Economics 321 Midterm Answer Key
Prof. Bryan Caplan
Fall, 2000

Part 1: True, False, and Explain
(10 points each - 3 for the right answer, and 7 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. T, F, and Explain: **Increasing unemployment insurance payments during the Great Depression (when the unemployment rate was around 25%) would have reduced the level of *involuntary* unemployment.**

TRUE. Unemployment was enormous because the market wage was far above the market-clearing wage. Increasing unemployment insurance payments reduces the S of labor. Holding wages fixed, this shrinks the gap between labor demanded and labor supplied. The increase in payments "converts" involuntary unemployment into voluntary unemployment.

2. Suppose there are two kinds of jobs teenagers are able to do: collecting tickets at movie theaters (an OK job with a free-market wage of $4.00), and telemarketing (an unpleasant job with a free-market wage of $10.00). The teenagers' parents kick them out of the house if they don't have a job, so *teenagers prefer any job - however bad - to unemployment*.

T, F, and Explain: **Imposing a $6.00 minimum wage indirectly raises wages for telemarketers.**

FALSE. The minimum wage creates a labor surplus for ticket-collectors (minimum wage exceeds markets wage), but has no direct effect on the telemarketing market (market wage exceeds minimum). However, since these teenagers have to get a job, unemployed would-be ticket-collectors switch to telemarketing. The S of telemarketers increases, driving telemarketers' wages *down.*

3. T, F, and Explain: **Krugman ("A Good Word for Inflation") argues that mild inflation helps increase workers' real wages.**

FALSE. Krugman argues that mild inflation helps *reduce* real wages because workers resist nominal wage cuts more fiercely than real wage cuts. At any given time, shifts in demand mean that *some* workers' real wages need to fall to clear the market. Mild inflation, Krugman argues, makes it easy for these necessary real wage cuts to happen.

4. Suppose gold is mined by slaves, and the demand for gold is relatively inelastic. Someone invents a new process that increases the amount of gold a slave can mine in a day.

T, F, and Explain: **Slave-owners are worse off as a result of this invention.**

TRUE. Productivity increases mean S increases in the product market. With relatively inelastic demand for gold, price falls a lot compared to the rise in the quantity a worker produces. Thus, MVP=P*MPP falls and labor demand falls. Since a slave's market price is just the (lifetime discounted value) of MVP minus costs of subsistence and monitoring, the price of slaves declines. Slave-owners are thus worse off because the value of their investment falls.

5. Professors with Ph.D.'s often earn less money than students fresh out of business school, even though the Ph.D. degree takes *much* longer to complete than the M.B.A.

T, F, and Explain: **The only explanation human capital theory could offer is that - even before they started their graduate programs - the M.B.A.'s had more ability than the Ph.D.'s.**

FALSE. Another explanation consistent with human capital theory is that professors pay a *compensating differential* to have a more "fun" job. Human capital theory does not rule out non-monetary concerns. (A few people suggested intelligence as an explanation, but that seems like a clear example of *ability* to me. A few others suggested Conscientiousness, which one might argue is different from ability. I gave these close to full credit. A few others argued that Ph.D.'s would earn more in the future. The question wording (which compares professors to "students fresh out of business school) weighs against this interpretation, but I gave it moderate partial credit).

6. T, F, and Explain: **All else equal, the rate of return on education will be lower for a women who plans on taking a few years off from work to have children.**

TRUE. Education raises earnings for people who work. If a woman takes time off from work, she captures the wage premium of education for fewer years. Since the costs of education (foregone earnings, tuition) stay the same and the lifetime benefit of education falls, the rate of return to education falls.

Part 2: Short Answer
(20 points each)
In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. Sowell ("Race and Slavery") explains that "many slave owners nevertheless found it expedient to use other incentives than force." Briefly describe two examples from Sowell: one where such incentives were used, and one where they were not. Then provide a clear economic argument - either Sowell's or your own - to explain this difference.

Sowell compares slaves involved in mining (few non-force incentives) to slaves involved in running the Ottoman bureaucracy (many non-force incentives). He attributes the difference to "the nature of the work." In mining, force alone is sufficient to make people work hard at their job. It is easy to judge ability, and force people to work up to their ability. In contrast, in the Ottoman bureaucracy, it was important to induce able slaves to reveal their talents; it is not easy to judge who will be a good administrator just by looking at him. In such cases, slave-owners increase their own income by offering their slaves positive incentives.

2. Suppose the next president pushes through a bill requiring all employers to provide their workers with free health insurance. What happens in the labor market if wages are permitted to change? What happens if the government makes it illegal to change wages in response to the legislation?

Labor demand decreases because each worker is now more expensive to hire; labor supply increases because holding wages constant, jobs are now more pleasant to get. If wages can fall, this bill reduces wages. If it is illegal for wages to fall, there is surplus labor - involuntary unemployment. There is a wage floor at the old market-clearing wage, and unemployment equal to the difference between the new supply curve and the new demand curve at that wage.

Economics 321 Midterm Answer Key
Prof. Bryan Caplan
Fall, 2001

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. T, F, and Explain: **If demand for food goes up, demand for farm workers always goes up, too.**

TRUE. Labor demand depends on workers' marginal value product, and MVP=MPP*P. When demand for food goes up, P goes up without changing productivity. So MVP rises, and accordingly, so does labor demand.

(Most people answered a different question, explaining what happens to demand for farm workers if worker *productivity* rises).

