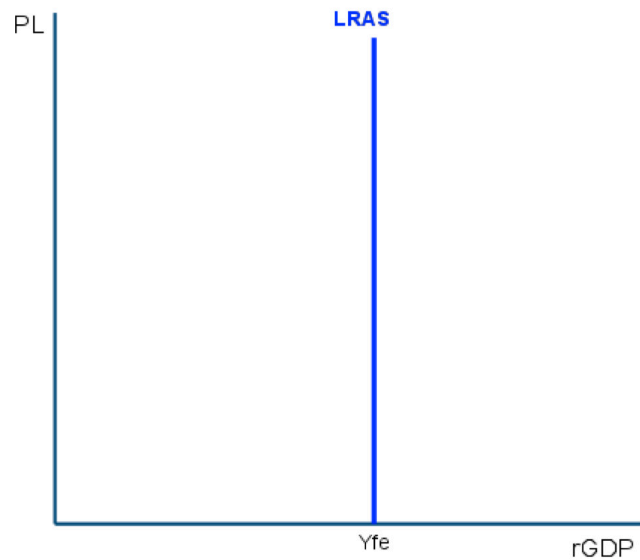


5. *'Sustained investment in trade infrastructure has paid off for Singapore.'*



6. *'EU Times: New political crisis in the Middle East causes oil prices to soar.'*



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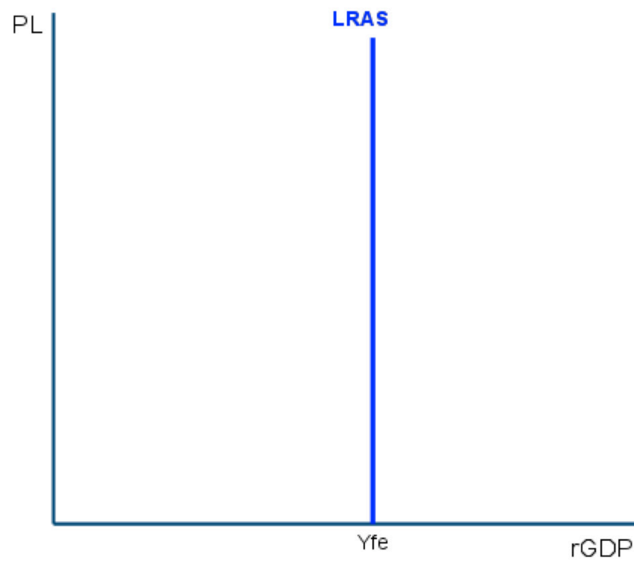
7. *'China's loose monetary policy seen to influence big spending by consumers this New Year.'*



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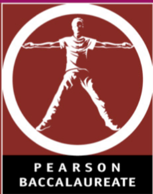


Worksheet 13.1

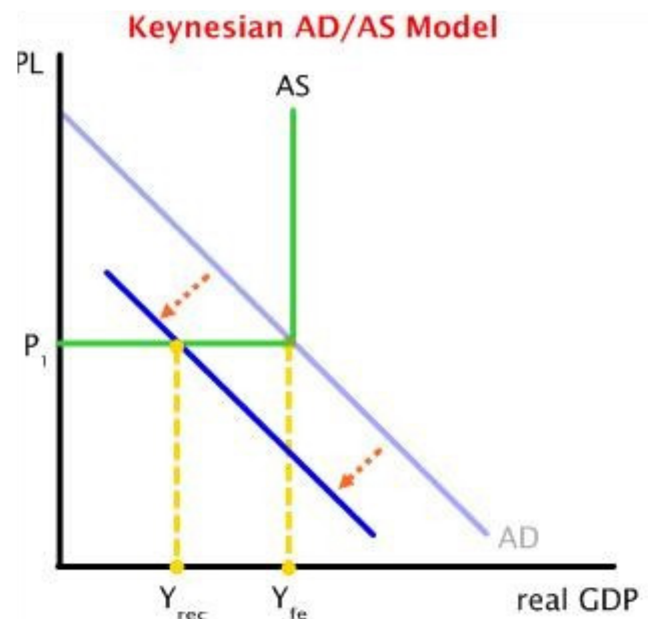
What Will Become of the Chinese Worker?

The days of full-employment in China appear to be over. For decades under communism, the unemployment rate in China stood at an official level of 0%. Of course, being guaranteed work by a state-owned farm or steel factory didn't exactly mean that all adult Chinese were 'working', rather that they were 'employed'. The 'iron rice bowl' of communism disappeared in the decades following Mao's death during the period of 'reform and opening' begun under Deng Xiaoping in 1979.

Upon its opening to the world markets, China embarked on three decades of transition from command to market economic principles, characterized by near double digit growth. The demand for workers in its export sector, centered mostly in the Eastern cities from Shenzhen in the south to Shanghai and Beijing in the north, led to the largest rural to urban migration in human history, as nearly 300 million Chinese left the countryside to seek employment in the country's massive export sector.

Today, the very engine of China's growth is sputtering to a halt. The demand for Chinese exports is falling as unemployment rises and incomes fall among its trading partners in Asia and the West. Subsequently, the flow of labor from the countryside to the city has reversed, and for the first time in its long history, China is experiencing urban to rural migration.

Millions of rural migrant workers lost their jobs in the cities of eastern China during the global economic slowdown of 2008-2009, leading to a reverse migration of unemployed to their homes in China's countryside. Unrest among the newly unemployed workers caused concern for the authoritarian government of China.



Prices and wages are inflexible downwards. Weak AD leads to severe recession and no self-correction. Active role for government needed to restore full-employment through fiscal and monetary stimulus.

What does the new demographic trend mean for the world's most populous nation? Bad news, most likely. The hope of work in the city dwindles with the demand for Chinese products, but the agricultural sector, which is the main source of employment in the countryside, shows little promise of employment for the millions returning home.

China's farming industry has become less, not more, labor intensive over the decades since 'reform and opening'. The acquisition of capital has supplanted the need for human labor in rural farming, which is one of the 'push factors' that led

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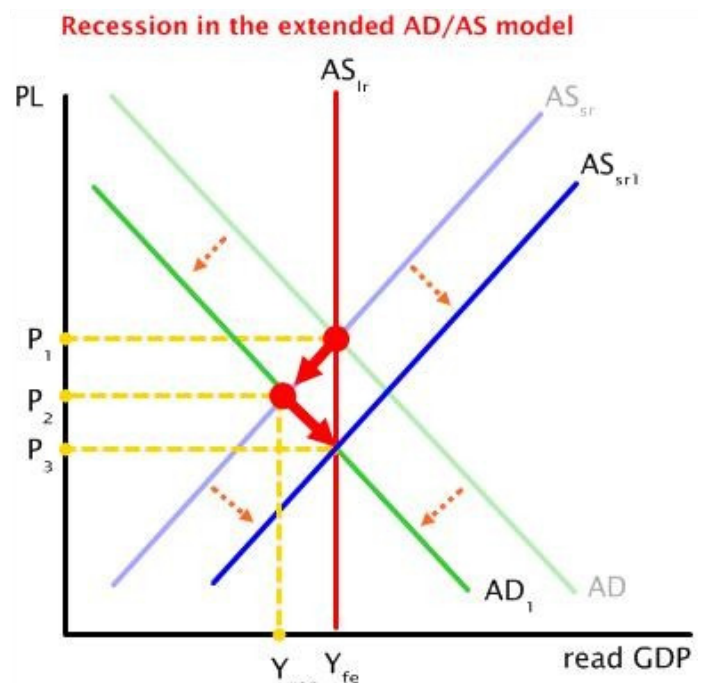
to the massive internal migrations to cities in the first place. The 'pull factor' leading the masses to the coastal metropolisis, of course, was employment in a factory producing goods to be exported to foreign markets.

Today China's workers find themselves in the worst possible situation. There is now a 'push factor' of 15-20% unemployment, combined with the high cost of living in the cities. Likewise, the struggle of living as an outsider in a big city creates an incentive for Chinese workers to return to their familial homes in the countryside. However, once they've returned home, they find the same lack of opportunity that caused them to leave in the first place. Urban unemployment may shrink as a result of the reverse migration of workers, but rural unemployment will rise.

For the first time in decades, China is faced with a problem that only a year ago (when growth reached 11%) it seemed unlikely it would ever have to ever face: catastrophic unemployment. Economic theory would suggest, therefore, that China is facing a situation where falling demand for its output has led to rising unemployment due to the downwardly inflexible nature of workers' wages. According to the Keynesian AD/AS model above, if demand for Chinese output is not restored on its own (which seems unlikely as the West enters deep recession), then the government must take an active approach to stimulating demand through expansionary fiscal and monetary policies.

Keynesian theory, formulated during the Great Depression of the 1930s, says that in times of recession, spending in the economy is unlikely to increase on its own due to the huge increases in unemployment and corresponding lack in consumer and investor confidence. An active role of government, therefore, is needed to supplant the fall in private spending, and create new income, spending, and economic growth.

In contrast to this 'demand-side' theory of macroeconomics, the neo-classical economist would argue that China's government would do best by letting the economy 'self-correct' in times of economic slowdowns. The graph below shows that as demand for China's output falls in the short-run, unemployment will rise and the price level will fall as firms find it hard to sell their output. Because millions are out of work, and because prices are lower, labor will be willing to accept lower wages, encouraging firms to increase their employment of labor, shifting aggregate supply outward and ultimately restoring full-employment at a new, lower price level than before the downturn began.



This classical *laissez faire* theory of 'self-correction' has by most account been proven **false**, as most major recessions, most notably the

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Great Depression itself, were ended only after massive intervention by the national government.

The most promising solution to the looming social and economic nightmare it faces, is for the Chinese government to push forward massive fiscal stimulus plans aimed at putting the tens of millions recently jobless back to work. This may sound like a return to communism at first, but government money can be spent to create jobs in private enterprise, producing goods, services, and infrastructure that leads to real long-run economic growth fueled by domestic, not foreign, demand for Chinese output.

For too long China has depended on demand from the rest of the world to grow its economy. Faced with the largest economic crisis of the modern era, the Chinese Communist Party should take it upon itself to reduce the nation's dependency on foreign demand and stimulate growth through new public spending on infrastructure, education, health care and social security for the hundreds of millions of Chinese who are left to fend for themselves once they've reached retirement age. Meaningful fiscal stimulus aimed at improving the lives of the common citizen, who has been so adversely affected by China's over-dependence on export-oriented growth, may be the best response to the most dire social and economic turmoil the country has faced since the end of the Mao era over 30 years ago.

Questions:

1. What is China's most worrying macroeconomic problem currently? Inflation? Recession? Unemployment? Deflation? Trade imbalance? Income distribution? Which of these does falling demand for China's exports affect most?
2. What are the social and economic costs of rising unemployment and why is it so important for a government to combat it?
3. Discuss the differences in the Keynesian and the Classical models in their explanation of what will happen to unemployment after a fall in aggregate demand.

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Worksheet 13.2

Three Million Job Openings!

This week's cover story in Business Week magazine tells an interesting story about unemployment in America. Listen to this podcast or read the article here. Read the first two paragraphs now.

In IB Economics we teach that there are three types of unemployment an economy may experience, ranked roughly in order from the least undesirable to the most undesirable (from a macroeconomic perspective):

1. Frictional unemployment: This accounts for people who are 'in between jobs' or fresh out of college looking for their first jobs.
2. Structural unemployment: This is caused by the changing structure of an economy. As America's manufacturing sector shrinks and its education and health care sectors grown, those whose skills lie in manufacturing become *structurally* unemployed.
3. Cyclical unemployment: This is also called 'demand-deficient' unemployment because it is caused by a fall in aggregate demand or overall spending in the economy.

America today is clearly experiencing all three types, but due to the particular circumstances of the recession, the American worker is finding it it harder than ever to match his skills with an appropriate job. Below are some of the industries with the most and the fewest job openings today:

Most openings:

1. Education
2. Health care
3. Government
4. Energy (such as wind, oil, natural gas)
5. 'Analytics' (i.e. business data analysis by firms such as IBM)

Fewest openings:

- Construction
- Manufacturing

Unfortunately for the large numbers of unemployed construction and factory workers, the kinds of skills required to work in the fields with the most job openings are prohibitively different from those learned in their previous industries. In addition to a mismatch of skills between the industries in which jobs are being lost and those in which labor is in demand, there is also a geographic mismatch in the labor market. Below are the states with the least and the most job openings:

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Most job vacancies (states with large energy sectors: oil, natural gas and windmills)

- North Dakota
- Wyoming

Least job vacancies (states with large manufacturing and construction sectors)

- North Carolina
- California
- Michigan

Historically, the geographic factor has not posed an issue to American workers, and when jobs opened up in one part of the country, Americans would pack up and move where necessary to find work. Today, however, with the collapse of house prices, more and more Americans find themselves stuck with a house they can't sell in a part of the country where they can't find a job.

To paraphrase the podcast above, 'the US is in danger of looking like Europe. The European job market has been described as "sclerotic"; people don't respond to want ads because of the generous long-term unemployment benefits offered by European governments. Europeans have historically been geographically immobile due to nationalist ties to their home countries.' Today, the US job market reflects some of the same 'sclerosis' as that of Europe.

America is facing the perfect storm of unemployment. At the same time that the economy is undergoing its most significant structural change since the Industrial Revolution brought millions of American workers from the farm fields into factories, it is facing the most significant decline in private sector spending (consumption, investment and exports) since the great depression. Put this together with the relative immobility of the American worker caused by the housing crisis, and unemployment has climbed to its highest level in three decades.

This interesting story ends with a glimmer of hope for the American worker. Read from 'To fight this sclerosis…' on the last page of the article in the 3rd paragraph, to the end.

Questions:

- In what way may structural unemployment be a sign of a healthy economy, rather than a sick one?
- Part of the Obama stimulus package includes increased benefits for unemployed Americans. How may this pose an obstacle to reducing unemployment in America?
- Historically, the natural rate of unemployment in most European economies has been higher than that of the United States. Why is this?
- Do you think America's NRU will return to its historic level (4-6%) when the economy eventually recovers from the current crisis? Why or why not?

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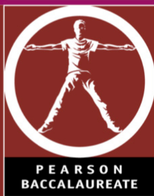

Worksheet 13.3

Flexicurity in Denmark

The Danish people are a notably generous and happy group of people and for many years they have had the most extensive welfare system in the world. Danish citizens pay nearly 50% income tax, which allows its citizens to enjoy a high quality of life, free education, healthcare and lavish unemployment benefits.

Since the Global Financial Crisis in late 2008 unemployment in Denmark has more than doubled from 1.7% to 4.2% now. This is still far below levels in other parts of Europe, such as Spain with 19% unemployment. However, the Danish government is evaluating the level of unemployment benefits as its budget tightens. An unemployed worker in Denmark is entitled to an unemployment benefit which is between 70-90% of their prior salary. Currently they can receive this compensation for up to four years.

High unemployment puts two specific strains on the government's budget during a recession. There are decreased tax receipts as workers are forced out of work, but at the same time expenditure on transfer payments to the unemployed workers will increase. Therefore a swift rise in unemployment in the recent recession led to some governments, such as the United Kingdom, falling into a deep budget deficit very quickly. The opposite effect occurs in an economic boom where transfer payments fall and tax revenue increase, leading to a swelling of the budget surplus.

Policy makers in Denmark are therefore planning to trim the generous safety net provided to its workers. Read paragraphs five and six (from 'Struggling to keep its budget...' to '"...a luxury we can no longer allow ourselves"') from this article. You can also watch this related video.

Statistics from Denmark show that in the Global Financial Crisis of late 2008, 100,000 Danish people were registered as unemployed. Approximately 62% of these people found another job within two months, and only 6% of these people had been unemployed for longer than two years. This highlights the fact that Denmark has a very flexible labour market. Meaning in simple terms that workers can freely move between jobs, and can be hired and fired more easily than in comparable European nations such as Germany or Sweden. The flexibility and security of the Danish system is nicknamed 'flexicurity'. Read paragraph 14, 15 and 16 ('"It's no surprise the government..."' to '...and press the laid-off into retraining') which highlight the elements of the flexicurity culture.

If 30% of workers are willing to change jobs each year, this would have a positive effect on the economy. This proportion is high because workers are not scared of becoming unemployed and poor. Some would consider the opportunity cost of receiving 80% of my previous wage and an unemployed holiday a great trade off. Of course, workers also consider issues such as social dislocation and loss of skills in the decision making process and are therefore keen to get back into work as quickly as possible.

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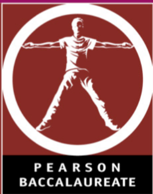

Within Denmark and the flexicurity system, workers seem prepared to accept new challenges and develop skills that are required in new jobs. This also opens up jobs to younger graduates each year. During a recession the same system allows firms to reduce thier demand for labour quickly and to restructure the business to the new economic climate. The supporting welfare structures in Denmark which help unemployed people with training and job applications is an important spoke in the system. These elements are considered labour market supply side policies.

Questions

1. Describe the concept of 'social safety nets'.
2. If the Danish government continued to allow up to four years unemployment benefit, what could be the potential impacts on the supply of labour within Denmark?
3. Describe why Denmark has the one of the lowest Gini Coefficient scores in the world (0.29, CIA Factbook 2007)
4. How does labour flexibility or the Danish system of flexicurity, improve economic growth?
5. Evaluate the relative merits of Denmark having one of the highest income tax rates in the world.

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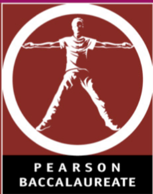

Economics

Worksheet 14.1

What Exactly does Inflation Measure?

The US Bureau of Labor Statistics releases monthly data on prices to let Americans know just how much inflation affects their livelihoods. The **Consumer Price Index** consists of a 'basket of goods', that when bundled together represent the 'typical' American consumer's expenditures. The CPI is broken down into a few broad categories:

- Health care
- Apparel
- Housing
- Education/communication
- Recreation
- Food/beverages
- Transportation
- Miscellaneous

Here's the cool part though, within each broad category the BLS tracks the prices of dozens of specific categories, around 200 to be precise. Each of these is then broken down into individual products, around 84,000 in total! The task of tracking the prices of 84,000 individual goods and services every month is daunting.

The New York Times has assembled what can only be described as a mosaic of consumption, organizing the 200 specific CPI categories into what looks like an ornate stained-glass window, in which the size of each piece of glass represents the percentage of Americans' income that go towards each specific category. Some of the categories represented in this mosaic include items such as:

- Oils and peanut butter (0.1%)
- Gasoline (5.2%)
- Garbage collection (0.3%)
- Internet (0.3%)
- Nursing homes (0.1%)
- New cars and trucks (4.6%)
- DVDs (0.2%)

Study the graph and answer the questions that follow:

Questions:

- What is the largest component of the basket of goods used to determine inflation in America?
- Can you identify the single smallest type of spending measured by the US CPI?
- How will a 5% increase in a category that makes up 20% of the typical American's spending affect the overall inflation rate compared to a 5% increase the price of a category that only makes up 5% of total spending? Calculate the impact of the two price changes described.
- With reference to the graphic, identify three shortcomings of using the Consumer Price Index as a measure of economic well-being.

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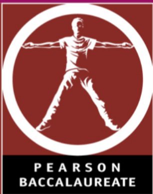

Worksheet 14.2

The Federal Reserve and the tradeoff between inflation and unemployment

In 2008, weak aggregate demand and rising costs due to high energy and food prices put the US economy in a tricky situation, one in which the Federal Reserve was forced to make the tough decision between tackling the unemployment problem (jobless rates were around 6%) or the inflation problem (price levels had also risen 5.7% that year, the highest inflation in 17 years).

The Fed (America's central bank) had lowered interest rates to 2%, and promised not to raise them despite the fear of inflation caused by higher energy prices at the time. Despite the risk of higher prices, the Fed believed that raising the interest rate would reduce consumer and firm spending, and lead to higher unemployment as a result.

In the short-run, as IB Economics students know, society faces a trade off between high inflation and high unemployment. Rising prices and rising joblessness are both harmful to the economy, but when energy and food prices drive up the price level, while weak investment and consumer spending lead to falling overall demand in the economy, the conditions exist where joblessness and prices can rise simultaneously. This was the situation in America's in 2008.

The Fed had to choose which problem to address. Ben Bernake, America's central bank chief, could have chosen to tackle rising inflation by raising interest rates, which would have discouraged new investment and reduce demand for resources by firms in the economy. Investment spending by firms and consumption by households would decline, putting downward pressure on prices across the economy.

In the short-run, however, the decline in investment and consumer spending that would result from higher interest rates would exacerbate the already weak level of aggregate demand in the economy, driving unemployment even higher.

By keeping rates low, Bernanke hopes to encourage investment and consumption, which will contribute to overall demand in the economy. By encouraging new spending and investment, however, the threat that inflation will rise even more remains present.

In the trade off between unemployment and inflation, the US central bank made it clear that unemployment was the most important problem to address by keeping interest rates at a low 2%.

Discussion questions:

1. Low interest rates are clearly a demand-side policy, since they should lead to higher investment and consumption. But how might lowering interest rates result in positive supply-side effects for the economy?

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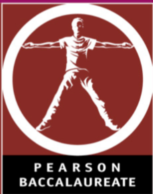

2. Why do you think avoiding a rise in unemployment is of a higher priority to policy-makers than bringing down the inflation rate? Does the fact that it's an election year matter?
3. How does the double risk of rising producing costs for the nation's firms and rising unemployment pose a particular challenge to a central bank and government policy makers? What would be an effective response to a negative supply shock caused by rising energy prices or rising wages?

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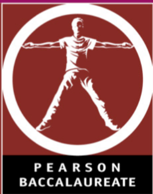


Worksheet 14.3

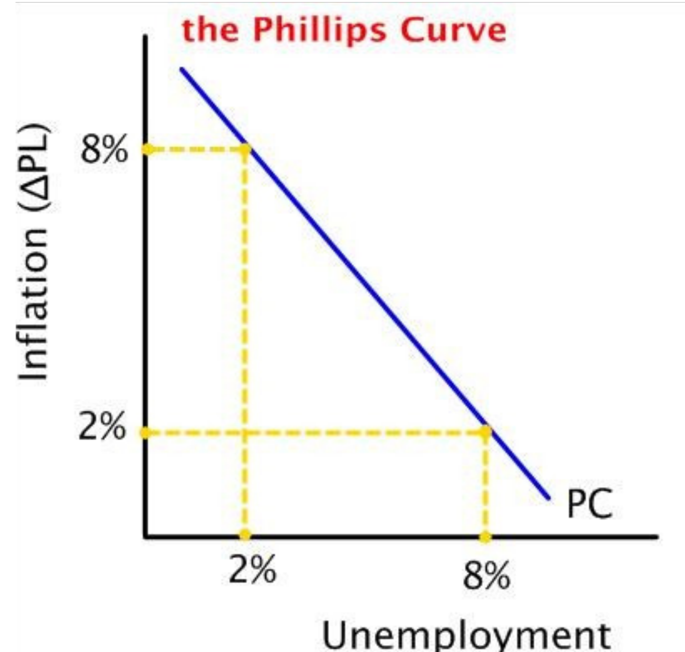
Politics, Priorities and the Phillips Curve

Inflation, with its erosive effects on wealth and income, has plagued China at increasing rates since mid-2007. In February it reached an annualized rate of 8.7%, threatening to undermine China's GDP growth rate, which has been predicted in the 8% range for this year.

China's inflation is caused by a combination of demand and supply-side factors. On the demand-side, a growing middle class has driven consumer spending to record levels recently, surpassing investment as the largest component of China's GDP in 2007. Of course, as always, high inflation (thus low real interest rates), optimism about rising consumption in the future, and a comparative advantage in labor-intensive manufacturing (albeit a diminishing one as wages continue to rise) all combine to keep investment extremely high. Furthermore, cheap exports have helped keep demand for China's output from abroad strong. The combination of increasing consumption, strong investment, and its trade surplus have resulted in demand-pull inflation.

On the supply-side, China has encountered additional inflationary pressures of late. Rising energy prices (mostly due to coal and oil shortages) combined with record rises in food prices (24% increase in the last year), have driven costs to firms up, shifting the aggregate supply curve leftward, further fueling inflation.

Knowing the damaging effects inflation has on income and wealth, it might be assumed that Beijing would place the utmost emphasis on taming the country's rising prices. This, however, is not at the top of the government's macroeconomic goals, according to premier Wen Jiabao: read paragraphs seven and eight from this link.



The tradeoff between inflation and unemployment to which Mr. Wen refers is an example of the challenges faced by macroeconomic policymakers everywhere. This trade-off is illustrated in the Phillips Curve model, which shows that in the short-run, there exists an inverse relationship between the price level and the unemployment rate.

In his words in the link above, Mr. Wen demonstrates Beijing's preference in the trade-off between inflation and unemployment: he'll take inflation. Here's why.

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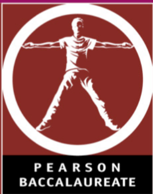

In case you haven't heard, China is not a democracy. Nor is it a 'free' country. According to former US Federal Reserve Bank chairman Alan Greenspan in his book 'The Age of Turbulence' democracy and freedom of speech act as 'safety valves' in Western countries; in other words, in times of economic or political unrest, the right to gather in the streets, the right to vent frustrations through a free press and the opportunity to advocate political and economic change through the various media, all combine to prevent violent and revolutionary uprisings when times get tough economically.

Take the US for example. Times are certainly tough right now. US unemployment is at its highest level since the Great Depression, and amid expectations of a 'double dip' recession, inflation is near zero percent, and deflation is looming. The bursting of the housing bubble in 2008 represented one of the most massive losses of wealth in recent history. A weak dollar has meant that even cheap imports don't seem so cheap anymore. When we consider the political turmoil, debate over the federal budget deficit and the national debt, and a highly partisan climate in the nation's capital, and by some measures the country would appear ripe for revolution.

However, a revolution is about the least likely thing to occur in America, because it enjoys the 'safety valve' of democracy. Rather than *overthrowing* their government, Americans have the right to go to the pole and vote for a new one.

Now let's look at China. The picture's not quite so gloomy for the Chinese right now. Yes, inflation is high, but unlike America, China is still growing at a very healthy pace, unemployment is probably still below its natural level, the real estate markets in China's cities are still booming, meaning the middle class residents there are experiencing leaps and bounds in terms of personal wealth. Demand for its exports remains strong, and ever more poor Chinese are finding jobs in high paying factories across the country. Investments in capital, infrastructure and education point towards a bright future of continued growth.

China's 8.4% inflation, in other countries, would really be something to worry about. But China's leaders don't seem to concerned about bringing down inflation, rather have decided to maintain a growth policy that guarantees low unemployment. In short, China has chosen to remain in the upper left region of its Phillips Curve, accepting high inflation in order to maintain low unemployment.

It appears that Beijing's greatest fear is a population out of work. Without the 'safety valve' of democracy through which economic frustrations and hardships can be channeled, were the country to experience a slowdown in growth and an increase in unemployment, it is not unlikely that frustrated Chinese citizens would turn revolutionary and demand major changes to how China is run, threatening the Communist Party's power.

This one passage spoken by Wen Jiabao, China's premier, tells a vivid story about the reality of Communist dictatorship in China. Sound economic policy may go on the back burner in times of political uncertainty.

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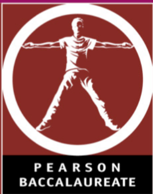

Questions:

1. Why will maintaining low unemployment and rapid economic growth in China likely mean continued high rates of inflation?
2. Why can't the Chinese government enact policies to bring down inflation while keeping unemployment low?
3. If the government decided to tackle inflation instead of focusing on employment, what political risk is it taking?

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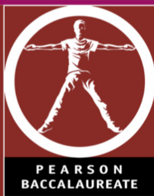

Worksheet 15.1

Macroeconomic Indicators Around the World

Directions: Macroeconomics is an area of study with precise goals attached to it. Macroeconomists generally agree that there are three primary goals towards which policies should be used to try and achieve:

Full employment of the nation's resources, including labor, land and capital.

1. Price level stability, meaning low (generally between 2% and 4%) inflation rates.
2. Economic growth, meaning a year on year increase in the nation's output of goods and services and the average income of the nation's people.

Understanding the indicators used in macroeconomics to measure the success in these three areas is important. In the activity that follows, you will research, define, and explain the various types of inflation, unemployment and economic growth. You will also research and record examples of these indicators from several countries. Finally, you will investigate your OWN country, and determine what precisely makes up the total amount of economic activity in your country.

Part 1: Using your notes and your textbook answer the following questions. Most of the country data you are asked to find can be found in the CIA World Factbook.

Define and explain the various types of each of the following:

1. Define inflation [2 marks]
   a. Type 1 [1 mark]:
   b. Type 2 [1 mark]:
   c. Research and identify the current inflation rates in [3 marks]:
      i. Switzerland
      ii. China
      iii. United States
2. Define unemployment [2 marks]
   a. Type 1 [1 mark]:
   b. Type 2 [1 mark]:
   c. Type 3 [1 mark]:
   d. Research and identify the current unemployment rates in [3 marks]:
      i. The UK
      ii. Germany
      iii. Spain
3. Define Full Employment and Natural Rate of Unemployment [2 marks]

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4. Define economic growth and illustrate the concept of growth using a production possibilities curve [4 marks]
   Research and identify the most recent GDP growth rates in
   i. Nigeria
   ii. Greece
   iii. Japan

Part 2:

- Identify the four components of a nation's aggregate demand and briefly explain two factors that affect each of the four components. [10 marks]
- Research and identify the main macroeconomic indicators for *your home country*.
- In class, compare the results of your research to what your classmates found about their home countries. If most of your class is from the same country, compare your results to determine if you found the same figures for each of the four components of Aggregate Demand.
  - From the CIA World Factbook you should be able to discover your country's main macroeconomic indicators (GDP, GDP per capita, inflation rate).
  - Using the Eurostat website, you can find out what percentage of your country's GDP is made up of government spending.
  - If you are not from a European country, you may have to do a little more investigation to find the percentage of GDP made up of government spending.

Questions:

- Which of the countries you researched appear to be doing the BEST job of meeting their macroeconomic objectives of low unemployment, low inflation and economic growth?
- Which countries appear to be doing the WORST at meeting their macroeconomic objectives?
- Among the countries represented by your classmates, which have the highest GDP growth rates? What do the highest growth countries have in common? What is different about them?
- Which countries have the lowest unemployment rates? What do these countries have in common?
- Is there an observable relationship between the economic growth rate of a country and the unemployment rate? Discuss the possible relationship between economic growth and unemployment?

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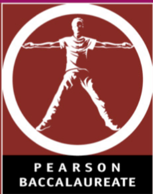

Worksheet 15.2

Jobless Growth? How could this be?

Economic Growth, defined as an increase in a nation's total output of goods and service (and therefore the *national income*), is desired not only for the sake of *growth itself* (producing more stuff requires more resources, and may not necessarily make the average citizen better off), rather *growth is needed in order to achieve full-employment of a nation's labor force.*

Growth is good. This tenet of economics is rooted in two basic observations: 1. Growth leads to an improvement in the average standard living of a nation's people, and 2. Growth is needed to employ the growing workforce of a nation experiencing population growth and immigration.

America's work force is a diverse group of people of all skill levels. 150 million strong, the nation's workforce requires a healthy national economy with strong investment and consumption to maintain enough jobs to keep unemployment low. Recently, however, the prospect of employment in America has diminished as the number of people out of work has grown.

Involuntary unemployment is perhaps the most serious cost of an economic slowdown. A willing and able worker, skilled in mind and body, unable to find productive work, represents a monumental failure of a nation's economy. Policies aimed at promoting growth are in fact aimed at creating employment.

When monetary policy fails to create employment, the government must pick up the slack. In 2009, with slower growth threatening employment in China, Beijing launched a fiscal stimulus of $500 billion, of around 15% of China's GDP. This large stimulus had a positive effect on both GDP and the job market.

America's 2009 stimlus package also restored growth, but according to a Washington Post article, unemployment did not fall in the US as it did in China. Read the second and fourth paragraphs.

The tricky thing about macroeconomic policy is that while it can put billions of dollars into the nation's banks, households' and firms' pockets through tax breaks, government bailouts, subsidies and infrastructure spending, firms will not start to hire until they *feel confident*. Confidence, according to John Maynard Keynes, is an *animal spirit,* a trait of humans beyond the assumption of rational behavior. Until confidence is restored, America's unemployment rate will remain high.

Questions:

1. How can output in the US be growing even while unemployment continues to rise? Is there *always* a direct relationship between these two variables?
2. Expansionary fiscal and monetary policies can put money into firms' and households' pockets, but cannot guarantee employment will fall. Which type of expansionary policy is *more likely* to lead to lower unemployment? Fiscal or Monetary?

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3. Firms' expectations and consumer confidence are important determinants of consumption and investment. Is there anything policymakers can do to improve these 'animal spirits' during an economic downturn such as that experienced in the US in 2009?

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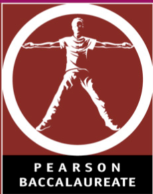

Worksheet 16.1

Tax Progressivity in the US - do the Rich Pay More than Their Fair Share?

According to a blog post in the New York Times from April 2009, America's 'progressive' tax system is not as progressive as many may believe it to be: read the article here.

The research discussed poses several interesting questions about the make-up of a nation's tax revenues. Despite popular belief, it appears that the rich in America do not pay 'more than their fair share', as many argue is the case. Study the graphs in the article carefully, and answer the questions that follow:

Questions:

1. Based on the data in the graphs, do the rich in America pay an unfair proportion of the total taxes the US government collects? Why or why not?
2. Why do the richest 5% in America actually pay a lower level of tax on average than the 5% below them?
3. How much of America's total income is earned by the richest 1% compared to the poorest 20%? Does America's progressive tax system destroy the incentive for Americans to work hard and become rich? Why or why not?
4. Use the data to construct a Lorenz Curve for the United States. Does the gap between the richest and the poorest Americans surprise you? What kinds of changes could be made to the tax system to narrow the gap between the top income earners and the middle and low income earners in America? Should this be done, why or why not?

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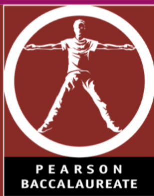

Worksheet 16.2

Regressive or Progressive Taxes - which road to follow towards fiscal discipline?

The structure of a nation's tax system depends on the nation being observed. In the US, federal income taxes are higher than they are in Switzerland, but in Switzerland there is a nationwide sales tax (VAT) that the US does not have. Much of Switzerland's government revenue comes from the value added tax and other indirect taxes, which means households keep much more of their earned income.

Since the US income tax system is progressive, while Switzerland's sales tax is regressive, we can conclude that the overall tax burden in Switzerland is shared more evenly across households of higher and lower incomes, while in the US high income households share a relatively larger burden of the nation's tax revenues.

In the United States, where the government has not had a balanced budget since 2001, there has been much talk about creating a national sales tax to help raise revenue to pay for many of the social plans that the Obama administration wants to pursue, such as national health care. VATs and sales taxes are regressive, which means more of the tax burden is born by low income households compared with high a direct, income tax, which is progressive, meaning the higher a household's income, the greater percentage it pays. But with large budget deficits projected for the next decade in the United States, new sources of tax revenue are needed. Read from 'Everybody who understands' to 'about the money' in the article 'Once considered unthinkable, US sales tax gets fresh look'.

To counter claims that a national sales tax is regressive, advocates point out that such a tax would allow the federal government to lower income tax rates for low income Americans, giving them more disposable income to spend on goods and services, which would be more expensive because of the VAT.

Another option the government could consider is a tax on greenhouse gas emissions. A carbon tax would create new tax revenue for the federal government and help reduce the negative externalities causing global warming and encourage development of alternative 'green' methods of production.

In the short-term, it is unlikely that the US government will legislate any significant new taxes. Both a nationwide sales tax and a carbon tax have been largely ignored under the argument that during a recession any new tax on industry might slow the recovery in output of the country's manufacturers and retailers.

America's long period of strong growth, low savings, and deficit financed government spending will necessitate belt-tightening in the near future as ultimately the government will have to start financing its budgets through tax revenues, not the issuing of new debt. Carbon taxes, higher marginal income taxes, or a national sales tax are all options the US government will have to choose from. For now, it appears it's choosing none of these, and instead increasing the national debt and the moneys supply to

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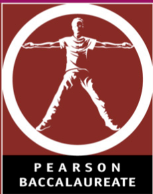

try to encourage economic growth. The path towards fiscal discipline is a hard one to get started on, especially during a recession when new taxes are just not politically possible.

Questions:

1. What makes a sales tax regressive if everyone has to pay, say, 10% on top of the regular sales price of a good or service?
2. How does the US government finance its massive budgets when its revenue from taxes don't even come close to equaling the amount of spending?
3. Why is it important for a country, in the long-run, to achieve a balanced budget?
4. What would you prefer to do: pay a higher income tax or a higher sales tax? What are the pros and cons of direct versus indirect taxes?

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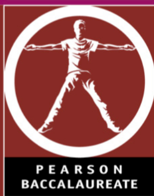

Worksheet 16.3

Is Switzerland Becoming a Feudal State?

Switzerland's large wealth gap has some economists wondering if the tiny European nation is becoming more like the feudal states of medieval Europe than the modern democracies of today: read the first three paragraphs of the article 'Switzerland "could become a feudal state"'.

Kissling has nothing against wealth, he just thinks that if someone did not earn their wealth but inherited it instead, they should have to share a bit with the rest of society. Read from 'I call for a tax' to 'the political world' in the article linked to above.

He's most concerned that if the gap between rich and middle class continues to widen and the middle class of Switzerland don't start benefiting from the country's growing wealth, there could be a dangerous backlash against the free market system. Read from 'the richest one tenth' to the end of the article.

Questions:

1. Why does a growing gap between rich and middle class threaten social stability in Switzerland?
2. Is the gap described one in income or in wealth? What is the difference?
3. How would a tax on inheritance help reduce the inequalities that exist in Switzerland today? Is such a tax fair? Is it efficient?

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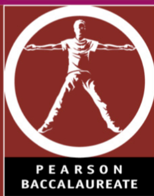

Worksheet 17.1

How Big is the US Government Spending Multiplier?

What is the goal of fiscal stimulus during a recession? Is it simply to increase nation's total income by a certain amount determined by how much a government increases its own spending by? If this were the case, then an $800 billion stimulus package, like the one undertaken in 2009 in the US, would lead to a total increase in national income of, well, exactly $800 billion.

While such an outcome is possible, it is not the desired outcome of any policymaker or economist who advocates the use of Keynesian stimulus during recessions. Keynesians expect that an initial increase in government spending (or a decrease in taxes) will result in households and firms increasing their own consumption and investment, meaning a greater overall increase in spending than the initial change undertaken by the government. The initial change in spending ultimately gets *multiplied* through further rounds of spending. The total change in national income resulting from an initial change in government spending or taxes depends on the size of the *spending multiplier*. Now, this is where things get tricky! From *The Economist* read the third paragraph from this article.

The above scenario, where an economy is operating below full-employment and government spending puts the nation's idle resources to work, creates new income and further increases private spending, is precisely what the US government hoped would happen following the 2009 fiscal stimulus package. A multiplier of above one means the $800 billion would ultimately increase America's national income by something greater than $800 billion! Read paragraphs four and five from the article linked to above.

Herein lies the controversy about the effectiveness of deficit-financed fiscal stimulus. Supply-side economists argue that expansionary fiscal policy financed by government borrowing will drive up interest rates to private borrowers, thereby 'crowding-out' private investment, off-setting any expansion in output achieved through government spending. In the Keynesian model, however, it is precisely because there is little or no private investment that government borrowing and spending will *not* lead to crowding-out, rather could actually increase investors' willingness to spend on new capital, actually '*crowding-in'* private investment.

The debate continues between the Keynesians and the supply-siders carries on. Interestingly, even years after a fiscal stimulus is undertaken, it will still be impossible to determine how large the fiscal multiplier was, since economists in the future will find it nearly impossible to isolate the impact of a particular fiscal policy on a country's long-run economic growth rate.