2. About 1/3 of all European workers died from the Black Death, an epidemic that struck in the late Middle Ages. Some governments responded by imposing maximum wages, limiting wages to their pre-epidemic levels.

T, F, and Explain: **These maximum wages would gradually matter less and less as long as inflation were positive.**

FALSE. Maximum wages created shortages, not surpluses, of labor. As prices rise, the real value of the maximum falls further and further, making the shortage worse.

3. Some economists "speculate that unionization may enhance productivity, perhaps completely offsetting its monopolistic effects." (Posner, *Economic Analysis of Law*)

T, F, and Explain: **Posner disagrees with the productivity theory of unionization.**

TRUE. Posner argues that if unions were productivity-enhancing, employers would encourage them instead of fighting them. More specifically, Posner argues that the productivity theory cannot explain shrinking rate of unionization: "The most telling argument against the productivity theory of unionization is that it cannot explain the decline of the unionized sector." (Posner, p.357)

4. The cotton gin greatly increased the physical productivity of slaves who picked cotton.

T, F, and Explain: **The subsequent expansion of the Southern slave economy suggests that demand for cotton was relatively elastic.**

TRUE. With elastic product demand, increased MPP raises workers' MVP. Free workers would see their wages rises. In slave economies, this raises the demand for slaves, increasing their price and quantity. If product demand had been inelastic, the cotton gin would actually have hurt slave-owners.

5. It is easier for well-educated workers to immigrate to the U.S. than it is for unskilled workers.

T, F, and Explain: **This effectively raises the expected return to education in poor countries.**

TRUE. This means that extra education has two benefits in poor countries: first, you earn more money if you stay; second, you increase your chance of getting to move to the U.S. and earn really big money. On average, then, differentiatial immigration treatment encourages education in poor countries. (Many people pointed out that immigration of educated workers raises wages for educated workers who stay behind. This is correct, but it misses the really interesting part of the story. People who gave this answer got partial credit).

6. Two economic arguments for subsidizing education are externalities and credit market imperfections.

T, F, and Explain: **Both arguments predict that education will have an abnormally high rate of return.**

FALSE. The credit market imperfections argument predicts that education will have an abnormally high rate of return. The externalities story does not - it suggests that education has a normal rate of return that fails to factor in external social benefits.

Part 2: Short Answer
(20 points each)
In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. Krugman ("The Accidental Theorist," pp.18-23) talks about a hypothetical hot dog and bun economy. Sticking closely to Krugman's example, carefully diagram and explain the effect of greater productivity of hot dog workers in (a) the market for hot dog workers, and (b) Aggregate Labor markets.

In Krugman's example, hot dogs and buns are perfect complements. Individual product demands are therefore highly inelastic. As a result, an increase in productivity of hot dog production causes demand for hot dog workers to FALL. Nevertheless, Aggregate Labor Demand still goes up: productivity gains can hurt workers in individual sectors but always help workers in general. Thus, average wages still rise.

2. Imagine studying the "return to **exercise**" in a primitive economy where workers are mainly paid for brute strength. Name one important way that merely looking at the earnings of workers who exercise heavily *overstates* the "return to exercise." What, in other words, should you control for? How does this relate to class discussions about the intelligence and the return to education?

You should control for **natural strength**. People endowed with greater strength probably find exercise easier and therefore do more of it. But they would still be stronger than average - and earn more than average - if they exercised at the average level. There is a strong analogy, then, between strength and the return to exercise on the one hand, and intelligence and the return to education on the other. If you ignore pre-existing ability (strength or intelligence), you tend to overstate the effect of training (physical or mental) on earnings.

Economics 321 Midterm
Prof. Bryan Caplan
Fall, 2003

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. Suppose that product demand for tomatoes is relatively elastic. Initially, the minimum wage is below the market-clearing wage for tomato farmers, so it has no effect.

T, F, and Explain: **The minimum wage will never cause unemployment as long as tomato farmers' productivity rises at a faster rate than the minimum wage.**

FALSE. Since the product demand is relatively elastic, increasing productivity will raise labor demand. However, a rising minimum wage could still cause unemployment, *depending on the shape of the labor supply curve.* For example, if the supply of tomato farmers is flat, then it doesn't matter how quickly demand is rising: the market clearing wage stays the same, and eventually the minimum wage will matter.

2. Suppose the government passes a law that prevents employers from monitoring their workers with video cameras. Defenders of the law assert: "It will really *benefit* employers because workers' wages will fall as a result."

T, F, and Explain: **Workers' wages will actually rise due to the ban, so employees are better off but employers are worse off.**

FALSE. Workers' wages will fall: decreased productivity due to increased shirking reduces demand, and increased opportunity to shirk increases supply. Equally importantly, BOTH employers and employees are worse off: If employees valued the shirking more than employers disvalued it, a mutually beneficial pay cut would already have been negotiated.

3. "But while hypocrisy has its uses, it also has its dangers – above all, the danger that you may start to believe the things you hear yourself saying... Right now, there are important central banks – the Banks of Canada and France are the obvious examples – which really seem to believe what they say about wanting stable prices; their sincerity is costing their nations hundreds of thousands of jobs." Paul Krugman, *The Accidental Theorist*

T, F, and Explain: **According to Krugman, central banks' main hypocrisy is pretending that raising wages will not reduce employment.**

FALSE. The main hypocrisy Krugman accuses central banks of is claiming that price stability has great benefits and little costs, even though most of them know better (or used to).

4. Thomas Sowell ("Race and Slavery") reports that "The cost of a slave in the American South was about thirty times the cost of a slave on the coast of Africa."

T, F, and Explain: **Sowell attributes this to fact that interest rates in the American South were much lower than in Africa.**

FALSE. Sowell attributes it to transportation costs, high mortality during the trans-Atlantic voyage, and greater productivity of existing American slaves who were already familiar with American production methods.

5. Suppose the market for education has positive externalities but does not suffer from credit market imperfections.

T, F, and Explain: **From the point of view of the marginal student, the PDV of his education would be 0.**

TRUE. An investment that earns the normal market rate of return always has a 0 PDV. Credit market imperfections in education would allow the return to education to permanently exceed the normal market rate, implying a PDV>0. So without credit market imperfections, PDV=0 as usual. The positive externalities are irrelevant from the point of view of the marginal student: Since the benefits go to strangers, it doesn't affect the profitability of the student's decision.

6. The estimated return to education falls after controlling for intelligence.

T, F, and Explain: **If you take tuition into account, this shows that educating the less intelligent is especially likely to be a bad investment.**

TRUE. More intelligent people earn more controlling for education, but *tuition costs the same* for all people, regardless of their IQ; therefore the percentage gain for the more intelligent is greater even if the percentage increase in their earnings is average.

This is easiest to show with an example. Suppose that tuition costs $10,000. Suppose further that a more intelligent person who got one more year of school would get a raise from $50,000 to $60,000, while a less intelligent person would get a raise from $25,000 to $30,000. Ignoring tuition, the return is 20% in both cases ($10,000/$50,000=20%; $5000/$25,000=20%). But counting tuition, the more intelligent has a return of $10,000/($50,000**+$10,000**)=16.7%, while the less intelligent has a return of $5000/($25,000**+$10,000**)=14.2%.

Intelligence	Salary w/o 1 more yr	Salary w/1 more year	Tuition	Return not counting tuition	Returning counting tuition
Higher	$50,000	$60,000	$10,000	20%	16.7%
Lower	$25,000	$30,000	$10,000	20%	14.2%

Part 2: Short Answer
(20 points each)
In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. On balance, would the elimination of immigration restrictions benefit you personally? Why would you expect to benefit more or less than the average person already living in the U.S.? Try to consider all the main indirect effects as well as any direct ones.

It would be almost a pure gain for me: My wife and I are both highly skilled, so we would face little additional competition in the labor market but pay less for all products requiring unskilled labor. That includes nannies, butlers, etc. In addition, I own a home and stock, both of which should go up in price as a result of increased immigration. (My stock in Emerging Markets might go down, however, as decreased labor supply raises Third World wages). In all likelihood, though, I would gain much more than most Americans, who are on average less skilled, and own less real estate and stock.

2. Average IQs increased substantially over the last fifty years. What would the predicted effect be on Aggregate Labor Markets? The markets for high- and low-skilled workers? Are these predictions roughly consistent with the observed facts during this period? Explain your conclusion, stating any critical assumptions you need to make.

The effect on Aggregate Labor Markets is clear: more productive workers mean higher ALD, raising average real wages. The effect on skilled versus unskilled workers is more complicated. Assume that the products of skilled labor have a relatively elastic demand, while the products of unskilled labor has a relatively inelastic demand. Then greater productivity raises demand for skilled workers, but reduces it for unskilled workers. At the same time, however, the increase in intelligence should enable some low-skilled workers to become high-skilled workers, leading to an increase in the supply of high-skilled workers and a decrease in the supply of low-skilled workers. Bottom line: Average wages go up, but the distribution of benefits is ambiguous. Since average wages have gone up during this period, the one clear prediction is confirmed.

Economics 321 Midterm
Prof. Bryan Caplan
Fall, 2004

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. Suppose a new study finds that *not* working is the number one cause of unhappiness. People believe this study and change their behavior accordingly.

T, F, and Explain: **In the Aggregate Labor Market, the quantity of hours worked definitely goes up, but wages could go up or down.**

FALSE. ALS increases because people now want to work more at a given wage. But there is no reason for ALD to increase – productivity per hour is still the same. Therefore hours goes up, and wages go down.

2. T, F, and Explain: **Safety regulation makes jobs less scary, but also reduces wages, so it is impossible to say if the benefits to workers are worth the costs.**

FALSE. As a rule, the benefits will be less than the costs. If the benefits to workers were worth the cost, there would be no need for safety regulations. Employers would happily offer more safety in exchange for lower wages.

Exception: One particularly clever answer mentioned that safety regulations might simply order firms to provide the safety levels they would have provided anyway. Unlikely, but possible.

3. "Think of it this way: Imagine several cities, all suffering from housing shortages because of rent control, agree to make it easier for landlords in one city to own buildings in another. This is not a bad idea." Paul Krugman, *The Accidental Theorist*

T, F, and Explain: **Krugman's point is that European integration will force European countries to deregulate their labor markets.**

FALSE. Krugman doubts that integration will have more than a small effect, because the "heart of the problem" (p.36) is labor market regulation. In fact, he argues that integration is probably making European unemployment *worse* by requiring balanced budgets and tight monetary policy.

4. Suppose the country's nominal minimum wage in 2004 is $10/hr, and there is 10% inflation per year. The market-clearing real wage - $9/hr in 2004 dollars - will not change until 2010.

T, F, and Explain: **After two years, the labor surplus will have turned into a labor shortage.**

FALSE. In two years, the labor surplus will have disappeared, and markets will clear. After one year of 10% inflation, the real minimum wage falls to $9.10 – still a little above the market-clearing real wage. But after two years, the real minimum wage is only $8.26, below the market-clearing real wage. And as usual, a MINIMUM wage below the market wage has no effect. It is like a law forbidding the same of Ferraris at any price below $100.