Questions:

1. Why do tax cuts for the rich tend to have a smaller multiplier effect than tax cuts for lower income households?

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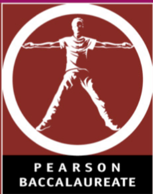

2. How can government borrowing drive up interest rates, and why is this a concern to policy makers deciding on the size of a fiscal stimulus package?
3. What risk does deficit financed fiscal policy pose to the level of confidence and expectations among domestic households and firms? Why does greater national debt threaten to slow the growth prospects of an economy stuck in recession?

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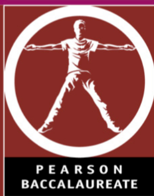

Worksheet 17.2

Fiscal Stimulus passes Congress!

In February of 2008, as the US economy officially entered a recession that it would remain in for 18 months, the US government approved a first round of fiscal stimulus consisting entirely of tax cuts to American income earners. The stimulus planned consisted of the following:

Tax rebates to 137 million people: A rebate of up to $600 would go to single households making less than $75,000. Couples making less than $150,000 would receive rebates of up to $1,200. In addition, parents would receive $300 rebates per child. Tax filers who do not owe income taxes but have at least $3,000 in income would get a $300 rebate.

These payments were intended to put cash in the hands of millions of Americans at a time when our economy was experiencing slower growth.

Business tax breaks: The bill would temporarily provide more generous tax benefits for small businesses in 2008 and let large businesses deduct 50% more of their assets if purchased and put into use this year. In other words, businesses investing in new capital would pay lower taxes for the year.

Politicians from both of the US government's ruling parties joined forces on this act of expansionary fiscal policy. The hope, of course, was that with more money in their pockets, Americans would start spending again, firms would start investing, and these increases in expenditures would shift the US economy towards a path of expansion, increasing employment and output.

At the time, there were many concerns over whether this stimulus package would have its desired effects. Would Americans spend their rebate checks in the way Congress hoped they would do? Some feared that low and middle-income households would take their new disposable income right to Wal-Mart and buy Chinese imports, or put a large proportion of it into savings, or pay off existing credit card debt, three actions which would represent 'leakages' from America's circular flow, leading to no new income or output.

Savings and spending on imports would do nothing to stimulate the US economy, therefore, before concluding that the tax rebates would help fend off a US recession, economists must consider the American peoples' marginal propensities to save and to import. Only new spending on American goods and services would contribute to aggregate demand.

The tax incentive for businesses investing in new capital may have had a greater impact on domestic employment in the US. Capital goods such as heavy machinery tend to be made in America by American workers, so encouraging firms to invest in new capital would be more likely to have a positive demand-side effect on US income and employment. Furthermore, more capital for US businesses is likely to increase productivity of workers in those firms which have invested, leading to greater income and output: this is the desired 'supply-side' effect of stimulating business investment. When aggregate demand and aggregate supply increase simultaneously, economic growth is the result.

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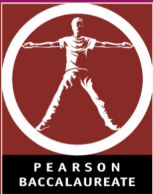

Unfortunately, the provisions aimed at encouraging business investment represented only around one third of the total stimulus package. Most of the $170 billion ended up in the hands of households, which ultimately used the bulk of this stimulus to pay off debts and for savings. A year later, under a new president, the United States launched a much larger stimulus ($800 billion!) that itself turned out to be too small to return the US to strong growth.

Questions:

1. How does a tax rebate to households impact domestic spending compared to a tax incentives for firms to undertake new investment?
2. How does a low marginal propensity to consume undermine the expansionary effect of a tax cut such as this?
3. Why would a stimulus including increased in government spending have been more likely to increase employment in the US than one consisting only of tax cuts?

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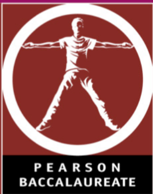

Worksheet 17.3

To Continue Stimulus or to Pursue Austerity?

In the seemingly endless debate over the role of the government in the macroeconomy, there are two main camps: those who think the governments of the developed economies have not done enough to get their economies out of recession, and those who think they have already done too much, and therefore need to start rolling back stimulus and reducing deficits.

At the heart of this debate are the two macroeconomic schools of thought, the Keynesian demand-side theories and the neo-classical, supply-side theories. Two intellectuals have emerged in the last several years representing the two sides of the macroeconomic debate. On the demand-side, representing the Keynesian school of thought, is 2008 Nobel Prize winning economist Paul Krugman. Representing the classical, supply-side school of thought is Harvard economic historian Niall Ferguson. These two have squared off in many forums over the last three years, Krugman arguing for more and continued fiscal stimulus to prop up and increase demand in the economy, Ferguson arguing for smaller deficits, lower taxes and less government spending to increase private sector confidence and thereby supply in the economy.

Recently these two squared off once again in the aftermath of a G20 meeting in which the governments of several major economies from Europe and North America announced plans to begin rolling back the stimulus spending they embarked on throughout 2008 and 2009. The reason for increased 'austerity measures' (policies that reduce the budget deficit and slow the growth of national debt), argue global leaders, is to reduce the chances of more countries experiencing debt crises like that experienced by Greece in 2010.

International investors realized in early 2010 that Greece's budget deficits were a much larger percentage of its GDP than previously thought, and very quickly decided that Greek government bonds were an unsafe investment. Almost overnight the cost of borrowing in Greece shot up above 20%, bringing investment in the economy to a halt and forcing the government to cut its budget, leading to higher unemployment and reduced social benefits for the people of Greece.

If investors were to look at the growing budget deficits in other developed countries and then suddenly lose faith in other government's ability to pay back their debts, then a similar crisis could occur in much larger economies, including the UK, Germany and the United States. Therefore, these countries have begun reducing deficits and rolling back stimulus spending: measures that may just plunge their economies into an even deeper recession than that of the last two years.

The videos below show the leading intellectuals on both sides of the stimulus/austerity debate presenting their arguments. Below each video are discussion questions to help guide your understanding of their views. Watch the videos and respond to the discussion questions in the comment section below.

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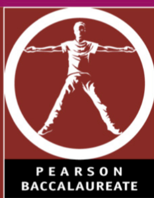

Video 1: Krugman argues for continued stimulus

Discussion Questions:

1. What are the two 'profoundly different views of economics' that are being tested as governments begin rolling back the fiscal stimulus packages of the last two years?
2. What are three characteristics of an economy in a 'depression' according to Krugman?
3. What is 'budget austerity' and why does Krugman think this should not be the first priority of policymakers in the G20 nations?
4. Why is deflation dangerous according to Krugman?
5. What is the additional annual cost to the US government of borrowing and spending an additional trillion dollars now? What is the potential additional benefit of more stimulus?

Video 2: Ferguson argues for austerity and 'fiscal regime change'

Discussion Questions:

- Why might the US have to pass spending cuts and tax increases to maintain its 'credibility in international bond markets'?
- Why would fiscal tightening 'choke off the recovery'?
- How is the financial crisis in Europe a warning to the US?
- How could the 'costs' exceed the 'benefits' of deficit financed expansionary fiscal policy.
- Ferguson proposes a new type of policy that 'boosts confidence'. Why will expansionary fiscal and monetary policies fail if private sector confidence remains depressed?

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Worksheet 18.1

Implementing Monetary Policy

Practice the diagramming of monetary policy with this worksheet. Circle the appropriate decision where indicated, and draw in the appropriate changes to the diagrams below.

1) *Assume the country is in a demand-side recession. The central bank will move to (tighten/loosen) the money supply. In the open market, the central bank would (buy/sell) bonds. The central bank could also (raise/lower) the base interest rate, or (raise/lower) the reserve requirement.*

Money Market

IR

Sm

nominal interest rate

IRe

Dm

Qpr

quantity of money

Qm

Private Investment

IR

IRe

DI

QIe

quantity of investment

QI

AD/AS

PL

LRAS

price level

Yf

rGDP

real output

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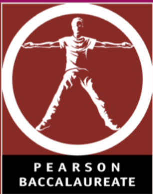

2) *Assume the country is experiencing serious inflation. The central bank will move to (tighten/loosen) the money supply. In the open market, the central bank would (buy/sell) bonds. The central bank could also (raise/lower) the base interest rate, or (raise/lower) the reserve requirement.*

Money Market
IR
Sm
nominal interest rate
IRe
Dm
Qpr
quantity of money
Qm

Private Investment
IR
IRe
DI
QIe
QI
quantity of investment

AD/AS
PL
LRAS
price level
Yf
rGDP
real output

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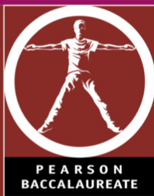

Worksheet 18.2

Will the Fed's Easy Money Policy Fuel Global Inflation?

In 2008, Harvard Economist Kenneth Rogoff believed that inflation posed a major problem to many of the developing economies at the time. Read from 'Inflation in Russia, Vietnam, Argentina' to 'people won't notice' from the article 'Inflation reality check'.

Usually, inflation can be reduced with restrictive monetary policy, or the selling of bonds on the open market, which reduces the money supply, raises interest rates and slows down consumption and investment, and thus the pressure on prices in the economy. In 2008, however, the US Central Bank, the Federal Reserve, was in the process of expanding money supply and lowering interest rates in an attempt to avoid a recession in the United States.

In a world of isolated, self-sufficient economies, US monetary policy would only affect the US economy; however, in a globalized economy policies like those used by the US fed have unintended consequences for the rest of the world. Read paragraph 'America's inflation would' to 'of the global economy' from the article linked to above.

The reason other countries must copy the Fed's monetary policies has to do with exchange rates, which many countries try to peg to varying degrees to the value of the dollar. One of the determinants of exchange rates is relative interest rates between countries. If the US lowers interest rates, and a country like Argentina keep rates high, global investors looking for a return on their savings will take their money out of investments in the US and invest it in assets in Argentina, where they can earn a greater interest rate. This drives up demand for the Argentinean peso and leads to an appreciation of that currency. A stronger peso could have negative impacts on demand for Argentina's exports as they become more expensive to foreign consumers.

In order to avoid appreciation of its currency and declining the harmful effect it would have on its exports, Argentina is thus forced to lower its own interest rates as the Fed cuts those in the US.

When you consider that much of the world adjusts its currency in relation to the dollar, you can see how an easy money policy in the US could lead to falling interest rates worldwide, triggering all sorts of new consumption and investment, driving price levels ever higher.

Questions:

1. If a US interest rate cut is not matched by countries that tie their currency to the dollar, what would happen to the value of those countries' currencies, and why would this be harmful to those countries economies?
2. Why are lower world interest rates inflationary?

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3. What would happen to the value of the Brazilian Real if the US central bake lowered interest rates and the Brazilian Central Banks kept them high? What are the costs and benefits for Brazil of maintaining the value of its currency against the dollar even when US interest rates are falling?
4. Do you think low inflation or low unemployment should be the primary concern of governments in developing countries? Why are these two objectives hard to successfully achieve simultaneously?

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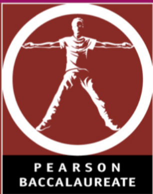

Worksheet 19.1

Obama versus the Supply-siders

As the United States entered its mid-term election period in late 2010, one of the major issues being discussed in Washington D.C. was whether or not the 'Bush Tax Cuts' of 2001 and 2003 should be extended. In essence, the tax cuts under the previous president lowered America's marginal tax rates at all income brackets.

1. a new 10% bracket was created for single filers with taxable income up to $6,000, joint filers up to $12,000, and heads of households up to $10,000
2. the 15% bracket's lower threshold was indexed to the new 10% bracket
3. the 28% bracket would be lowered to 25% by 2006.
4. the 31% bracket would be lowered to 28% by 2006
5. the 36% bracket would be lowered to 33% by 2006
6. the 39.6% bracket would be lowered to 35% by 2006

President Obama was not proposing to repeal all of the tax cuts above, only the ones enjoyed by those in the highest income bracket. The 35% marginal tax rate only applies to households earning above $250,000 in the United States. This bracket includes less than 2% of American households. Obama proposed raising the marginal tax rate by 4% on income earned above and beyond $250,000.

The backlash against Obama's proposal was fierce. The main argument against raising taxes on the richest Americans came from the Republican party, who claimed that higher taxes on the rich would decrease the incentive for workers to produce more output and increase productivity to earn higher incomes. In addition, said the Republicans, it is the rich who are the investors, the capitalists, the firm owners in an economy. Increasing income taxes on the rich would only decrease their incentive to invest and thus decrease the overall demand for labor in the nation, leading to lower overall levels of employment and national output. This *supply-side* argument claims that higher taxes may in fact lead to less taxable income, thus lower tax revenues for the government.

With concerns over the level of the US national debt, Obama believed that higher taxes on the rich would help the US balance its budget and restore confidence in the private sector, thereby encouraging firms to invest and households to consume more.

By 2011, the unemployment rate in the US was still hovering between 9 and 10%, while the national debt grew to almost 100% of the nation's GDP. Interestingly, international demand for US government bonds remained strong and therefore the US government could continue to borrow money at just 2% interest, historically low borrowing costs, especially considering the uncertainty over future deficits.

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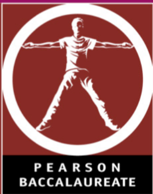

Many in the US believe that the government should take advantage of the low interest rates and borrow more money for a second stimulus, but others argue that more debt will only increase uncertainty in the private sector and force a future government to raise taxes to eventually pay down the debt. Lower taxes and reduced government spending, argue the supply-siders, will encourage more private spending, return the economy to healthy growth, and eventually lead to more tax revenues as the nation's income rises due to a revitalized private sector.

The tradeoff may come down to this: higher taxes now, or higher interest rates AND higher taxes in the future. Raising taxes on the rich now will allow the US to achieve a more balanced budget in the future. This means less government borrowing, less government debt, and lower interest rates on government bonds and in the private sector. It also means that there will be less debt to pay interest on, which makes debt repayment (currently almost 10% of the government's budget each year), less of a burden in the future. A more balanced budget now means less debt in the future, lower taxes in the future, and lower interest rates in the future.

Questions:

1. Under what circumstances would a tax increase harm not only workers and firms, but reduce government tax revenue as well?
2. What would a Keynesian economist say about the wisdom of raising taxes at a time when unemployment is as high as it is in the United States right now?
3. How does achieving a more balanced budget now assure that Americans will have to pay less in taxes in the future?
4. The supply-side argument against higher taxes is that it reduces the private sector's willingness and ability to spend on investment and consumption. Do you believe higher taxes on the richest 2% of income earners in a nation will have a large negative impact on private spending? Why or why not?

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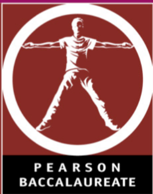


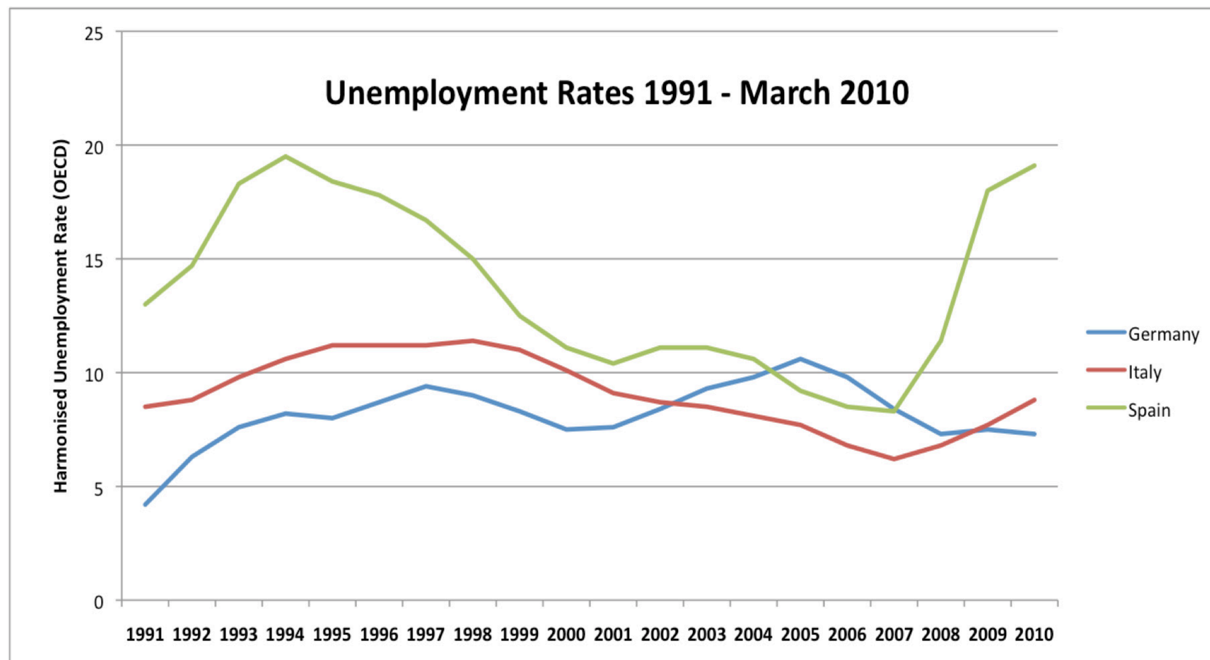
Worksheet 19.2

When Spain's Unemployment Problem gets Ugly

Watch this video about Spain's unemployment.

With more than four million Spanish people out of work in 2009, the eighth largest economy in the world found itself in a perilous position. Throughout the year the number of unemployed people in Spain doubled. Spain had as many unemployed people as France and Italy combined, and the unemployment rate was nearing the historic highs of 1993.

From the graph below we can see that unemployment in Spain has been high for at least the last 20 years, compared to other countries within the European Union.



Source: OECD Factbook 2009: Economic, Environmental and Scoial Statistics

The cause of growing Spanish unemployment from 2008 to 2010 is related to the collapse of the domestic building boom and the wider global recession. In 2006, Spain enjoyed low interest rates and therefore cheap loans, this allowed developers to build new apartment blocks, houses and commercial buildings with a relatively low cost of borrowing. Spanish people could afford mortgages at low interest rates and therefore purchased houses contributing to the building boom. However, when the flow of 'cheap money' ran out in mid 2008 the building stopped and the flow on effects of spending

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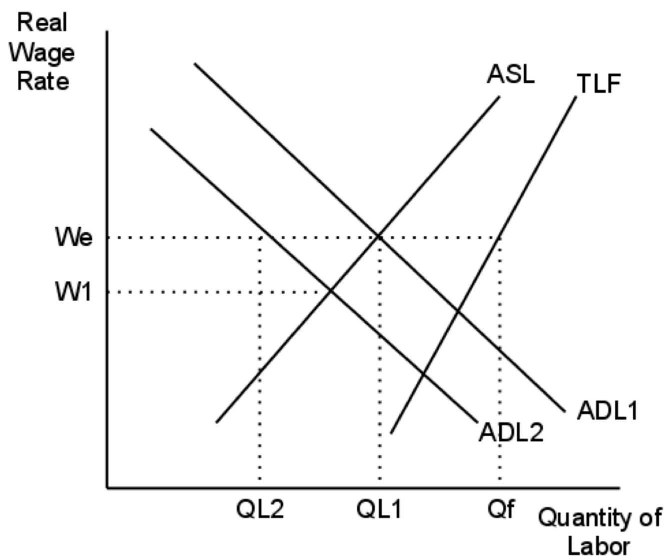
dried up. Falling tourism receipts and less foreign investment also exacerbated the issue leading to unemployment doubling between 2008 – 2010.

We can classify the form of unemployment, illustrated in the Spanish example as demand-deficient unemployment. It is related to a downturn in the economic cycle. This concept is explained below.

Demand Deficient (Cyclical) Unemployment



This is associated with cyclical downturns in the economy. Aggregate demand falls, therefore the aggregate demand for labor will fall.

The aggregate supply of labor remains constant as households would like the jobs at the equilibrium wage rate (We). Since wages are sticky, however, firms will not be willing to hire the number of workers wishing to work.

The ADL falls, but wage remains high, so there is involuntary unemployment (cyclical) in the economy equal to QL1-QL2.

In the long run, wages will fall to W1 and the cyclical unemployment will be eliminated as firms hire more workers and some workers leave the job search due to the lower wage rate.

Effects and Solutions

The social and economic impacts of 20.7% unemployment are obvious, but the solutions are less so. Climbing unemployment creates two evils: falling tax revenue as workers no longer earn wages and the increased burden of paying benefits to the four million unemployed citizens. In addition, a series of social problems are often intertwined with high unemployment, these include depression; loss of skills, poverty and higher crime rates.