5. Suppose that all slaves have the same MVP, and their owners know this.

T, F, and Explain: **There is no possibility that a slave will be paid more than subsistence.**

FALSE. There is no longer any *self-interested* reason to pay more than subsistence, because employers can simply punish any slave who performs below potential. But owners might still pay their slaves more out of altruism - "the kindness of their hearts."

One clever answer observed that owners might pay extra because they know their slaves have the *same* MVP, but not necessarily what that MVP is.

6. "If the worker has good alternative employment opportunities, the threat to fire him if he helps the union may be empty. If he does not have good alternatives, it is probably because he has... *firm-specific human capital*... This will make him more productive than he would be working for another firm, implying that he will be receiving a higher salary than he would if he lost his job and went to work for another firm, but also implying that the cost to the employer of firing him will exceed the presumably modest cost of finding a replacement worker." (Posner, *Economic Analysis of Law*; emphasis added)

T, F, and Explain: **Posner's analysis would change if workers knew their firm's reputation before they started working there.**

TRUE. Reputation makes firms more willing to fire. Firing union-organizers helps deter potential trouble-makers from seeking employment at your firm. The only workers who would need a large premium to accept this risk to their firm-specific human capital would be those intending to organize unions.

Part 2: Short Answer
(20 points each)
In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. Europe has significantly higher levels of labor market regulation and lower rates of immigration than the United States. Why would we expect these two policies to go together? Give TWO different reasons.

Reason #1. In heavily regulated labor markets, there are usually extensive unemployment and welfare benefits to cushion the blow of joblessness. With open immigration, these benefits would attract a lot of foreigners hoping for free money. Immigration restrictions make it cheaper to help the domestic unemployed.

Reason #2. Heavily regulated labor markets have high unemployment, especially for low-skilled workers. (Minimum wage laws have a much bigger effect on unskilled labor, for example). Since immigrants tend to be unskilled, this means that it will be hard to find a job in Europe. Immigrants may decide that they would rather have a low-paid job at home than no job at all in Europe.

Another interesting reason one student suggested: Europeans just like regulation more than Americans, so they have stricter versions of both our labor and our immigration laws.

2. Policy analysts often argue that the best way to fight poverty is to focus resources on poor young children, rather than poor mature adults. Does this make sense from the standpoint of human capital theory? Why or why not? Does it matter if, as many intelligence researchers argue, it is almost impossible to permanently change a person's IQ?

There are two obvious reason to focus on kids rather than adults. First, the opportunity cost of kids' time is lower. Second, kids can benefit from any training for more years. However, one factor that cuts against this is that a young child will not enter the job market for a decade or more. Adults benefit for fewer years, but they benefit SOONER, which raises the PDV of training them.

One common argument for focusing on kids is that it is possible to "remold" the young, but not the old. The difficulty of changing IQ undermines this argument. It is hard to remold both the young *and* the old. Resources focused on young children are not going to make them smarter for life. If you thought otherwise, the case for focusing on kids just got weaker.

Economics 321 Midterm
Prof. Bryan Caplan
Fall, 2005

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. Suppose workers dislike coffee, but it makes them more productive by helping them to wake up in the morning.

T, F, and Explain: **If the Aggregate Labor Supply curve is backwards-bending, free employer-provided coffee will still increase workers' average wages throughout the economy.**

TRUE. ALD increases due to increased productivity, and ALS shifts back due to the greater unpleasantness of work. Both result in higher wages. In fact, the wage shift is *greater* than it would be with a vertical or forward-sloping ALS curve.

2. Is a 2 percent wage increase in the face of 5 percent inflation the same thing as a 3 percent wage fall in the face of stable prices? To hyperrational workers, it might be; but common sense suggests that in practice there is a big psychological difference... (Paul Krugman, *The Accidental Theorist*)

T, F, and Explain: **According to Krugman, inflation is always an effective tool for reducing unemployment due to nominal wage rigidity.**

FALSE. Krugman only argues that inflation reduces unemployment under *some* conditions, particularly when inflation is very low. He clearly admits that "There is overwhelming evidence... that 10 percent inflation does not buy a long-term unemployment rate significantly lower than that which can be sustained with 5 percent inflation." (pp.118-9)

3. Suppose all U.S.-born workers are skilled, and all immigrants are unskilled.

T, F, and Explain: **Allowing more immigration helps U.S. employers, but hurts U.S.-born workers.**

FALSE. As explained in the notes, (1) Immigration of people with different skills than natives increases production via comparative advantage, and (2) Natives with the same skills as immigrants suffer lower wages, but natives with *different* skills will see their wages go up. Since by assumption *none* of the native workers have the same skills as the immigrants, U.S. employers AND U.S.-born workers are better-off.

4. "OSHA might, therefore, simply raise the level of occupational safety and health to the level at which it would be" [under laissez-faire]. (Posner, *Economic Analysis of Law*)

T, F, and Explain: **Posner blames pro-union laws for reducing the level of worker safety.**

FALSE. As Posner explains on pp.364-5, his point is that "the public subsidy of workers' injuries and illnesses" encourages workers to buy less safety from their employers. Perhaps, he argues, OSHA simply counteracts workers' tendency to take fewer precautions because government pays for much of the expense of their accidents.

5. Suppose people could not begin collecting Social Security benefits until they turned 80.

T, F, and Explain: **According to human capital theory, people would now want to get more years of education.**

TRUE. If you work for more years, education adds to your wages for a longer time period. The PDV of education therefore goes up. Since the benefits are far in the future, it won't be a large effect, but it would still be enough to change the minds of the marginal student.

6. “Cultural bias” is the most popular complaint about intelligence tests.

T, F, and Explain: **This complaint is meaningless because there is no way to empirically determine whether or not a test is culturally biased.**

FALSE. This complaint is meaningful, but false; a *meaningless* complaint is by definition impossible to test because it doesn't really say anything. A test is culturally biased if it *under*predicts the practical performance of groups that score low. For example, if you use intelligence tests to predict the ability to drive a tank through an obstacle course, it would be evidence of cultural bias if members of groups that performed poorly had *better* performance than you would predict from their test scores. In fact, groups that do poorly on intelligence tests seem to perform *even worse* than their scores would predict.

<u>Part 2:</u> Short Answer
(20 points each)
In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. Historians often argue that since the unemployment rate during World War II was extremely low, labor demand must have been much higher than it was today. But economists point out that real wages are MUCH higher today than they were during World War II. Use Aggregate Labor Demand and Aggregate Labor Supply curves to resolve this dispute. *Hint:* During World War II, regulations often set <u>maximum</u> wages.

The economists are right, and the historians are wrong. The easiest way to understand labor markets in WWII versus today is to draw two ALD-ALS diagrams. During WWII, ALD was much lower than today, but there was a maximum wage *below* the intersection of S&D, leading to a labor shortage/low unemployment. Today, ALD is much higher, but there is a minimum wage and other labor market regulations that push wages *above* the intersection of S&D, leading to a labor surplus/high unemployment.

2. Suppose that slavery had never been legally abolished in the 19th-century. Assuming that worker productivity would have continued to rise, would *market forces* have abolished slavery by now? Explain your reasoning.

As explained in the notes, slave-owners will want to free their slaves once demand is so low than the price of slaves falls to zero. Demand for slaves depends on MVP – cost of subsistence - cost of enforcement. MVP clearly increased since the 1860's – the least-skilled worker today lives live a king compared to 150 years ago. Subsistence is *cheaper* than it used to be, because modernization has drastically cut the cost of food and other necessities. It is hard to tell if enforcement costs have gone up or down; better technology like house-arrest anklets makes it easier to monitor others, but transportations costs are much lower, making it easier to escape. On balance, then, it looks like the demand for slaves would have gone up, not down, and slavery would be alive and well today.

The best counter-argument to this line of reasoning is that slaves' MVP would have risen EVEN MORE in occupations where enforcement is costly – especially highly skilled occupations. Slave-owners would initially respond to this change by giving their slaves independence in exchange for a share of their wages. Once this became common, however, slaves would be willing and able to buy their freedom. After a few generations, this might eliminate slavery.

Economics 321 Midterm
Prof. Bryan Caplan
Fall, 2006

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. Since the start of the war with Iraq, the U.S. military has often complained about the "shortage" of new recruits.

T, F, and Explain: **This is not a "shortage" in the sense that economists use the word.**

TRUE. For economists, a labor shortage is a situation where – *at the market wage* – labor demand exceeds labor supply. The military's problem, in contrast, is that, given *the market wage for wartime labor* and its budget, it does not want to hire additional labor.

The military's real complaint is that labor is too expensive, not that labor is unavailable at that expensive wage.

2. Suppose most garbage men have a rare condition: they lack a sense of smell. Then someone develops an amazing new gas mask that comfortably protects all people from foul odors.

T, F, and Explain: **The invention of this new gas mask will make it harder to unionize garbage men.**

TRUE. The gas mask increases the supply of garbage men AND makes that supply much more elastic. Both of these factors make it harder to organize unions. The larger the number of workers in an occupation, the harder it is to get them all to join the union. The more elastic the supply of workers, similarly, the greater the tendency of higher wages to attract "scabs" eager to undercut the union.

3. The government passes a new law requiring employees to provide workers with free health insurance. Nominal wages are unable to fall, but inflation is positive.

T, F, and Explain: **In the short-run, everyone who wants to work benefits from this law. In the long-run, however, there will be a negative effect on employment.**

FALSE. In the short-run, workers who remain employed benefit, but some workers will lose their jobs and have neither income nor health insurance. The surplus equals the difference between the new higher supply and the new lower demand at the old wage. In the long-run, however, inflation will erode the real value of the nominal wage, and eventually restore full employment.

4. "Malay and Indonesian slaves were sometimes transported thousands of miles away to South Africa at a time when Africans were being transported thousands of miles to the Western Hemisphere." (Thomas Sowell, *Race and Culture*)

T, F, and Explain: **Sowell admits that economics cannot explain these trading patterns.**

FALSE. Transporting slaves to locations distant from their homes reduces enforcement/ monitoring costs for slave-owners. Slaves who are unfamiliar with their area, and who are physically or linguistically different from locals, will find it harder to escape. As Sowell puts it, "Enslaving people on their home grounds was more likely to lead to successful attempts at escape than where they were enslaved far from familiar surroundings."

5. T, F, and Explain: **A minimum wage for slaves helps slaves and free workers, but hurts slave-owners and employers of free workers.**

TRUE. A minimum wage for slaves makes slaves better off by forcing their owners to give them more than their bare subsistence. This in turn makes slavery less profitable and reduces the demand for slaves. Since free workers are a substitute for slaves, demand for free labor goes up, making free workers better-off and their employers worse off.