Some of the suggested fixes for the unemployment problem in Spain have included:

- **Use fiscal stimulus to boost consumer and government spending, thereby increasing the demand for jobs.** Spain could plan for a budget deficit (expansionary fiscal policy) and fund spending increases though increased government borrowing. Spain's current level of public debt is around 70% of GDP, which is well below Greece at 124%. However, Spain must borrow money from international bond markets, which are skeptical about Spain's ability to pay back this debt. This is despite assurances and favourable rates offered from the European Union. Increasing government debt in a period of European financial crisis is a risky option.

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- **Use loose monetary policy (lowering central bank interest rates) to encourage Spanish people to increase their consumer spending through increased borrowing.** If you understand the complexities of the European Union, you understand that all 21-member countries use the same currency and follow the lead of one central bank. Despite one country wishing to lower interest rates, other countries may think differently. Europe can be compared to a train rolling along on a set of rails, with 21 separate carriages. Each European country must follow behind the big engine, there is no room to deviate from the European Central Bank's interest rates and all of the countries must move together. Many people have wondered how long the European train would run, before one of the carriages derailed.
- **Force Spanish firms to employ more people.** Firms have no requirement to hire more people. They may choose to employ more people but will logically offer everyone lower wages to maintain profitability.
- **Enact policies to bring greater efficiencies to firms though increased on the job training and worker education.** This is a long-term solution, which will require large structural adjustments, how Spain produces goods and services and exactly what is does produce. A startling statistic is that the average Spanish university graduate will find their first job at the age of 27, long after they have graduated.

Questions:

1. Of the policies suggested above, which would be considered demand-side policies? Which would be considered supply-side policies? Could any of them be considered both demand-side and supply-side?
2. Explain the causes of the historically high levels of unemployment in Spain.
3. Why is expansionary fiscal policy increasingly difficult for a government to enact in the middle of a 'debt crisis' such as that experienced in Europe in 2010 and 2011?

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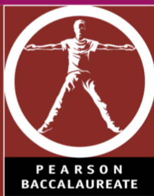

Worksheet 19.3

Helping Singapore become an Advanced Economy

Singapore is an economy which is operating at a level which is very close to its full potential. The island has no natural resources, very little spare land and a small but educated workforce. The recent global financial crisis highlighted Singapore's vulnerability to changes in the global economy. Singapore is very export dependent country with a large positive trade balance.

The latest government budget was announced here last week and the focus has shifted towards improving productivity in the economy to make it more resilient to these external shocks in the future. The shift has been from Demand Side Policies a year ago, at the depths of the recession, to Supply Side policies in the recovery phase.

Singapore has always been considered one of the original Four Asian Tigers. The four tigers (Hong Kong, South Korea, Taiwan and Singapore) were economies with shared free market policies and outward looking, export orientated philosophies. All four countries were newly industrialized, and throughout the period between the 1960's and 1990's they all experienced exceptionally high rates of economic growth. More recently other countries tried to follow this model on a road to development.

The following story from News Singapore reports on the Singapore government's recent budget proposals which aim to make Singapore an advanced economy within a decade. Read this article.

The Finance Minster is focusing on long-term growth and the health of the economy. This suggests that Singapore is using supply-side policies to increase the potential capacity of the economy and shift the Long Run Aggregate Supply curves towards the right. From a Keynesian perspective, supply side policies are effective when the economy is approaching it's full potential. The policies are considered ineffective when the economy is a recession with depressed aggregate demand. This idea is illustrated below. (note: the same policies can also be illustrated slightly differently, using a neoclassical perspective of LRAS)

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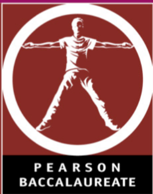
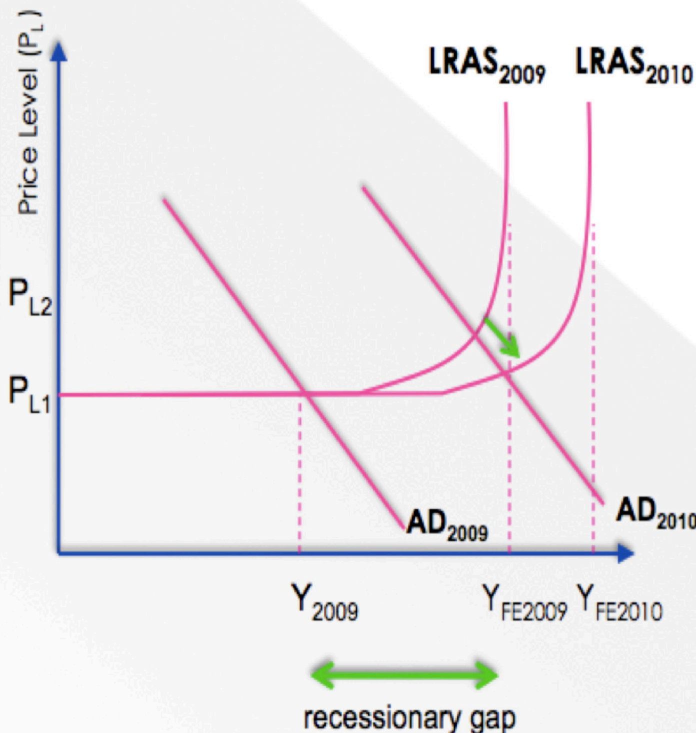


Economics

Supply and Demand Side Policies in Singapore



- As a result of supply side policies, the LRAS curve will shifted to the right, but only the vertical part shifts. This is still a good thing because the productive potential of the economy has improved. A higher real national income can be achieved before the cost of inflation kicks in.
- These policies are only good when the economy is close to the full employment level (Y_{FE2010}) and cause a shift down the AD curve
- When the economy was at Y_{2009} the government preferred demand stimulus and increased government spending. In 2010 they have favoured supply side policies.

Questions:

1. Explain why in Singapore demand side policies were favoured during the recession, but now Supply Side policies are being introduced.
2. Explain how one of the suggested policies will affect the labour market and therefore the level of aggregate supply in the economy.
3. What does the finance minister mean by the phrase 'no one is left out as we push for inclusive growth' and how does the government support inclusive growth?
4. Evaluate the short-run and long-run effectiveness of supply side policies to increase the level of Real GDP in Singapore.

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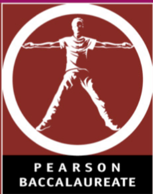

Worksheet 20.1

The Gains from Trade

Russell Roberts of George Mason University is a well-known advocate of free trade. He offers this argument for why free trade is overwhelmingly good for a nation and the world economy (read from the second to the ninth paragraph).

Discussion Questions:

1. 'Self-sufficiency is the road to poverty' To what extent is this true? Are there certain industries that a nation should try to be self-sufficient in?
2. Explain the problem with the philosophy of 'exports are good, imports are bad'.
3. '…because trade allows us to buy goods more cheaply than we otherwise could, resources are freed up to expand existing opportunities and to create new ones.' What basic economic principle is Professor Roberts alluding to here?

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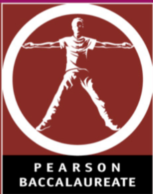

Worksheet 20.2

Comparative Advantage Practice Payoff Matricies and PPFs

In this activity, you will practice the determination of comparative advantage in two-country scenarios.

1. Use the payoff matrix below to determine the comparative advantage in these markets. This example shows relative **output** amounts for each country.

Output Model

Country/Product	Coffee	Potatoes
Country P	12	10
Country Z	20	30

a. Calculate the domestic opportunity cost for Country P

1 coffee has an opportunity cost of:

1 potato has an opportunity cost of:

b. Calculate the domestic opportunity cost for Country Z:

1 coffee has an opportunity cost of:

1 potato has an opportunity cost of:

c. Therefore, in the market for coffee, Country ___ has the comparative advantage.

Therefore, in the market for potatoes, Country ___ has the comparative advantage.

Country P and Country Z should specialize and trade. They can negotiate a coffee-for-potato exchange rate that is beneficial for them both.

d. Such a rate could be ____ coffee for ____ potato. This could also be expressed as ____ potato for ____ coffee.

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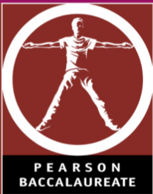
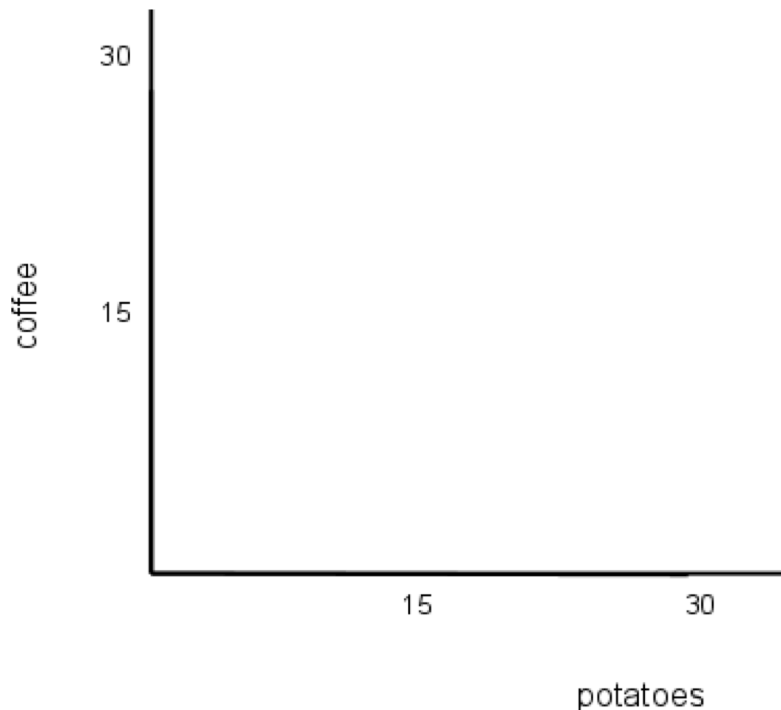


Production Possibility Frontiers and Comparative Advantage

Using the original output values above, draw an accurate PPF for each country.



Based on the diagram, can you determine which country has comparative advantage in each product? Why?

2. Use the input matrix below to determine the comparative advantage in these markets. This example shows relative **input** amounts for each product and country.

Input Model, Hours of labour

Country/Product	Sugar	Tyres
Country N	6 hours	12 hours
Country S	10 hours	15 hours

a. Calculate the domestic opportunity cost for Country N:

1 sugar has an opportunity cost of:

1 tyre has an opportunity cost of:

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b. Calculate the domestic opportunity cost for Country S:

   1 sugar has an opportunity cost of:

   1 tyre has an opportunity cost of:

c. Therefore, in the market for sugar, Country ___ has the comparative advantage.

   Therefore, in the market for tyres, Country ___ has the comparative advantage.

   Country N and Country S should specialize and trade. They can negotiate a coffee-for-potato exchange rate that is beneficial for them both.

d. Such a rate could be ____ sugar for ____ tyres. This could also be expressed as ____ tyres for ____ sugar.

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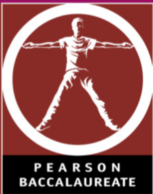

Worksheet 20.3

Dominican Republic Struggles to find its Comparative Advantage

Trade based on comparative advantage… the theory originally articulated by Adam Smith, later fine-tuned by David Ricardo, suggests that if each nation specializes its economic activity on the products for which it faces the lowest opportunity cost, then trades with its neighbors, total world output and efficiency can be maximized: today this theory represents the philosophical underpinning of all free trade agreements signed between and among the nations of the world.

Through trade, countries can exchange their extra output with other nations for the goods specialized in by others, enabling all nations to enjoy a level of consumption beyond what they'd be able to achieve if they tried to produce all goods domestically.

For many developing countries, with their abundance of either land or labor, comparative advantages tend to lie in either agricultural goods or low-skilled manufactured goods. Since global prices for food are highly unstable and dependency on healthy harvests, good weather, and stable rainfall are all highly risky endeavors for a poor country, developing nations prefer to foster the growth of manufacturing sectors in their path towards economic development.

Strategies for economic growth available to developing nations include *export-oriented* and *inward-oriented* growth. A country like the Dominican Republic, the largest economy in the Caribbean, has pursued a predominantly export-oriented growth strategy, promoting through 'free zones' the growth of a textile industry aimed at producing goods for consumers in developed countries, primarily the US.

To the Domincans, producing textiles for export to America has successfully given the people of this poor nation a grip on a rung of the ladder towards economic development. The import of capital goods has taken previously unproductive workers out of agriculture and put them into an industry where productivity, thus income, has risen, leading to improvements in living standards. Export-led growth, however, runs some serious risks of its own, as is being realized by the people of the Dominican Republic today.

Once a hot destination for American companies looking for a cheap place to 'off-shore' production of labor intensive textiles, the Dominican Republic today faces new competition, and is finding its comparative advantage slip slowly away from textiles due to increased competition from lower cost textile producers in Asia.

A nation's comparative advantage may change over time (from land to labor to capital intensive goods) as the structure of the global economy evolves. Once an economy like the Dominican Republic's has undergone a period of structural changes, away from agriculture and towards industry, the flow of low wage workers from farm to factory begins to slow to a trickle, leading to rising wages and increased competition from countries with more abundant supplies of cheap labor.

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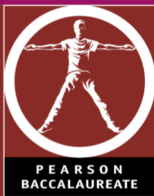

The challenge for policy makers is to manage the structural changes as they come, minimizing the negative impact such global shifts of productive resources has on the citizens of a country like the D.R. Clearly, it is in the country's interest to prepare its citizens for a 'new economy', one in which skilled labor will play a larger role. The problem is, this requires a solid education system, which the D.R., it turns out, does not yet have.

In all likelihood, given the increased competition from Asian textile manufacturers, continued economic growth in the Dominican Republic will depend on the country's ability to educate and train its workforce to adapt to a more capital, technology and information-based economy, which, if successful, will eventually lead to rising incomes and higher standards of living for the people of this rising Caribbean nation.

Comparative advantages evolve with the emergence of new competition among developing and developed countries. The negative impacts this evolution has on a particular economy can be managed if wise policy actions are taken to assure a country's workforce is educated and trained to participate in *tomorrow's economy*, rather than yesterday's or today's.

Questions:

1. Why does the US prefer to import textiles from countries like the Dominican Republic and China rather than producing them domestically?
2. Identify two reasons the Dominican Republic's comparative advantage in textile manufacturing has diminished in recent decades.
3. What policies could the government of the Dominican Republic implement to protect its textile manufacturers? What is the opportunity cost implementing protectionist policies in a developing nation like the Dominican Republic?
4. Why would increasing public funding for education better prepare the country for the economic conditions of the future?

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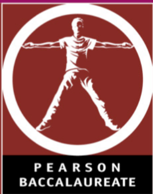

Worksheet 21.1

US vs. China Trade War – could this be the beginning?

In September of 2009, US president Barack Obama gave a speech on Wall Street in which he reflected on the many lessons America had learned since the beginning of the financial crisis of 2008 and 2009. In his speech, the president urged his audience of investors, bankers and brokers that,

> *Normalcy cannot lead to complacency. Unfortunately, there are some in the financial industry who are misreading this moment. Instead of learning the lessons of Lehman (an investment bank that collapsed in 2008) and the crisis from which we are still recovering, they are choosing to ignore them.*
>
> *They do so not just at their own peril, but at our nation's…*
>
> *ABC News: President Obama Delivers More Tough Talk to Wall Street on Financial Regulations*

In addition to his warnings about the threat posed by overly risky financial markets to the US economy, President Obama expressed his commitment to free trade and 'the fight against protectionism'. He said that 'enforcing trade agreements is part and parcel of maintaining an open and free trading system.'

The enforcement of existing trade agreements Obama refers to is his way of justifying a decision his administration made over the weekend that actually limits free trade between America and one of its largest trading partners, China. In the week prior to this speech, Obama had approved a 35% tariff on automobile tyres produced in China and imported into the United States.

In his speech to Wall Street, Obama decried protectionism and called for expanded trade and free trade agreements which he claimed were 'absolutely essential to our economic future'. But the same week, he supported a protectionist measure aimed at keeping foreign produced goods out of America in order to save a few thousand American jobs.

Obama's support for the tyre tariff can be evaluated using a simple economic model showing the effect the tariff will have on Americans and Chinese producers. The graph below demonstrates how the new tariff would affect various stakeholders.

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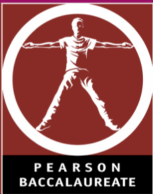

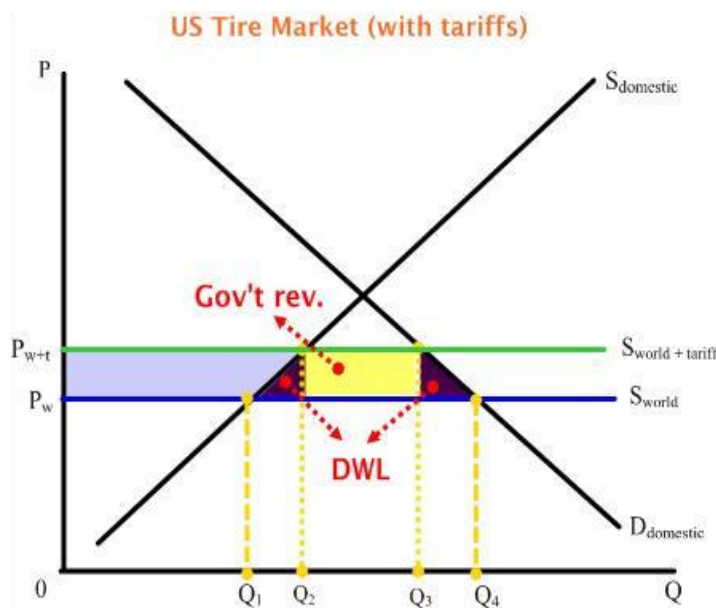

Before 35% tariff:
P_w = The price of tires in the US before the tariff
Q_1 = The quantity of tires produced by domestic tire manufactures before the tariff
Q_4 =The quantity of tires demanded by American consumers before the tariff
Q_4-Q_2 = The number of tires imported before the tariff

After 35% tariff:
P_{w+t} = The price of tires in the US after the tariff
Q_2 = The quantity of tires produced by American manufacturers
Q_3 = The quantity of tires demanded by Americans
Q_3-Q_2 = The number of tires imported
The areas colored in blue, black and yellow= the total loss of American consumer surplus

The key point to notice in the above graph is that a tariff on imported tyres results in a net loss of welfare in America. The blue area represents the increase in the welfare of tyre manufacturers (this could be interpreted as the jobs saved in the tyre industry and the profits earned due to higher prices); the black areas, on the other hand, are welfare loss. Since all tyre consumers in America pay more for their tyres due to the 35% tariff, real income is affected negatively for the nation as a whole.

One effect of the protectionist policy the graph does not illustrate, and perhaps the most serious negative impact of the tariff on America, is the response the Chinese are likely to take to what they interpret as a violation of existing free trade agreements between the US and China. China may choose to implement retaliatory tariffs on certain US products imported to China, such as agricultural goods and high skilled manufactured goods.

The problems with protectionism are myriad. Clearly American consumers suffer through higher tyre prices. In addition, Chinese manufacturers will see sales fall as their product becomes less competitive in the US market. According to some reports, as many as 9,000 workers in the Chinese tyre industry would lose their livelihoods due to declining demand from the US. But the unforseen effects of the US tariff on Chinese tyres is the *retaliatory measures* China may take. If China were to impose new tariffs on American automobiles and poultry, the scenario in the graph above would be reversed, and Chinese consumers would face higher prices, Chinese car part and poultry producers will experience rising sales, while the American auto worker and chicken farmer would suffer.

Free trade tends to result in *net benefits* for economies that choose to participate in it. American tyre manufacturers are certainly harmed by cheap Chinese imports however, America as a whole benefits through cheaper goods, more consumer surplus, higher incomes in China and therefore greater demand for imports of products made in America.

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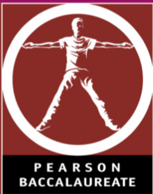

Questions:

1. Why is the Chinese government so upset about a new tax on such an insignificant product as automobile tyres?
2. Some would say that it is a small price to pay for Americans to face higher prices for one product like tyres in order to 'save' 7,000 Americans' jobs. Would you agree? Why or why not?
3. How would the Chinese government's reaction to the US tariff on Chinese tyres lead to possible an even greater loss of American jobs than the continued import of cheap Chinese tyres?
4. If 7,000 Americans were to lose their jobs due to free trade with China, what would we call the type of unemployment experienced by these workers? Is this the same type of unemployment experienced by the 700,000 workers who have lost their jobs each month during the last year of recession in the United States?

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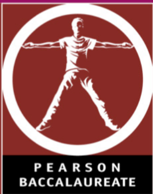

Worksheet 21.2

A call for Protectionism

Cambridge economcis professor Ha-Joon Chang argues the case *for* protectionism by America in this time of economic turmoil. Read from paragraph three to the end of this article.

Questions:

1. What is the difference between the protectionism America needs today and the protectionism it used in the late 19th and early 20th centuries?
2. How could protectionism be used responsibly by developing countries to promote economic growth and development?
3. Professor Chang argues that responsible protectionism should allow industries with no future to be phased out '*through orderly liquidation and redundancy'*. What does he mean by this and why is such a policy so hard to accomplish politically?
4. Discuss the view that protectionism is justified if practiced by a country with an underdeveloped industrial sector.

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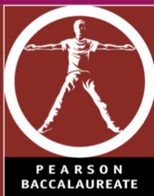

Worksheet 21.3

Tit, tat, tariff

The United States is often pointed to as an example of a country enjoying the benefits of free trade with most of the world. What many don't realize, however, is that the US actually taxes almost everything it imports from abroad.

There is a publicly available schedule of all the tariff rates the US levies on imports from every imaginable category. It is available online here.

Below is just one tiny section of the *75 page table of contents* of the 'Harmonized Tariff Schedule of the United States'.

JOGGING SUITS knitted or crocheted 6112.11-19

JOINERY of wood, for builders 4418

JOINTS artificial 9021.11

JOJOBA OIL 1515.90, 1516-1518

JOKE ARTICLES 9505.90

JONGKONG .... Ch. 44

JOURNALS 49-3, 4902

JUDO UNIFORMS of cotton 6203.22, 6204.22

JUICES fruit 20-US1-3

fruit and vegetable 20-5, 2009.11-90

meat, fish, or aquatic invertebrates 1603.00

JUMPSUITS men's or boys' 6211.32-33

women's or girls' 6211.42-43

JUNIPER seeds of 0909.50

Each of the items above have their own section in the book, in which the tariff rates for imports of the item can be found. For example, 'Joke Articles' made overseas are levied a 70% tax before ending up in the hands of American consumers. But tariffs are no joke.

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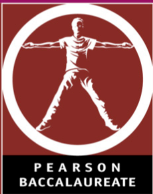

Follow the link to the Harmonized Tariff Schedule of the United States of America above and try to find out how much each of the following are taxed when being imported to the United States from abroad:

1. Women's or girls' suits, ensembles, suit-type jackets, blazers, dresses, skirts, divided skirts, trousers, bib and brace overalls, breeches and shorts (other than swimwear) [Chapter 62, pg 62-41]
2. Umbrellas and sun umbrellas (including walking-stick umbrellas, garden umbrellas and similar umbrellas), Garden or similar umbrellas [Chapter 66]
3. Wall clocks, Electrically operated, With opto-electronic display only [Chapter 91, pg 91-25]
4. Find three other items that surprise you and identify the tariff rates the US charges for the import of them.

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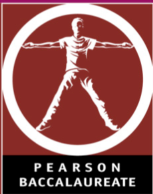
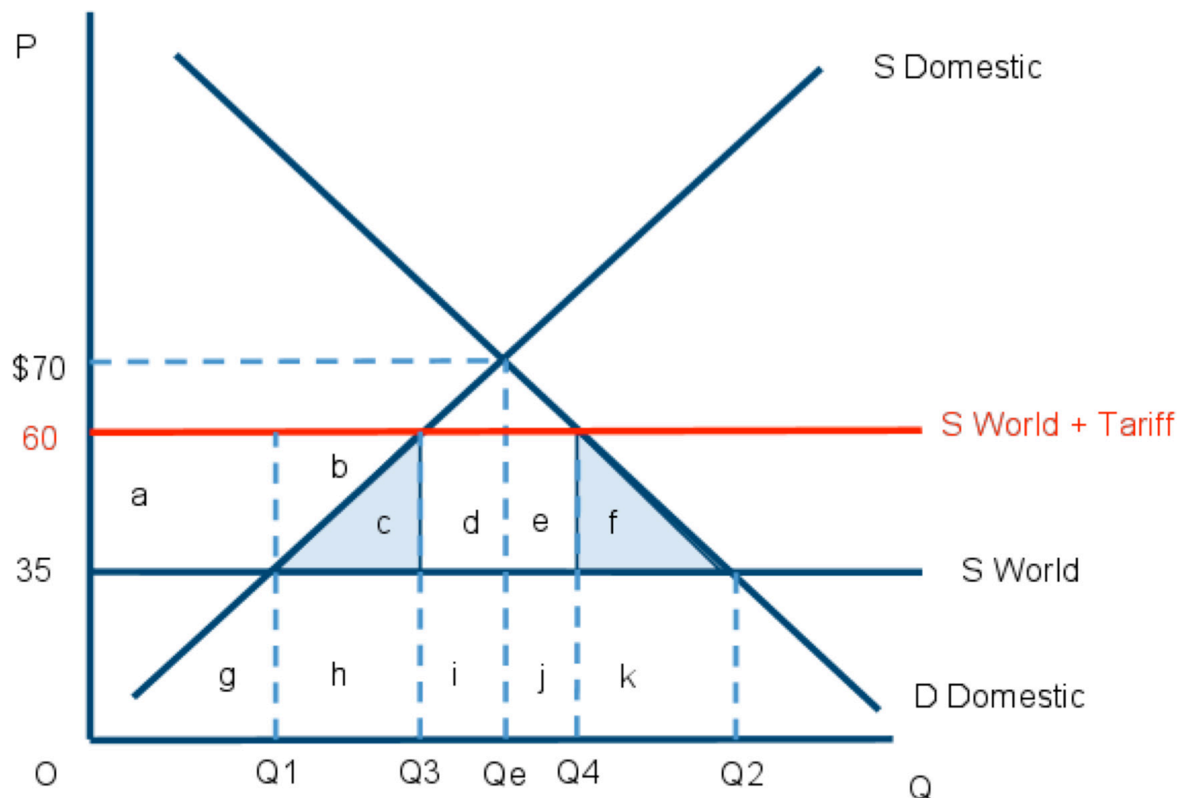


Worksheet 21.4

TQS Quiz

Quick Quiz: Fill out the missing information/diagram items for the questions below.

1. Tariff Graph:



Pre-Tariff:

a. Imported quantity:

b. Domestic production:

c. World price:

d. Import revenue area:

e. Domestic revenue area:

f. Domestic producer surplus area:

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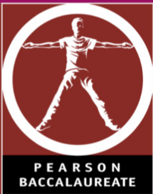


After tariff:

g. Imported quantity:

h. Domestic production:

i. World Price:

j. Import Revenue Area:

k. Domestic Revenue Area:

l. Domestic producer surplus area:

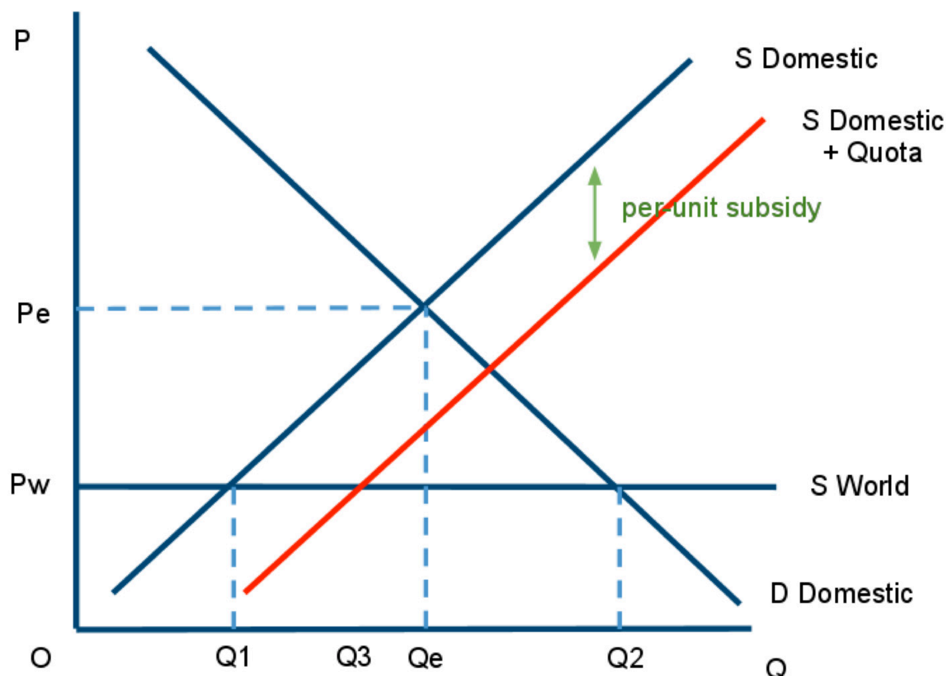
m. Total tariff amount:

n. Identify the area of *c*:

o. Identify the area of *f*:

2. Using the graph below as a starting point, diagram a protectionist **subsidy**:

Be sure to identify any price changes; subsidy amounts; quantity changes, revenue changes, and efficiency



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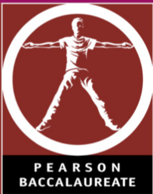
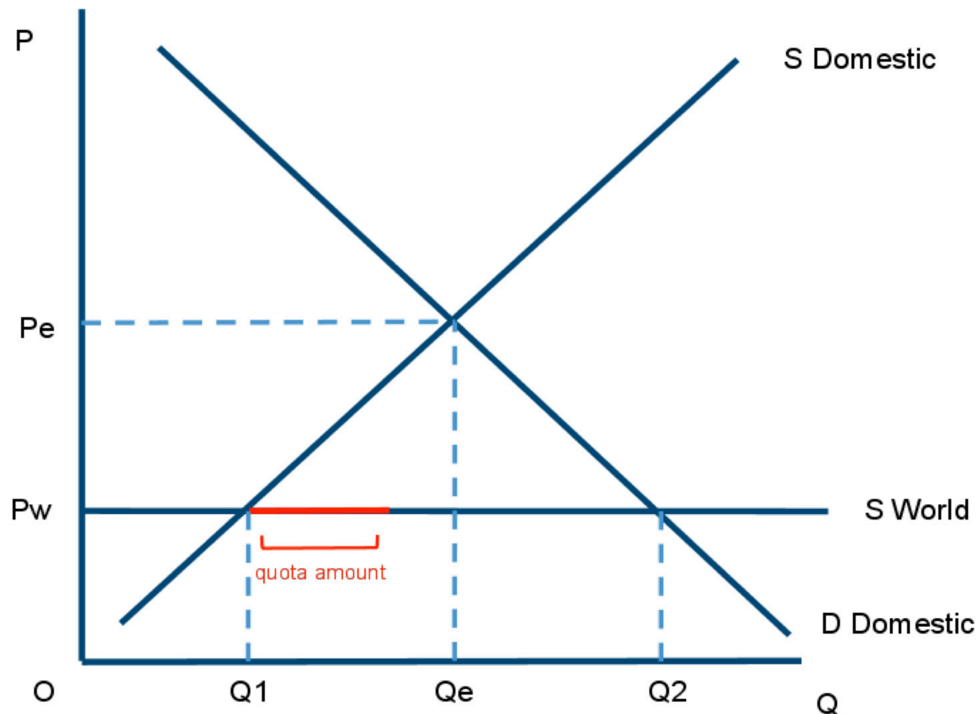


Following the model in item 1, explain the relevant changes below:

3. From this starting point, diagram an import **quota**:

Be sure to identify and label all the relevant changes in prices, quantities, revenues, and efficiency



Explain the relevant changes below.

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Worksheet 21.5

Trade and Protectionism CYO DRQ

*Create Your Own Data Response Question (Paper 2)

Purpose:

In order to better understand protectionism (as well as the nature of Data Response Tests) find an article that deals with a related issue (tariffs, quotas, rationales for protectionism) using articles at from your own research. Then write sample data response questions, just like Paper 2 in your exams.

Secondary purpose: You may find that this article would be useful for an Internal Assessment. Make sure the article is current and fits IA guidelines, just in case.

Requirements:

1. Create a data response question that will accompany an article of your choosing:
   a. Find an article that is related to one of the concepts of protectionism
   b. Copy that article into your document, with appropriate citation
   c. Create four questions that directly relate to the article
      i. One question should be a two-part question that asks for definition of two economic terms (2 points each)
      ii. One question should ask for a diagram or calculation and explanation of some issue in the extract (4 marks)
      iii. One question should ask for a diagram or calculation and/or explanation of some issue in the extract (4 marks)
      iv. One question should ask for students to evaluate an idea or set of ideas and draw upon outside knowledge of the topic (8 marks)
2. a. Assign mark values to your questions that add up to 20
   b. Create a mark scheme of required and possible answers
      i. Mark scheme should include bullet pointed answers, fitting IB style
      ii. Full diagrams or calculations should be included for questions b) and c)
      iii. The mark scheme bullet points for question d) should include many of the most likely possible ways to answer the question.
   - Article and data response questions are due at the beginning of the next class

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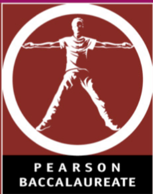

Helpful Hints:

- Potential topics could include:
  - Tariffs
  - Quotas
  - Subsidies
  - VERs
  - Administrative barriers
  - Rationales for/against protectionism
  - WTO

Expectations:

- All questions will be well thought out and appropriate
- Data response products will be a valuable study tool for our class to use

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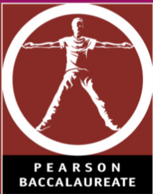

Worksheet 21.6

Vietnam's Shrimpers Decry U.S. Tariffs

Practice DRQ

Vietnam's shrimpers say they are getting a bad deal. This seems to be a classic case of protectionism, and would make a great Paper 2 data response questions. Read this article and outline your answers to the questions below.

1. Define:
   a. Comparative advantage
   b. tariff (4 marks)
2. The U.S. has defended their decision on tariffs by arguing that Vietnam has been "dumping" subsidized Vietnamese shrimp into their market. Using an appropriate diagram, show the effect of this export subsidy . (4 marks)
3. The United States has imposed a tariff 93 per cent on Vietnamese shrimp. Explain and show how this has affected the shrimp market in the U.S. (4 marks)
4. Using information from the text and your knowledge of economics, evaluate the use of protectionist policies to protect domestic employment. (8 marks)

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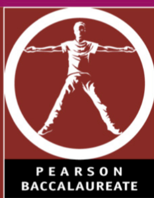

Mark scheme

1. Define the following terms:

(a) Comparative advantage *[2 marks]*

level

0 *Wrong definition* **0**

1 *Vague definition* **1**
The idea that one country produces more efficiently than another.

2 *Precise definition* **2**
An explanation that countries benefit by specializing and trading goods they produce with the lowest opportunity cost

(b) tariff *[2 marks]*

level

0 *Wrong definition* **0**

1 *Vague definition* **1**
The idea that it is a tax, or a trade barrier.

2 *Precise definition* **2**
An explanation that this is a tax placed on imported goods.

2. The U.S. has defended their decision on tariffs by arguing that Vietnam has been "dumping" subsidized Vietnamese shrimp into their market. Using an appropriate diagram, show the effect of this export subsidy *[4 marks]*

0 *Inappropriate answer* **0**

1 *Identification of appropriate theory* **1-2**
For drawing a correctly labelled export subsidy diagram showing how a shift in the shrimp supply market far to the right could lower domestic prices below the world price, creating a surplus, **or** an explanation of the same.

2 *Correct application of appropriate theory* **3-4**
For drawing a correctly labelled export subsidy diagram showing how a shift in the shrimp supply market far to the right could lower domestic prices below the world price, creating a surplus, **and** an a clear explanation of the same.

Candidates who incorrectly label diagrams can receive a maximum of ***[3 marks]***.

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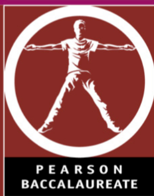

3. **The United States has imposed a tariff 93 per cent on Vietnamese shrimp. Explain and show how this has affected the shrimp market in the U.S.** [4 marks]

0 Inappropriate answer 0

1 *Identification of appropriate theory* 1-2
For drawing a correctly lablled tariff diagram that shows an increased world price, reduced foreign quantity and revenue, increased domestic quantity and revenue, and relevant deadweight losses **or** an explanation of the same.

2 *Correct application of appropriate theory* 3-4
For drawing a correctly lablled tariff diagram that shows an increased world price, reduced foreign quantity and revenue, increased domestic quantity and revenue, and relevant deadweight losses **and** an explanation of the same.

Candidates who incorrectly label diagrams can receive a maximum of [3 marks].

4. **Using information from the text and your knowledge of economics, evaluate the use of protectionist policies to protect domestic employment.**

Responses **may** include:

Position of Vietnam:*repetition of tariff graph is unnecessary, wasteful

- ○ Comparative advantage in shrimp/catfish
- ○ US fears of rapid increase of structural UE
- ○ WTO membership would allow Vietnam to appeal; force US to open market

Possible, if not central solutions could be:

- Vietnam levies tariffs on US products
- Vietnam uses this tariff revenue to subsidize Catfish/Shrimp
- Subsidize V. industry, though this would be expensive for Vietnam
- Expand markets with other countries besides US; advertise
- Join customs union/FTA with US or other countries
- Vietnam punish US with embargo on imported US goods

Two **primary** solutions:

- Negotiate a **VER** or **Quota**
- *Allowed by WTO*
- Graph is the same, effects the same
- Distinction: Quotas imposed by importing country, tougher to remove; VERs are voluntary and easier to dispel
- Benefit: restricts imports for US, give exporting Vietnam benefit of increased prices and revenue

Ver/Quota graph should show:

- Pworld below domestic Equilibrium
- Quota amount

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- Domestic supply picking up where quota stops
- Higher Price with Quota for all goods
- Reduced Quantity on market
- Increased Domestic Q and Domestic Revenue Boxes
- Decreased Import Q and Import Revenue Box

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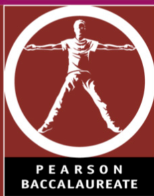


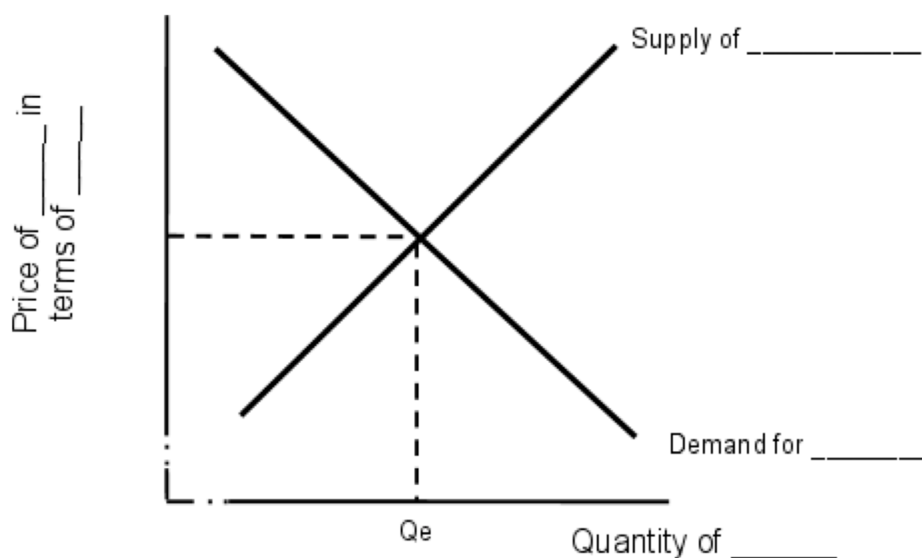
Worksheet 22.1

Exchange Rate Determinants and Diagram Practice

Exchange rate diagrams can be a source of confusion for students. It's easy enough to switch currencies around and show depreciation when you think you're showing the opposite. Here's another opportunity to refine your understanding of exchange rates determinants and practice the diagramming of them as well.