(Many students' incorrectly assumed that the minimum wage applied to both slaves AND free workers. I gave these answers partial credit).

6. The estimated return to education falls after controlling for intelligence.

T, F, and Explain: **If you take tuition into account, this shows that educating the less intelligent is especially likely to be a bad investment.**

TRUE. Students pay the same tuition regardless of intelligence, but more intelligent students get a larger *total* benefit, implying a higher rate of return.

Consider this simple example: Students with average IQ earn $20,000 without a college degree, and $22,000 with a year of college. Students with high IQ earn $30,000 without a college degree, and $33,000 with a year of college. Ignoring tuition, the return to education is 10% for both groups. However, if tuition costs $10,000, average IQ students have a return of $2000/($20,000+$10,000)=6.7%, and high IQ students have a return of $3000/($30,000+$10,000)=7.5%.

<u>Part 2:</u> Short Answer
(20 points each)
In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. In *Economic Sophisms*, Bastiat writes:

If man were a solitary animal, if he worked solely for himself, if he consumed directly the fruits of his labor—in short, *if he did not engage in exchange*—the theory of scarcity could never have been introduced into the world.

Use two labor supply and demand diagrams to show that what Bastiat calls the "theory of scarcity," may be true for a single occupation, even though it is false for the economy as a whole. Carefully label both diagrams.

In a single occupation, a fall in workers' MPP *increases* MVP – and labor demand – as long as product demand is relatively inelastic. In one occupation, then, lower productivity can increase wages and make workers better off. In contrast, for the economy as a whole, a fall in workers' MPP always decreases MVP. For the economy as a whole, then, lower productivity automatically reduces average wages and makes the average worker worse off.

2. What is the difference between "externality" arguments for subsidizing education and "credit market imperfection" arguments for subsidizing education? Discuss <u>one</u> kind of evidence that undermines one argument, but not the other.

According to "externality" arguments, when a person gets more education, there are positive side effects for society – like less crime or better voting. In this scenario, the private return of education is normal, but the social return is unusually high. According to "credit market imperfections" arguments, in contrast, education has an unusually high *private* return because – due to collateral problems – it is hard to get an educational loan.

Controlling for IQ undermines the credit market imperfections story by showing that the private return to education is not as high as it looks. But controlling for IQ does not undermine the externality story, because the externality story does not predict abnormally high private returns for education in the first place.

Economics 321 Midterm
Prof. Bryan Caplan
Fall, 2007

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. T, F, and Explain: **Increased demand for food is actually bad for farmers, because the demand for food is highly inelastic.**

FALSE. Regardless of the elasticity of the demand curve, an increase in demand raises price in the product market, raising workers' MVP=MPP*P, and raises labor demand for farm workers. Farm workers are therefore better off.

2. A firm hires a worker for $30,000. A year later, it sells the products the worker made for $33,000.

T, F, and Explain: **The firm exploited the worker by paying him less than the market value of his output.**

FALSE. One of the functions of employers is to serve as implicit lenders to workers: Employers pay workers now for products that will only be sold in the future. It is entirely expected, then, that if employers have to wait a year before they complete the sale, the sale price will be higher than wages paid. In effect, the worker borrowed his wages at an interest rate of 10%.

3. Suppose the government passes a law requiring Wal-Mart to provide free health insurance to all of its workers. Wal-Mart does *not* cut its workers' wages because it is afraid of a public outcry.

T, F, and Explain: **There will still be negative side effects for workers of this regulation.**

TRUE. The mandated benefit increases the supply of workers (more people want a job at a given when it includes health benefits), and decreases the demand for workers (Wal-Mart is less willing to hire workers at a given wage when it has to give them insurance too). If wages cannot fall, the result is a labor surplus – in other words, unemployment. Much of this unemployment will probably take the form of reduced expansion by Wal-Mart. In the long-run, though, inflation will gradually erode the disemployment effect, so workers will eventually pay for their own insurance in the form of lower wages.

4. "[T]he belief that absolute price stability is a huge blessing... rests not on evidence but on faith. The evidence actually points the other way: The benefits of price stability are elusive, the costs of getting there are large, and zero inflation may not be a good things even in the long run." (Paul Krugman, *The Accidental Theorist*)

T, F, and Explain: **Krugman is arguing that inflation can reduce unemployment without reducing real wages.**

FALSE. Krugman argues that inflation can reduce unemployment BY reducing real wages. If nominal wages stay fixed, inflation covertly reduces real wages – allowing the economy to avoid unemployment caused by nominal rigidities.

5. Suppose both slaves and free workers are engaged in cotton picking.

T, F, and Explain: **If slaves form a labor union, it would be good for them, but disemploy free workers.**

FALSE. If slaves form a labor union, it will be good for them. A successful slave union could extract higher pay and better treatment for slaves. This would reduce the demand for slaves, but slave-owners, not slaves, pay the price. Furthermore, since free labor is a substitute for slave labor, the slave union would increase the demand for free workers, making them better off as well.

6. T, F, and Explain: **One serious problem with human capital theory is that it ignores non-monetary costs and benefits.**

FALSE. Human capital theory allows you to count ANYTHING; all you have to do is assign a monetary value to it. Thus, if some jobs are fun and others are unpleasant, HCT tells you to put a price on that fun/unpleasantness. Then you factor those prices in your calculations, and make whatever choice has a higher PDV, all things considered.