1. 'US growth spurs boom in Mexican exports.' Currency: Mexican Peso.

   Determinant:



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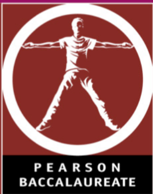
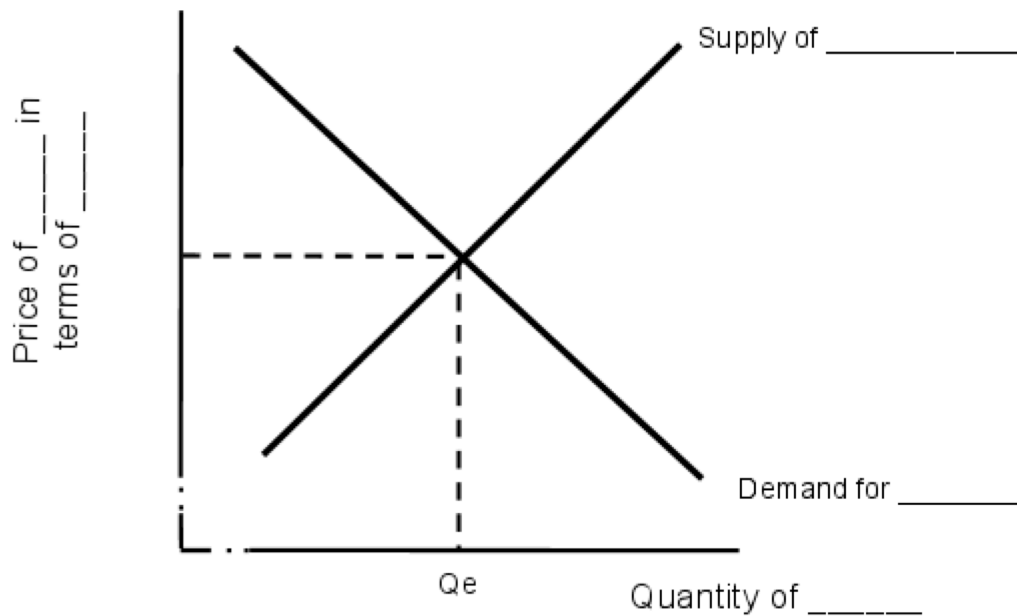


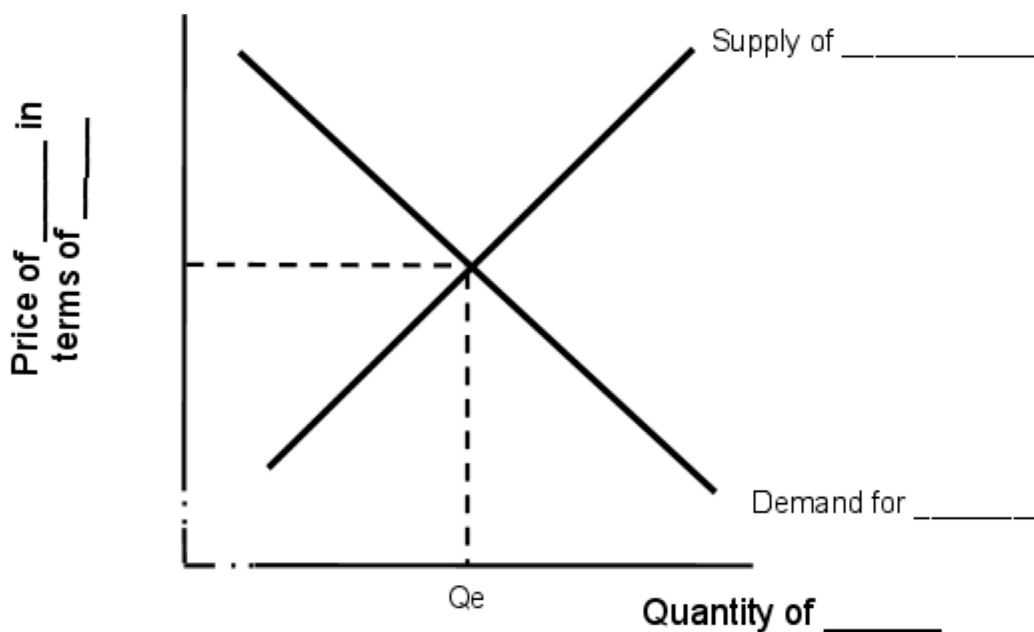
2. ‘Political turmoil in Syria hits the Syrian Pound.’

   Determinant:



3. ‘Investors sweeping in to Romania are buying up the Romanian New Lei (RON).’

   Determinant:



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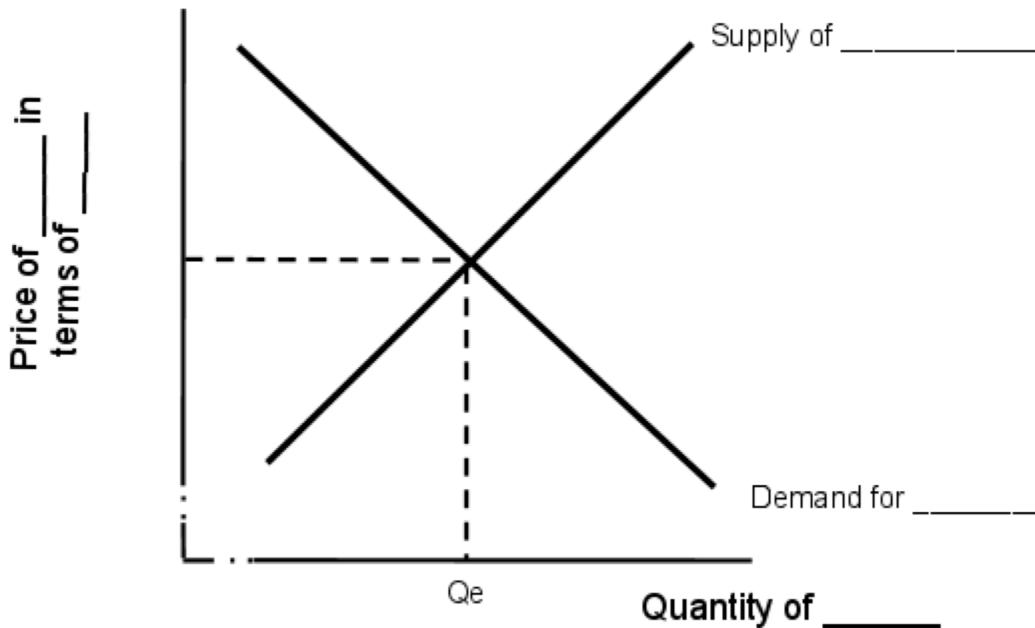
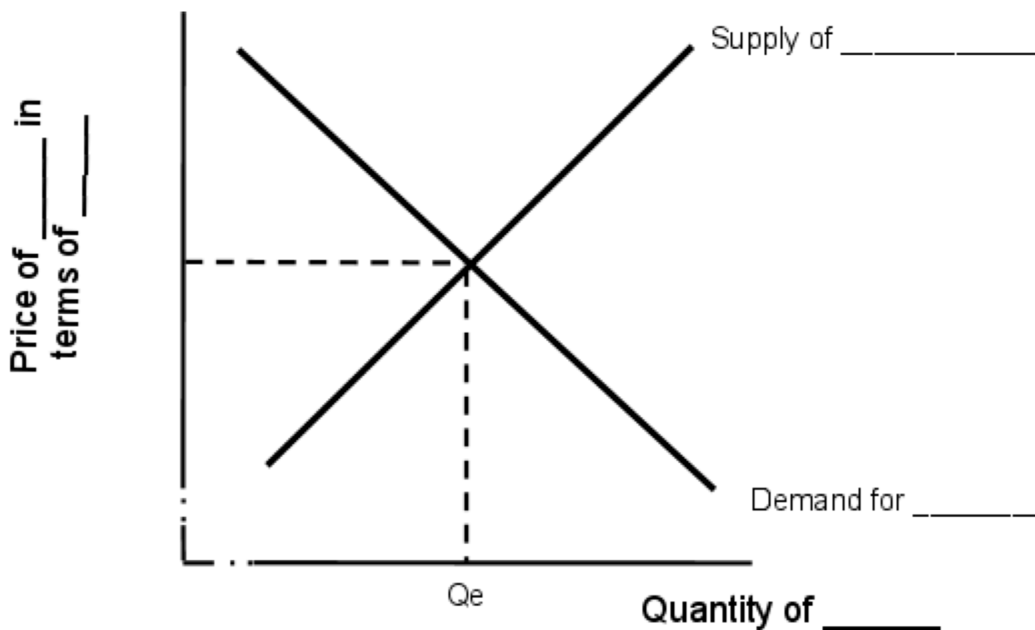
4. 'The Swiss Central Bank raises interest rates while the European Central Bank holds theirs steady.'



5. 'Global investors flee the Indian Rupee on fears of conflict with neighbors.'



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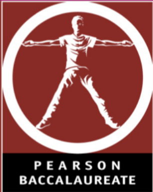
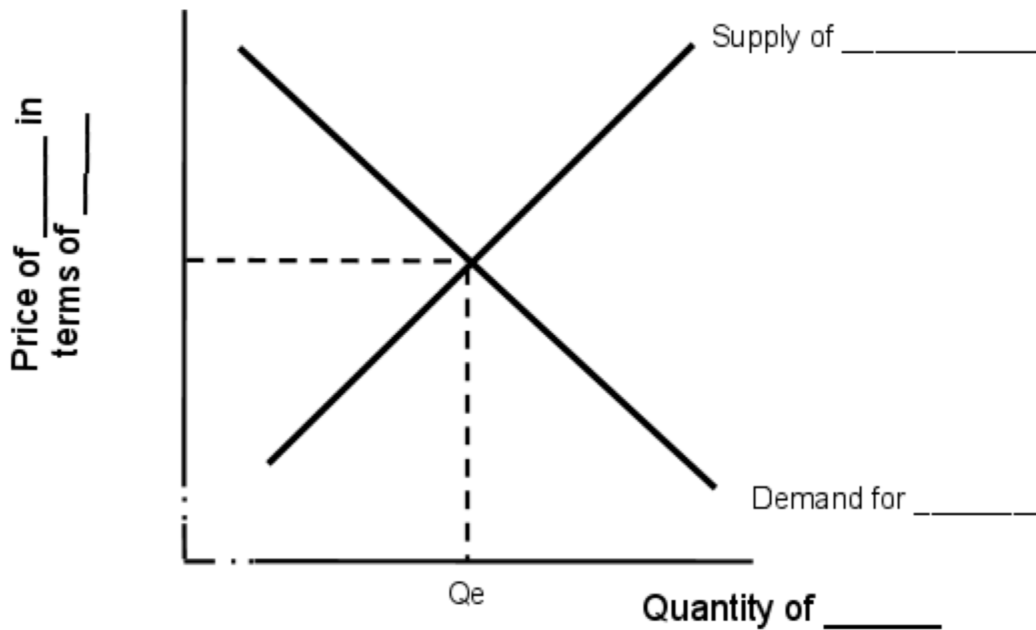


6. ‘Inflation rises for sixth straight months in Norway, affecting the value of the Krone against the Euro.’



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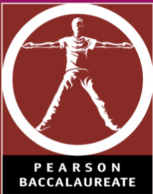
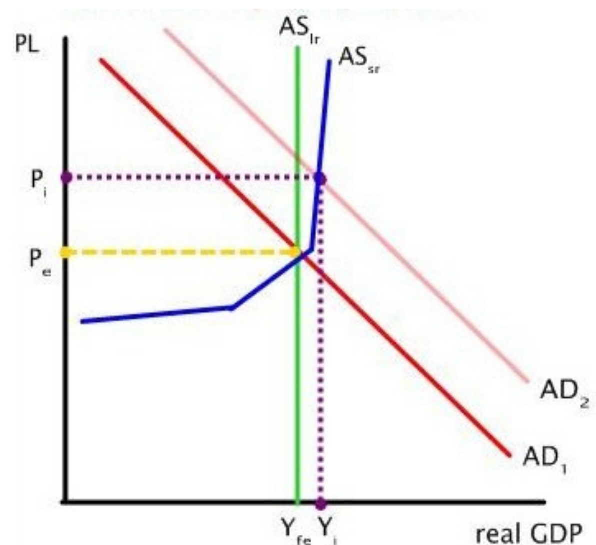


Worksheet 22.2

China's Silver Bullet

Two goals have recently been voiced by the Chinese government: *increased consumer spending and reduced inflation*. These are worthy goals for policy makers to pursue; if accomplished, they will mean increased well-being for the average Chinese household, which will enjoy more goods and services at lower prices.

The problem is, increased consumption usually means rising prices, as can be clearly illustrated in an aggregate demand / aggregate supply diagram. Household spending makes up somewhere around 40% of China's GDP, exports, government spending and investment account for the rest. Whenever one component of total expenditures increase in the economy, all other things equal, the price level will rise.



Only two things could happen to make the Chinese leadership's goal of increased consumer spending and stable prices a reality: either productivity in the economy must increase more rapidly than consumer spending, shifting aggregate supply outward, or another component of aggregate demand must be reduced more rapidly than consumption increases, offsetting the increase in overall expenditures cause by rising consumption.

So what magical combination of fiscal and monetary policy can be employed to both increase consumption and stabilize the price level? The answer may not rest purely in the realm of domestic macroeconomic policy making, but rather in the foreign exchange markets, where a weak RMB has kept domestic consumption low and net exports (thus the price level) high. Allowing the RMB to appreciate should make 'magic' happen and lead to rising domestic consumption and disinflation simultaneously. According to financial expert Peter Schiff: read paragraphs two, three and four from this link.

If China adopts a 'strong yuan' policy, its demand for US dollar-denominated financial assets, including government debt, will decline, reducing demand in the US bond market, which would drive up interest rates in the US. Higher US rates will discourage investment and consumption, exacerbating the slowdown already underway in America. Furthermore, reduced demand for US assets by China will cause demand for the dollar to slide in foreign exchange markets. Since much of Americans' household spending is on imports, inflation will rise in America as not only Chinese goods, but all imports, are now more expensive to Americans.

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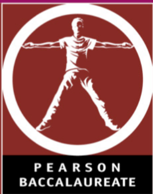

Questions:

1. How could a stronger RMB simultaneously increase domestic consumption and reduce inflation in China?
2. Why would a stronger RMB lead to higher interest rates in the US?
3. Why would a stronger RMB lead to inflation in the US?
4. Why do you think the Chinese government refuses to let the RMB appreciate against the US dollar?

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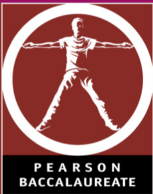

Worksheet 22.3

Managed Exchange Rates in Singapore

Rapid economic growth has put upward pressure on the price level in Singapore recently, leading the government to take action to bring inflation under control. In the first quarter of 2010, Singapores economy grew at an astounding 13.1%. This strong performance was related to the increased demand for electronic components and growth in the pharmaceutical industry.

The Singapore government operates a managed exchange rate regime. The Singapore dollar is pegged to a trade-weighted index of five currencies. The exact make-up of the index is kept secret, but the rate is allowed to fluctuate within a four percent target range. This ambiguity leads to less speculation by currency traders, and what is known as a basket, band and crawl method of currency management. Overtime, this has allowed the government to steadily appreciate the currency as demand for exports surged. Since 1980's the value of the Singapore dollar versus the US Dollar has appreciated by nearly 80%.

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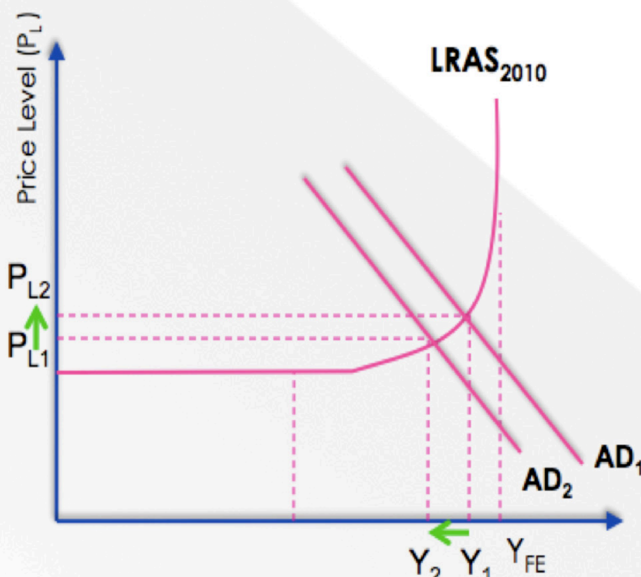
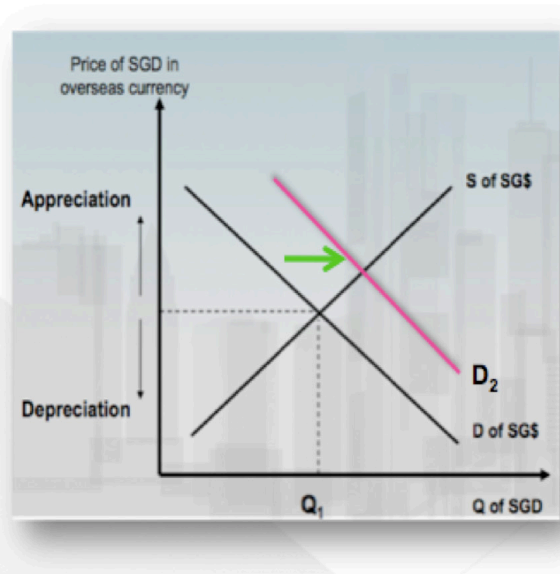
This exchange rate mechanism is also how the government controls the rate of inflation in the small city-state. Because Singapore's exports make up over 100% of GDP, a subtle appreciation of the exchange rate leads to less imported inflation and less demand for exports.

Effect of a managed appreciation of exchange rate on inflationary pressure





Net Exports fall due to appreciation of exchange rate
Imports – become cheaper to purchase
Exports – less price competitive, QD falls overtime

Appreciation caused by Monetary Authority of Singapore; shifting foreign currency reserves by buying more SDG$ using their foreign exchange reserves from overseas. Demand for SGD$ increases.

Exchange Rate band appreciates by 1.3%

The approach is something that the Chinese government is maybe looking towards. The Yuan is pegged directly to the US Dollar and has been since mid-2007. China has been able to maintain this peg by selling vast amounts of yuan to purchase US Treasury Bonds, and to thereby create large foreign currency reserves. As widely reported, the Chinese government has been under pressure to appreciate the yuan by anything up to 60% compared to the US dollar. How the government achieves this shift is complicated but may lead to a significant loss of export competitiveness and imported inflation.

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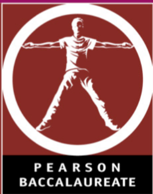

Questions:

1. What are the advantages and disadvantages of a floating exchange rate?
2. What are the advantages and disadvantages of a fixed exchange rate?
3. What is the common tool used by many governments to control inflation. Why can't all countries use the Singapore approach?
4. Can a country use both Monetary Policy and a managed exchange rate to control inflation? Do trade-offs exist?
5. Evaluate the effects on the Chinese economy of an appreciation of the yuan.

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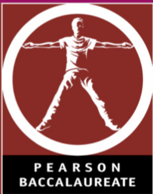
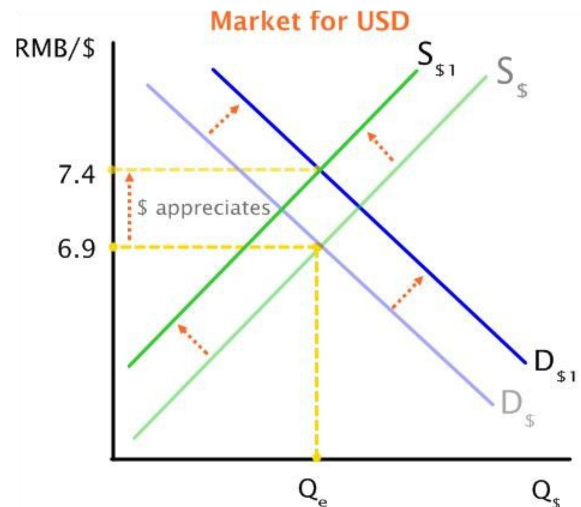


Worksheet 23.1

Exchange rates, currency manipulations and the balance of trade

While the market for a particular currency reflects many of the same characteristics as a product market (i.e. upward sloping supply curve, downward sloping demand curve), the consequences of a change the *price of a currency (the exchange rate)* is far more powerful than a change in the price of a particular good or service in a product market.