<u>Part 2:</u> Short Answer
(20 points each)
In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. "In markets for specific occupations, labor *demand* sometimes behaves counter-intuitively. In aggregate labor markets, labor *supply* sometimes behaves counter-intuitively." Explain.

Specific occupations: We would intuitively expect that when workers' MPP goes up, labor demand would automatically go up, too: More output, more pay, right? However, in markets where product demand is relatively inelastic, higher MPP leads to lower MVP, so labor demand goes down.

Aggregate Labor Markets: We would intuitively expect that when wages rise, people will work more hours. That's how individual labor markets work, after all. However, in Aggregate Labor Markets, it is quite possible for the ALS curve to have a negative slope. All it takes is an income effect bigger than the substitution effect. In this case, when wages go up, hours worked go *down*.

2. In *If You Lived 100 Years Ago*, Ann Mcgovern asks why the standard of living of the poor has improved since the 1890's. Her answer:

Not all rich people were selfish. Many cared about the poor. A newspaper reporter, Jacob Riis, wrote a book called *How the Other Half Lives*. Riis's photographs showed people living and working in miserable conditions. Men and women who cared about the way the poor lived began to work for changes...

In the 1900s, laws were finally passed to protect children. New laws said all children under the age of fourteen had to go to school. They were laws that called for better housing, safer foods and medicines, shorter working hours, and improved public schools. Things began to look up for many people. (from *If You Lived 100 Years Ago*, by Ann Mcgovern)

Use what you have learned in class to provide an economically sound answer to Mcgovern's question.

While Mcgovern credits philanthropy and regulation, this can't be right. Why not? Because even if you equalized income in 1890, and even if this had no effect on production, average living standards would still have been extremely low by modern standards. The big difference between then and now is that we produce a lot more stuff per person than we used to.

The right answer to Mcgovern's question is that workers' productivity massively increased, largely as a result of technological progress. As productivity went up, so did Aggregate Labor Demand, and so did wages. If modern regulations had been imposed in 1890, their main effect would have been to disemploy most of the population – not to magically increase living standards to modern levels.

Economics 321 Midterm
Prof. Bryan Caplan
Fall, 2008

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. Suppose native-born Americans and immigrants have exactly the same skills.

T, F, and Explain: **Immigration will reduce Americans' average standard of living.**

FALSE. If natives and immigrants have the same skills, immigration increases ALS and reduces Americans' *wages.* But any decline in wages benefits American *employers* by exactly the same amount – if workers earn $1/hour less, employers pay $1/hour less. Furthermore, marginal employers who wouldn't have hired at the old wage benefit from immigration. There are also net benefits for American landowners and consumers (when rents rise by $1, landlords are $1 richer and tenants are $1 poorer; but natives are more likely to own American land than immigrants). When you combine these consequences for Americans' standard of living – some with zero net effect, the rest with a positive effect – you can conclude that the average standard of living goes up.

2. T, F, and Explain: **If wages can't adjust, increasing the strictness of safety regulations will reduce employment.**

TRUE. Stricter regulations reduce labor demand (since employees are now more expensive to hire), and increase labor supply (since jobs are now safer at a given wage). With flexible markets, the result would be a wage decline. If wages don't adjust, however, the result will be a labor surplus (the difference between the new S and the new D at the old wage) – also known as unemployment.

3. "Productivity growth in one sector can very easily reduce employment *in that sector*." (Krugman, *The Accidental Theorist*)

T, F, and Explain: **Unlike Caplan, Krugman argues that this is a serious problem for unregulated labor markets.**

FALSE. Krugman, like Caplan, argues that the displaced workers will move into another sector, leaving overall employment the same. That is the whole point of his hot dog/bun example: Higher productivity is always good for the overall economy, but not necessarily for workers in any particular industry.

[Students only got partial credit if they answered using the standard ALS-ALD model from the notes. The question is about *Krugman's* view – and whether it differs from what we learned in class.]

4. The Internet makes it easier for people to learn about employers' reputations.

T, F, and Explain: **This makes firms less willing to temporarily overpay inexperienced workers.**

TRUE. If firms can build reputations for combining low starting salaries with unusually high raises, they wouldn't need to temporarily overpay workers to attract them. Workers would know that they are getting a payment *package* where raises eventually compensate them for their initially low pay. More importantly, firms with good reputations would *want* to compensate their workers in this way to discourage workers from getting expensive training, then quitting.

5. T, F, and Explain: **According to Thomas Sowell (*Race and Culture)* urban slaves in the U.S. South were treated better because urban slave-owners were more altruistic than rural slave-owners.**

FALSE. Thomas Sowell says that the main reason was that urban slaves were harder to monitor: "Urban slaves were much more likely to be able to read or write, since it was costlier to monitor their movements and activities in a city. Moreover, they were more likely to have social contacts among free blacks in the cities. This not only lead to more escapes, it led to better treatment, in order to forestall escapes." (p.206)

6. IQ tests are a good predictor of job performance.

T, F, and Explain: **If IQ tests were culturally biased against immigrants, immigrants would have lower job performance than natives with the same IQ.**

FALSE. If IQ tests were culturally biased against immigrants, immigrants would actually have *higher* job performance than natives with the same IQ. The whole idea of cultural bias is that people against whom the test are biased have more ability than the test gives them credit for.

<u>Part 2:</u> Short Answer
(20 points each)
In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. Suppose a war breaks out. How does this affect soldiers in a conscript army? How about a volunteer army? Are there situations where the method of recruitment (conscription/volunteer) doesn't really matter? Use the economics of slavery to explain your answer.