How does the value of a country's currency affect that country's balance of trade with other countries? To understand this important concept, we first need to know something about the process by which currencies are exchanged when two countries trade.



Let's look at an example:

When an American consumer wants to buy an iPod that was made in China she will have to pay for it in US dollars, since that's what she earns her wages in from selling her labor in the resource market. Apple now has the consumer's $300, which gets split up to cover all the costs the company faced in the manufacture, distribution, marketing and sale of the iPod. Part of that $300 (say $100) will go to the manager of the factory in China where it was made.

The factory manager in Shanghai faces his own costs he must cover. He must pay rent on his factory space, interest on the loans he took out to acquire capital, and wages to the workers assembling iPods on his factory floor. The problem is, these costs are all in Chinese yuan, but he's holding the US dollars that Apple paid him for his iPod. In order to cover his costs, the Chinese factory owner must take the $100 to a Chinese bank and swap it for RMB. The local bank that changes his money now hands the $100 over to China's central bank (the PBOC) which prints and exchanges RMB to the bank at whatever the prevailing exchange rate is at the time.

Ultimately, China's central bank will decide what to do with its holding of US dollars. Most of the dollars are loaned back to the United States through China's purchase of US Treasury securities (the bonds the US government sells to finance its deficits). China's voracious demand for US dollar denominated assets keeps the demand for (and the the value of) dollars high on foreign exchange markets, meaning the RMB remains relatively cheap for Americans and therefore Chinese manufactured goods attractive.

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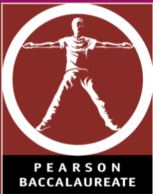

Economics

China's policy of exchange rate manipulation has upset many American politicians over the years, who often blame China for America's shrinking manufacturing sector. A weak RMB means the cost of producing things like iPods in China is far lower than it would be in the US. By keeping demand for dollars high on the foreign exchange markets through its incessant demand for US treasury securities and other financial and real assets, while simultaneously hoarding vast reserves of US dollars in its central bank, thus keeping supply of dollars on foreign exchange markets low ***(see graph)***, China has prevented the RMB from appreciating, fueling the growth of the country's export-manufacturing sector.

With sluggish growth and high unemployment in the United States, the US government has considered taking action against China in response to its continued manipulation of the Chinese currency's exchange rate. According to the Financial Times blog 'the Economists' Forum': read from 'If the US economy' to 'currency manipulation.' from this link.

The 'competitive currency' perceived to pose the greatest threat to America's industrial sector is certainly the Chinese RMB. Currency manipulation is a form of protectionism, which in a time of global economic slowdowns poses a larger threat than ever to both developed and developing nations' economies alike. For this reason, the World Trade Organization may need to employ carrot and stick methods to create incentives for China to liberalize its currency controls and allow the RMB to strengthen against the dollar and other major currencies: read from 'How would this new rule' to the end of the article from the link above.

Discussion Questions:

1. How does China continuing to undervalue its currency threaten the industrial economies of its largest trading partners?
2. What is China's purpose for maintaining the low value of the RMB relative to the currencies of other nations?
3. What would be a unilateral protectionist measure the US government may advocate if the WTO refuses to take action against China's currency manipulations? How would you advise president-elect Obama on the issue of whether to take protectionist action against China in the context of the current economic crisis in America?

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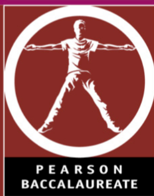

Worksheet 23.3

Elasticity, Exchange rates and the Balance of Payments - understanding the Marshall Lerner Condition

Topic: The Marshall Lerner Condition and the J-Curve

Learning Goals/Objectives:

1. For students to understand that the levels of price elasticity of demand for a country's imports and exports determines whether a depreciation or devaluation of the country's currency will move the nation's balance of payments towards a surplus or a deficit.
2. For students to understand the impact of time on the effect of a depreciation or devaluation of a nation's currency on its balance of payments in the current account.
3. For students to evaluate the argument that a country will always benefit from a weaker currency.

Success Indicators:

1. Students will present their PowerPoint presentations of their exchange rate research, explaining how elasticity, exchange rates, and the balance of payments are related.
2. Students will be able to outline their answers to three IB Economics examination questions relating to the Marshall Lerner Condition

Test of prior knowledge:

- Define 'price elasticity of demand' and explain how it is measured.
- With the use of examples, explain why some products have low price elasticity while others have a high elasticity. With the use of examples, explain why the price elasticity of demand for some goods changes over time
- Explain how the depreciation of a country's exchange rate might affect its current account balance. **IS THIS ALWAYS THE CASE?**
- How might the PED for exports and imports influence the balance on the current account following a change in the value of a nation's currency?

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Process:

- Research one pair from the following list of countries:
  - US dollars in Canada
  - Switzerland francs in Great Britain
  - Euros in Japan
  - Brazilian real in the United States
- Complete three pre-readings:
  - **From BizEd:**
  - The Marshall Lerner Condition and The Economic Effects of a Devaluation
  - **From Welker's blog:** The Marshall Lerner Condition and the J-Curve
- Using Yahoo Finance, research exchange rate data from the two countries two years ago up to today.
- Use Yahoo's software to create two a line graph plotting the value of Country A's currency against Country B's. For your initial graph, show the exchange rates over a two year period. For example:

The exchange rate of US dollars in Australia

Next create a Google Doc (shared with your teacher) of your answers to the following questions. Include in the presentation the graph of the exchange rates created in the step above.

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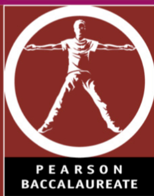

Three parts to complete in your Google Doc:

Part 1: Determinants of Exchange Rates and the BoP (22 marks)

- Create a graph of your currency's exchange rate relative to the other country's currency over the last two years. Save it to your computer as an image and upload it into your Doc. Write a one paragraph analysis of the trends in the exchange rate over the last two years. **(total 4 marks)**
- Focus on two specific shorter periods of time in the graph: one in which your currency appreciated noticeably and one in which it depreciated noticeably. **(total 6 marks)**
    - In Yahoo Finance, narrow the range of dates shown on your chart to a distinct period in which your currency strengthened and another period during which it weakened. Save these graphs as an image file and upload them into your Google Doc for analysis. (3 marks)
    - Under each new chart, describe what is happening to the value of currency shown. (3 marks)
- Using your knowledge of economics, explain TWO factors that may have caused the currency to appreciate and two factors that may have caused it to depreciate. **(total 4 marks)**
- Given the changes identified, what would you predict would happen to your country's current account balance over the two periods identified? Explain. **(total 4 marks)**
    - Following appreciation (2 marks)
    - Following depreciation (2 marks)

Part 2: The Marshall Lerner Condition (28 marks)

- What is the Marshall Lerner Condition? Why is it important to consider the price elasticities of demand for exports and imports when examining the impact of a change in exchange rates on the current account balance? – **(total 4 marks)**
- For both the period of appreciation and the period of depreciation you identified above, explain the impact of the change in exchange rates on the following: **(total 8 marks)**
    - a firm that imports its raw materials from the other country (2 marks)
    - a firm that exports its finished products to the other country (2 marks)
    - consumers who buy imports from the other country (2 marks)
    - a firm that produces good for the domestic market and competes with firms from the other country (2 marks)
- Consider the impact of the currency's ***depreciation*** on expenditures on imports and income from the sale of exports based on the following information. **(total 16 marks)**
    - *In the short-run following the currency's depreciation,* **PED for imports = 0.35** and the **PED for exports = 0.55**.
        - What will happen to expenditures on imports? Explain. (2 marks)
        - What will happen to income from the sale of exports? Explain. (2 marks)
        - What will happen to the country's current account balance? Explain (2 marks)

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- Based on the elasticity information above, is the Marshall Lerner Condition met? Yes or no? Explain (2 marks)

- *In the long-run following the currency's depreciation,* **the PED for imports = 1.5** and the **PED for exports is 2.0.**
  - What will happen to expenditures on imports? Explain. (2 marks)
  - What will happen to income from the sale of exports? Explain. (2 marks)
  - What will happen to the country's current account balance? Explain (2 marks)
  - Based on the elasticity information above, is the Marshall Lerner Condition met? Yes or no? Explain (2 marks)

Part 3: the J-Curve (16 marks)

- Why does the price elasticity of demand for imports and exports increase over time following a change in a country's exchange rate? In what way does PED change the more time passes? **(total 2 marks)**
- Why will a depreciating currency worsen a country's current account balance in the short-run? Assuming the currency remains weak, how would the current account balance change over time. **(total 2 marks)**
- Draw a J-Curve and explain its shape, referring to your country's currency. **(total 2 marks)**
- Read the following article: 'How far will the dollar fall?' by Richard W. Rahn. Based on the paragraphs of the article indicated below, answer the questions that follow. Firstly read paragraph three.
- Why might the weaker dollar worsen the US trade deficit? Under what conditions would the weaker dollar improve America's trade deficit? **(total 4 marks)**
  Read paragraph four.
- How does a large financial (capital) account surplus allow the United States to maintain a large current account deficit? **(total 2 marks)**
  Read paragraph five.
- How do exchange rate controls by China and Japan reduce the likelihood that a weaker dollar will improve the United States' current account balance?
  Read paragraph six.
- If investments in the United States began earning lower returns relative to investments in other countries' financial and capital markets, what would ultimately happen to the US balance of payments in its current and financial accounts? Explain **(total 4 marks)**

Total 66 marks

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Worksheet 23.3

Excuse me, China, could you lend us another billion?

American consumers are a curious bunch. Up until 2007, the average savings rate in the United States fell as low as 1%, and during brief period was actually negative. What does negative savings actually *mean?* It means that Americans consume *more* than they actually produce.

On the micro level, the only way to consume beyond ones income is to borrow from someone else to pay for the additional consumption. In other words, savings must be negative for one to consume beyond his or her income. The US is a nation of borrowers, but from whom do we borrow? China, for one.

China is a nation of *savers*, where national savings averages 50% of income. What exactly does this *mean?* Well, just the opposite what negative savings means; rather than consuming more than it produces, the Chinese consume only about half of what it produces. Here's how James Fallows, a Shanghai-based journalist, explains the China/US dilemma: read from 'Any economist will to 'as China does' in the article, 'The $1.4 trillion question'.

What happens to the rest of China's output? Naturally, it's shipped overseas for Americans and others in the West to consume. The irony is that the consumption of China's products has been kept affordable and cheap thanks to the actions the Chinese government has taken to suppress the value of the RMB, thus keeping its products cheap and attractive to American consumers. Read from 'When the dollar is strong' to 'New England' in the article linked to above.

Clearly, a strong dollar is good for America in many ways. The dollar's strength in the last decade can be credited partially to the Chinese, who have been buying dollar denominated assets in record numbers over the last seven years.

> *By 1996, China amassed its first $100 billion in foreign assets, mainly held in U.S. dollars. (China considers these holdings a state secret, so all numbers come from analyses by outside experts.) By 2001, that sum doubled to about $200 billion… Since then, it has increased more than sixfold, by well over a trillion dollars, and China's foreign reserves are now the largest in the world.*

'The $1.4 trillion question'

China's purchase of American assets keeps demand for dollars on foreign exchange markets strong, thus the value of the dollar high relative to other currencies, allowing American firms and consumers the benefits of a strong dollars described above.

A nation's balance of payments consists of **the current account**, which measures the difference between a country's expenditures on imports and its income from exports (*In 2008 China had a $232 billion current account surplus with the US, meaning the US bought more Chinese goods than China bought of American goods*), and **the financial account**, which measures the difference between the

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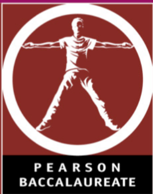

inflows of foreign money for the purchase of real and financial assets at home and the outflows of currency for the purchase of foreign assets abroad. In the financial account, China maintains a deficit (*meaning China holds more American financial and real assets than America does of China's*), to off-set its current account surplus.

The two accounts together, by definition, balance out…usually. Any deficit in the China's financial account that does not cover the surplus in its current account can be held as foreign exchange reserves by the People's Bank of China. The PBOC, however, prefers not to hold excess dollars in reserve, as the dollar's value is continually eroded by inflation and depreciation; therefore it invests the hundreds of billions of excess dollars it receives from Americans' purchase of Chinese goods back into the American economy, buying up American assets, with the aim of earning interest on these assets that exceed the inflation rates.

The 'assets' the Chinese are using their large influx of dollars to buy are primarily US government bonds. The government issues these bonds to finance its budget deficits, and the Chinese are happy to buy these bonds for a couple of reasons: They are secure investments, meaning that unless the US government collapses, the interest on US bonds is guaranteed income for China. That's one reason; but the primary reason is that the purchase of these bonds puts US dollars that were originally spent by American consumers on Chinese imports right back into the hands of American consumers (via government spending or tax rebates), so they can continue buying more Chinese imports.

The Chinese demand for dollar denominated financial assets, including government bonds, corporate stocks and bonds, and real assets like real estate, factories, buildings and so on, has resulted in a long period of a strong dollar. If the Chinese ever decided to stem the flow of dollars into American assets, the dollar's value would plummet to record lows, leading to high inflation and eventually a balancing of America's enormous current account deficit with China and the rest of the world.

However, a falling dollar is the last thing China wants to see happen, for two reasons: One, it would make Chinese imports more expensive thus less attractive to American households, thus harming Chinese manufacturers and slowing growth in China. Two, US dollars are an asset to China. Its $1.4 billion of US debt would evaporate if the dollar took a major plunge. To China, this would represent a loss of national wealth; in effect all that 'savings' that makes China so unique would disappear as the dollar dived relative to the RMB. For these reasons, it seems likely that China will continue to be a willing buyer of America's debt, thus the financier of Americans' insanely high consumptive lifestyle.

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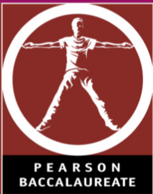

Questions:

1. Many people in America are terrified that the Chinese might dump their dollar holdings. What would happen to the value of the US dollar if China decided to change its foreign reserves to another currency?
2. Why is it very unlikely that China will do this? In other words, how does the status quo benefit China as well as the US?
3. How do American households benefit from China's financing of the government's budget deficits? In what way to they suffer from this arrangement?
4. Do you think America can continue to finance its budget deficits through the continued sale of debt to foreigners forever? Why or why not?

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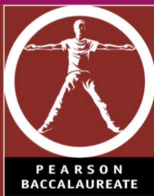

Worksheet 24.1

A Customs Union in Africa

Three East African countries: Uganda, Tanzania and Kenya formed a Customs Union in 1967 with the lofty aims of developing free trade. This article, from *The Economist,* explains the evolution of trade in this part of Africa and also explains how the group of nations is attempting to revitalise and strengthen the agreement.

This video tells a bit more about the history and purpose of the East African Community. Watch it before answering the questions below.

Each of the nations who are members of this trade bloc are at different stages of development, thus have different things to gain or lose through the expansion of the trade bloc. Uganda is rich with natural resources such as oil, Tanzania lacks the same educated workforce of Kenya, which in turn has high levels of endemic corruption. The risk for all three nations in a free trade agreement is the exploitation of resources across national borders.

After reading the article and watching the video, answer the questions below.

Questions:

1. What kind of trade bloc exists between the existing members of the East African Community?
2. Who are the original members of the EAC?
3. Describe how the East African Communtiy (EAC) has changed overtime?
4. What are the advantages of altering the EAC to become a customs union and common currency union, with a bigger population base, and to include nations such as Somalia, South Sudan and Congo
5. What are the disadvantages of such a policy?

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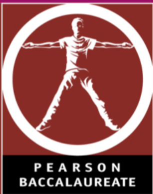

Economics

Worksheet 24.1

Trading blocs and Economic Integration

This activity can be completed in class or assigned as homework. It can be done individually or with partners.

A **trading bloc** is *a group of countries that join together in some form of agreement in order to increase trade between themselves and/or to gain economic benefits from cooperation on some level.*

Below is a list of some of several regional trading blocs. The assignment is to:

1. Identify the nations involved in your assigned trading bloc
2. Identify the kind of trading bloc (customs union, free trade area, common market, monetary union)
3. Discuss the impact that membership in the trading bloc has had on the economy of one member nation

Research your assigned trading bloc, prepare a short summary of the points above, and post your findings as a comment below.

1. *Pacific Regional Trade Agreement (PARTA or PIF)*
2. *European Economic Area (EEA)*
3. *Caribbean Community (CARICOM)*
4. *Union of South American Nations (Unasur/Unasul)*
5. *East African Community (EAC)*
6. *Southern African Customs Union (SACU)*
7. *Greater Arab Free Trade Area (GAFTA)*
8. *North American Free Trade Agreement (NAFTA)*
9. *Association of Southeast Asian Nations (ASEAN)*
10. *Central European Free Trade Agreement (CEFTA)*
11. *African Economic Community (AEC)*

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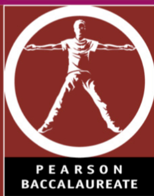

Worksheet 25.1

Deteriorating Terms of Trade and the Current Account Balance

Terms of trade is a term that is often misunderstood by IB Economics students. Simply put, a nation's terms of trade refers to the relative price of a country's exports to its imports.

When a country's imports increase in price, while the value of its exports stays the same, the country's terms of trade are said to deteriorate. As a nation experiences deteriorating terms of trade, it finds itself moving towards a deficit in its current account, meaning that expenditures on imports are growing more than income from exports, also called a trade deficit.

The United States has run trade deficits for most years since 1970. Since 2004 the US has annually spent over $600 billion MORE on imports than it earned from the sale of its exports. (Balance of trade data going back to 1960 can be found here).

Usually, when a country enters a recession, it would be expected that its balance of trade would improve, since households demand fewer imports and domestic inflation decreases making the country's products more attractive to foreign households. In fact, in 2008, when the US entered its current recession, its trade deficit actually decreased. Recently, however, due to the weakness of many of its trading partners and a deterioration in terms of trade, America's recession is accompanied by a deepening trade deficit. From this *Wall Street Journal* article read the first three paragraphs.

Questions:

1. How did rising oil prices lead to an increase in America's trade deficit?
2. What determines demand for American exports in the rest of the world? Why is demand for American goods and services falling even as their prices decline due to deflation in the US?
3. Where does America get the money to buy hundreds of dollars more in imports than it sells in exports? What do foreigners do with all the US dollars they earn from their enormous trade *surplus* with the US?
4. Why doesn't the US government simply place tariffs or quotas on imports to try and achieve more balanced trade with the rest of the world? Is this an appropriate response to a trade deficit?

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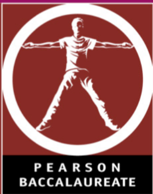

Worksheet 25.2

Terms of Trade and the Balance of Payments

One of the challenges to learning about the terms of trade is understanding its connection to the trade balance. How do changes in one affect the other?

Independent Research Project

Your teacher will assign you a country* to research.

1. Use data over the 10 year period of 2001-2010
2. Identify the year to year trends in the terms of trade.
3. You might choose to diagram these on a line graph.
   a. Percentage increase or decrease (movement toward surplus or deficit).
4. Identify the changes in trade balance over this same period.
5. Plot these changes on the same diagram
   a. Percentage changes in TOT, positive or negative
6. Next, using your understanding of price elasticity of demand, research the types of exports and imports for your assigned country.
   a. Based on the results of your research, to what degree do you think demand for exports/imports is elastic or inelastic?
   b. Based on your research, does it appear that changes to the terms of trade has affected the balance of payments?

*Research note: data for regions (ASEAN, Central and Eastern Europe), rather than countries, is sometimes easier to find. Teachers should identify relevant websites and their classification method before making student assignements.

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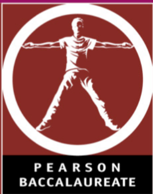

Worksheet 26.1

Myths about economic development, debunked

Hans Rosling, a Swedish professor of international health, has created a presentation which reveals and debunks some of the prevelant myths about global poverty. Using software he developed to analyze data on human development called 'Gapminder', Rosling gives a mind-blowing presentation on the trends in economic and human welfare over the last thirty years, debunking several myths believed true by many in the first world about development and poverty.

The first video is from the 2006 TED Conference in Monteray, California. The second video is from 2007's TED. Both have been viewed hundreds of thousands of times on the web. Watch and discuss.

1. 2006 TED Conference speech
2. 2007 TED Conference

Essential Questions

1. What is human development and what factors contribute to this development?
2. What does it mean to have an improvement in the standard of living?
3. What is the difference between economic growth and development?
4. What indicators are used to measure the economic development of nations?
5. How can data help us to better understand LDC's while developing more effective strategies to improve their development.
6. What are obstacles that stand in the way of development?

What is the HDI?

The Human Development Index (HDI) is a summary measure of human development. It measures the average achievements in a country in three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living. Data availability determines HDI country coverage. To enable cross-country comparisons, the HDI is, to the extent possible, calculated based on data from leading international data agencies and other credible data sources available at the time of writing.

The assignment: Follow the steps below and make notes to help you complete the follow up questions at the end of this post.

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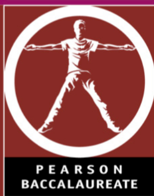

Step 1:

Go to the UNDP website, and watch the video entitled 2010 Human Development Report. Take note of the indicators that have contributed most to the development of the country as well as the obstacles that have and are still standing in the way. Reflect on the following questions in your notes:

- What are the successes of each country?
- How do they measure this success?
- What are some of their obstacles?
- How have they been overcome?

Step 2:

Go back to the UNDP website and click on the tab for Countries and look up the current statistics on your home country, a BRIIC country (Brazil, Russia, India, Indonesia or China) and a country that scores low on the HDI ranking. Be sure to take note of which indicators are listed and how each country compares to the other. You can also find data on individual countries here: Table 1 – Human Development Index and its components.

Step 3:

Go to GapMinder World, chose five indicators that were used in the HDR video or used in the Countries profile that you believe have contributed most to the countries' development. Choose time on the horizontal axis and the indicator on the vertical axis and see what the overall trend has been for all five indicators in each of the three countries. Take note of what the overall trends have been. Create at least one screen shot and include it in your notes for the assignment.

Step 4:

In order to better understand what factors contributed to the changes your countries have experienced, it is important to see the relationship between different indicators. For example, it is clear that the life expectancy in almost all countries has risen over the past century. It is not immediately clear, however, what may have contributed to this change.

Go back to each of the five indicators that you previously looked at. This time, change the horizontal access to an indicator that you believe may have contributed to the changes/trends and see if there is a correlation between them. This should give you a better idea of what indicators act more as a means towards development rather than as a goal for development.

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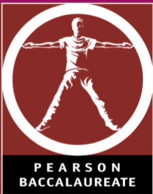

Step 5:

As countries develop, they are confronted with both opportunities and obstacles. What are the obstacles to economic development that each of your three countries are facing?

- Using data and trends from GapMinder, choose one obstacle for each country and explain why it is their major obstacle.
- Brainstorm and describe one strategy of how this country may be able to overcome its greatest obstacle to development.

Follow Up Questions (to be completed and turned in to your teacher by the end of the third class period):

- What are the weaknesses and strengths of the Human Development Index (HDI) as an indicator of progress in comparison to GDP/GNP per capita? **(Total 5 marks)**
- Explain two reasons why increased investment in education is essential for development in developing economies. **(Total 4 marks)**
- What evidence would indicate to an economist that a country is experiencing economic development as well as economic growth? **(10 marks)**
- Evaluate the strategies (based on your findings in gapminder) that may be used to achieve economic development. Refer to real world examples in your answer. **(15 marks)**

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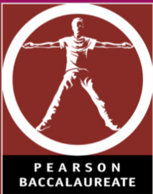

Worksheet 26.2

Does Economic growth equal economic development?

While gross domestic product may offer an indication of a country's level of economic activity and output, it says little about the reality of life for the common person of developing countries.

To offer a more rounded figure for determining the level of economic development, the United Nations Development Program has created an alternative to GDP, the Human Development Index. The HDI accounts for the GDP per capita, the average level of primary and secondary education attained, literacy rates, and the life expectancy of citizens, to offer a glimpse into the reality of not just material wealth, but health and education in developing countries.

An analysis of the data for China reveals that since the 1970′s the trend in human development has been a steady improvement. In 1975 China had an HDI rating of 0.53 (about where Sub-Saharan Africa is at today), and has since improved its rating to 0.78, just putting it in the range of countries such as Thailand, Turkey, and the Dominican Republic. While it is still considered a 'developing' country, China is no longer in the ranks of the 'poorest of the poor' which today are those with an HDI ranking considered 'low' or below 0.5.

On the surface the trends in development appear overwhelmingly positive; however, the reality is that as many as 300 million Chinese may still live in a dire state of poverty. The World Bank itself recently announced that China's GDP in purchasing power parity dollars, had for years been overstated, and the recent correction made it apparent to the world that China's miracle growth over the last two decades had perhaps not lifted *as many* people out of poverty as previously thought.

In a recent International Herald Tribune article, Howard French reveals a side of China's economic landscape that is not often exposed by the media, focused as it is on the emerging middle class concentrated on the East coast. French visits China's most populous province, Henan, to report on the reality for the rural poor in this economically deprived region: read paragraph five and then from paragraph eight to 'a daily diet of 2,000 calories.'

In Henan Province, the 'official' poverty level is $94 a *year!* That's **$0.26 a day!** It is not surprising that official poverty rates are as low as they are in China, when the benchmark is as low as that.

Despite its low standards, Beijing and provincial authorities have taken some measures to bring relief and development to the poor areas of China's countryside. But is it enough? Read paragraphs two, five, six and seven from the article linked to above. With a growth rate of around 10%, a booming industrial and service sector sprouting up along the East Coast, and a middle class approaching in size that of the United States, it's easy for the world to look at China's emergence as an overwhelming story of success. As French observes here, the story for the poor in places like rural Henan is, on the contrary, one of overwhelming poverty.

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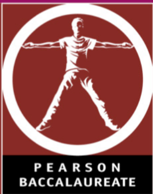

Discussion questions:

1. Why doesn't the rapid growth of China's economy result in improvements in the lives of all Chinese?
2. What measures might Beijing or the provincial governments take to bring true *development* to the poor areas?
3. Does the rich East Coast have an obligation to improve the lives of the poor interior? If so, why hasn't it happened?
4. What is the biggest challenge China faces in lifting its 300 million poor out of poverty?

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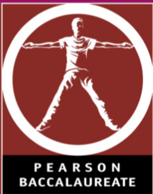

Worksheet 26.3

Visualizing Economic Growth and Development

Essential Question: How does economic development differ from economic growth?

Objective: Whereas most assignments deal in information and analysis, this one deals in imagination. Here we ask you to portray what you believe more economically developed countries look like. Further, considering that development is a relative term, we also want to see how a country could end up if it only achieves economic growth, without any progress or development.

Goal: To visualize and depict the distinction between economic development and economic growth.

Process:

1. Class is divided into pairs, each pair is either an 'A' or a 'B' pair. A groups will focus on Economic Growth and group B groups on Economic Development.
2. Each group will gather images from the web that they believe depicts or portrays either *growth* or *development*.
3. Once at least 10 images have been identified, they should be creatively put into a collage using a picture editing program such as Paint, Picassa, or Photoshop.
4. Each group's collage should be accompanied by a short explanation of how images were selected and why they depict your assigned topic.
5. Once each pair has created it's collage, they should present it to the class. If possible, collages can be printed out and put on the classroom walls for the duration of the Economic Development section of the course.

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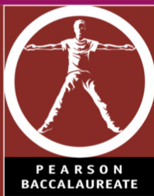

Worksheet 27.1

Day Zero in Haiti

The people of Haiti refer to the day of the 2010 earthquake Day Zero. Day Zero was the day when an earthquake rumbled and shook the shallow bay near *Port-au-Prince* and crumpled the many fragile houses, hospitals, churches and hotels.

Some consider the day of the quake, as the day a new nation began. As economists we can offer insights about the path to improved living standards, through our understanding of what has worked, and not worked, in other countries.

Haiti has a history which is more turbulent than most. In 1697 when Spain ceded control of Haiti to the French, much of the land was deforested and the ecology wrecked as sugar fields were planted. In 1804 the republic was founded, and later the dominant political figure was Dr. François Duvalier, and his son who reined as Presidents of the country from 1957 – 1972 (François) and his son till 1987.

In 1990 the ruling military junta gave up power and President Clinton sent in 20,000 troops to a country ravaged by HIV and entrenched poverty. Hurricanes in 2004 and 2008 displace hundreds of thousands of Haitians and ruined existing infrastructure. But the recent earthquake might be the biggest challenge yet for most fragile and poorest nation in the Caribbean. On the Human Development Index, Haiti is classified as one of the least developed nations in the world at 149th of 182 countries (HDI Report, UN 2009).

Former President Bill Clinton who acted as the UN's Special Envoy to Haiti following the quake, offered a good insight on the nations challenge in an excellent essay in an issue of Time Magazine a week after the quake. Read from 'We've got to all' to 'away in two years' in the article.

What the economic strategy will be for Haiti will likely be influenced by the trade agreement with USA called the Caribbean Initiative. This has recently provided an impetus for the clothing industry in Haiti. Hanes, who sell T-shirts throughout North America, produces part of their stock in Haiti in the factories, which are now being protected from looting. These labour intensive industries are important in a nation with approximately two-thirds of labour force unable to find work. The earthquake and eventual rebuild also offer opportunities to build on existing plans as Clinton explains (see the article).

It is evident that Haiti can use this opportunity to develop the country as Clinton explains. In addition, there are many other ways that the country could improve the living standards of the Haitian people. These development and growth strategies could include:

1. The development of Fair Trade schemes to improve Haiti producer's access to world markets.
2. Facilitating the provision of small loans through Micro Finance schemes.
3. Developing the export sector by investing in the transportation infrastructure to transport products.
4. Exploring new trade agreements with nations.
5. Promoting foreign direct investment in Haiti by multinational companies.

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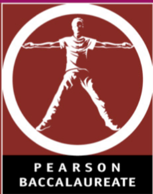

Nevertheless the task is daunting for Haiti. As a UN staff member recently explained to a New York Times reporter, the immediate recovery is complex. The future reconstruction and redevelopment will be difficult, and the road long. Read the fourth paragraph in this article.

Here are some interesting facts about Haiti

1. 40% of the population is under 14 years of age.
2. The nations main exports are coffee, mango and other agricultural products.
3. 66% of all Haitian's work in the agricultural sector on small subsistence farms.
4. Before the earthquake foreign aid made up a large proportion of national income. In 2004 over $1 billion was pledged by USA, World Bank and Canada and France. Partly in loans but also in direct assistance.
5. In 2006 Haiti was ranked as the most corrupt nation in the world by Transparency International, followed by Burma and Iraq.

Questions:

- In your opinion, what is Haiti's most valuable resource endowment? Explain.
- Choose two development or growth strategies and explain how these could be implemented in Haiti.
- Evaluate the strengths and weaknesses of each strategy.
- How could corruption be a barrier to the future development of Haiti?
- What do you think Haiti will be like in 20 years?

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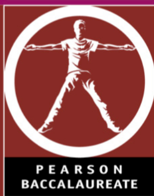

Worksheet 28.1

The Bottom Billion

In IB Economics section 4, Development Economics, several strategies for achieving improvements in the welfare of the world's poorest people are investigated. Foreign aid has been one of the main focuses of economic development strategies over the last several decades. But is aid in the form of development loans and grants from international organizations and foreign governments always beneficial to those who receive it in the poorest countries (the *bottom billion* as described by development economist Paul Collier)?

In the discussion that follows, Paul Collier of Oxford and Zambian economist Dambisa Moyo argue that the developed world's focus on aid to Africa, resulting in a trillion dollars in loans and grants over the last 50 years, has missed the mark and completely failed to achieve meaningful economic development. The focus must therefore shift to opening markets, improving governance, achieving security and creating jobs for the poorest people on the African continent. Watch the two videos below, and respond to the discussion questions that follow. [the time in the video where the question is discussed is in brackets]

Part 1

Part 2

Questions:

Part 1:

1. What factors does Paul Collier point to that contribute to the 'poverty traps' many African nations find themselves in? [3:07]
2. What have the two main goals of foreign aid policy been over the last 50 years, according to Dambisa Moyo? [4:45]
3. What are the 'four horsemen of the African apocalypse?' How does Moyo think these four obstacles to development can best be overcome? [5:14]
4. What is Paul Collier's opinion of the role of free trade in promoting human and economic development in Africa? What does he think about Africa's traditional dependence on primary products and commodities? [7:45]
5. Before economic growth and development can occur, security must be achieved. Why is security, according to Collier, the number one obstacle to achieving meaningful development in Africa? [8:30]
6. In a dissenting view, Dr. Jeffery Sachs argues for *more aid* to Africa. What types of aid does Sachs believe is absolutely crucial for Africa to continue to receive? [10:39]

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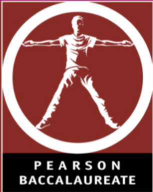

Part 2:

1. Collier makes the claim that aid may create *'moral hazard'* in Africa. What is moral hazard and how could reducing aid to African governments actually 'force good governance'? [5:30]
2. Is there any historic record of aid working? What strategies accompanied foreign aid that contributed to its greatest historical success? [8:10]
3. What's the main difference between Europe's economic successful development during the second half of the 20th century and Africa's unsuccessful experience during the same period? [9:00]

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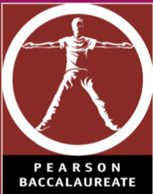


Worksheet 29.1

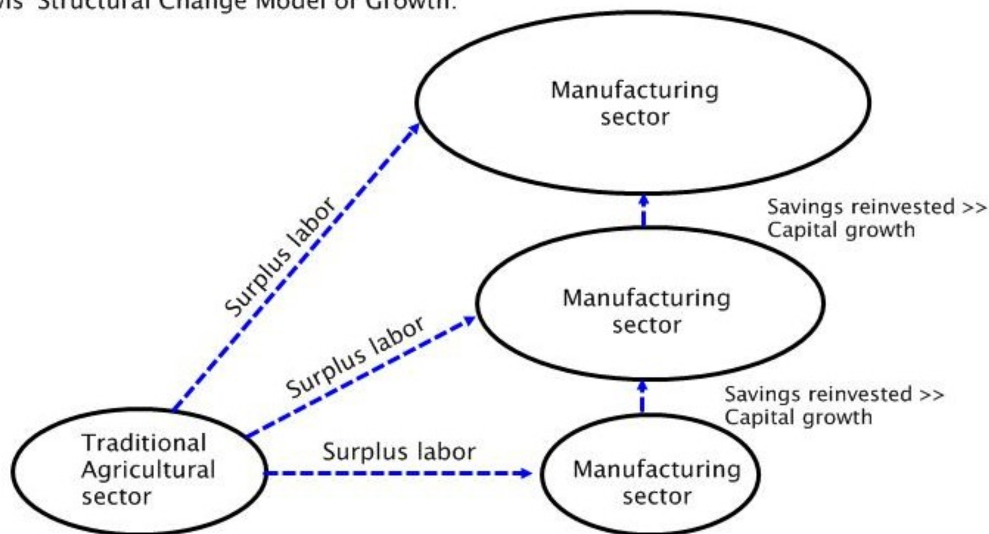
Fair Trade Coffee and Economic Development

In recent years coffee consumers may have noticed more and more cafes are offering 'fair trade' coffee as an option. Usually, for an extra 10 or 20 cents per cup, you can get a beverage made from beans that were grown by farmers earning living wages and working in safe and sustainable environments. In some cases, 'fair trade' coffee is of higher standards, representing a higher quality product. The premium paid by consumers, in theory, will eventually result in better standards of living for coffee farmers and their families.

Mike Munger, chair of Duke University's economics department, argues that 'fair trade' products, while they may represent good intentions, probably don't do much to help poor farmers. While the full podcast offers even more reasons, the clip below presents one clear explanation of why 'fair trade' may actually make poor farmers worse off.

Listen to this interview.

Then read the rest of this worksheet and answer the questions at the bottom.



Professor Munger goes on to discuss a popular economic development model known as Lewis' Structural Change model, seen above. According to the model, the path towards economic growth, which should create conditions that lead to economic development, requires the transition of workers from the low-productivity agricultural sector to the capital-intensive, high productivity manufacturing sector.

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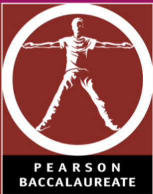

Economics

China, in its own economic growth, has demonstrated the success of this model, which involved rural to urban migration, employment of surplus labor from the farming sector in the industrial sector, giving workers access to capital, increasing productivity, output, income, saving, and investment, putting an economy on a path towards growth and development.

According to Munger, 'fair trade' premiums paid to poor farmers create a disincentive for a farmer to migrate to the higher productivity industrial sector that may be emerging in his country. In essence, coffee drinkers in the rich world are offering a subsidy to farmers in the poor world aimed at keeping them poor. If the path to wealth and prosperity requires the transition to a capital-intensive industrial economy, then subsidies to poor farmers are only reducing the likelihood that they'll achieve significant increases in income and savings.

Munger's views are interesting and controversial. Consumers who willingly pay a premium to buy coffee that they believe is helping farmers in the developing world may take issue with the view that rewarding farmers to remain farmers is limiting the development potential of poor countries.

Question:

1. How is a fair trade scheme meant to work?
2. Economics is all about incentives, how does rewarding coffee farmers in the developing world by paying them more for their beans affect the incentive system that guides the decisions individuals make in developing countries?
3. Is industrialization the only path to economic development?

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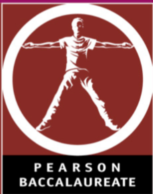

Worksheet 29.2

The importance of incentives to Poverty Alleviation

Two developing countries: Venezuela and Brazil. Two ideologies underpinning economic growth and development: command in Venezuela versus free market in Brazil. Which system has worked better for the people of these two large South American countries? This article tells the story: read from the start to '40 percent in 2005' and then 'Rodríguez also questioned' to 'from a social point of view, disappeared'.

In Venezuela, president Chavez's socialist inspired, command policies, paid for by the sale of expensive oil to the rest of the world have led to benefits primarily for those citizens willing to show political loyalty to Chavez and his party. Hard work and productivity is not rewarded as much as loyalty and support for the government. This system of incentives leads to some poor outcomes. The result? Only mediocre improvements in poverty rates, literacy, employment and health of the people.

In Brazil, where free market principles underlie much of the economic development policies, monetary benefits for development workers and the families they serve are linked not to political affiliation but to actual behavior of households and government employees. The result, not surprisingly, has been real improvements in education, health, and poverty levels amongst Brazilians. Read from 'Meanwhile, in Brazil' to 'where the credit should go' and then 'Or to the simple fact' to 'childhood vaccinations' in the article linked to above.

The lesson here? In a command economy like Venezuela's, in which the government decides how resources are to be allocated, it appears that real improvements in people's lives are not as important as political loyalty. Because most people involved in economic development work for the government, they focus on making themselves appear more dedicated and loyal to president Chavez, in order to make sure they get paid more and promoted up the ladder.

In Brazil's free market economy, on the other hand, rewards are based on performance, not political loyalty. Brazilians have enjoyed access to a wider variety of efficiently run development programs than Venezuelans, despite Hugo Chavez's pledge to alleviate poverty. Correct incentives explain why the market system is more efficient and effective than a command system, and the examples of Venezuela and Brazil illustrate this observation quite nicely

Discussion Questions:

1. Why do command economies so often fail to efficiently allocate resources to where they are needed the most?
2. What does Brazil do that Venezuela does not that has led to real improvements in people's lives?
3. Both Brazil and Venezuela have achieved a similar degree of economic growth over the last two decades. How do the types of growth experienced differ?

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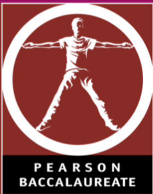

4. Provide evidence from the articles above for the existence of economic development in Venezuela and Brazil. Which country appears to be achieving a greater level of development?

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