Conscripts are like slaves; volunteers are like free workers. When a war breaks out, the supply of volunteers falls and the demand for volunteers rises, so volunteers get a large pay increase. Furthermore, the military has an incentive to protect volunteers' safety, health, and so on; otherwise they will have to pay an even higher wage to compensate them for the risk. In contrast, when a war breaks out, there is no need to offer conscripts better wages; if the government needs more soldiers, it can simply order more to enlist. There is also much less incentive for the military to worry about conscripts' safety or health, because they don't have to compensate them for the risk. Still, conscripts will not necessarily be badly treated. The government might be an "altruistic" slave-owner that treats conscripts well because they are "Our troops," the "Defenders of our proud nation," etc.

2. In the notes, we discuss several different ways to calculate the return to education. If you calculated **<u>YOUR</u>** return to education using the simplest method (foregone wages are the only cost of school, no control variables), what do you think it would be? What do you think your return to education *really is*? If your answers differ, carefully explain why.

If I calculated my return to education using the simplest method, it would probably be about 25% - I gave up about $240k worth of income over the course of 8 years of my life (B.A. + Ph.D.) to raise my salary by about $60k per year over the norm for a high school grad. But this number is far too high: If I hadn't gone to college, I probably would have earned an above average salary anyway (due to high IQ, good work ethic, etc). Furthermore, at least for my B.A.., my family had to pay tuition; that isn't included in the simplest estimate, but it should be. On the other hand, though, I do really enjoy my job, so looking only at my paycheck underestimate the total benefit. All things considered, my return to education has probably been about 12% per year.

[Note: A return to education is a percent, not a dollar amount. Don't confuse PDV with rate of return!]

Economics 321 Midterm
Prof. Bryan Caplan
Fall, 2010

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. Suppose the government passes a law requiring "profit-sharing"; every year, firms must give at least 50% of their profits to their workers.

T, F, and Explain: **As long as wages are flexible, wages will fall, leaving workers' well-being unchanged.**

FALSE. As with any other mandated benefit, labor demand will decrease and labor supply will increase, so wages fall. However, workers will still be worse off, because the profit-sharing regulation makes their income less *predictable*. One of the services that employers normally provide for workers is implicit income insurance. Mandatory profit-sharing prevents employers from offering as much insurance as workers want.

2. Suppose MPP increases every year by 2%, and inflation is 0%.

T, F, and Explain: **A constant nominal minimum wage will lead to increasing unemployment in agriculture.**

TRUE. Since product demand for agriculture is **inelastic**, increasing MPP will constantly *decrease* MVP, and therefore labor demand. With no inflation, this means that the gap between the minimum wage and the market-clearing wage gets *bigger* every year – and so does the unemployment problem.

3. "We ask you to be so good as to pass a law requiring the closing of... all openings, holes, chinks, and fissures through which the light of the sun is wont to enter houses..." (Bastiat, *Economic Sophisms*)

T, F, and Explain: **Bastiat is arguing against worker safety regulation.**

FALSE. Bastiat is arguing against protectionist regulations that claim to make France richer by reducing productivity. If it's absurd to try to get rich by blotting out the sun, isn't it equally absurd to try to get rich by keeping out cheap foreign products?

4. T, F, and Explain: **With a volunteer army, wars are bad for taxpayers. With conscription, wars are bad for soldiers.**

TRUE. With a volunteer army, war increases the demand for soldiers and reduces the supply of soldiers (since joining the military during wartime is more dangerous). Both of these forces raise the wages of soldiers enough to compensate them for the extra risk – and taxpayers pick up the tab. With conscription, in contrast, you don't have to increase wages to recruit or retain extra soldiers; you just threaten to jail them if they go AWOL. So when war breaks out, conscripts have to endure extra danger without extra pay.

5. "After an employer incurs the costs of training an employee in some manual craft, that employee can later decide to go work elsewhere... Even if the employee remains, part of the investment can be lost meeting demands for higher wages..." (Sowell, *Race and Culture*)

T, F, and Explain: **Sowell's argument implies that slaves may actually have more human capital than free workers.**

TRUE. Sowell's argument implies that slave-owners will be more willing to make long-term investments in their slaves' human capital than employers of free labor – provided, of course, that the extra training doesn't increase the risk of escape. However (note the word "*may*" in the question), if free workers can simply agree to work for reduced pay in exchange for general training, their employers would be just as willing to invest in their human capital as slave-owners are in slaves.

6. Suppose workers under-invest in education because of credit market imperfections.

T, F, and Explain: **No-interest education loans are the most efficient government response.**

FALSE. The whole problem with credit market imperfections is supposed to be that markets fail to *equalize* rates of return between education and other investments. No-interest loans would encourage inefficiently *high* investment in education. The most that an efficiency-minded government would do is subsidize education loans to bring the return to education into line with the other areas of the economy. But it would be even simpler for government to make it legally easier to collect on a no-collateral educational loan.

Part 2: Short Answer
(20 points each)
In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. What would be the main economic effects of a law banning merit pay? Carefully explain your answer.

The most obvious effect: It reduces workers' incentive to do a good job, reducing productivity, and thereby reducing wages. But this is only the beginning. Reducing productivity also reduces output and overall living standards. Employers might undermine the ban on merit pay by offering more in-kind compensation to better workers – insurance, vacations, company cars, etc. But if additional regulations closed these loopholes, employers might instead decide to raise wages and fire anyone who didn't measure up. In this case, the result would be permanent unemployment for less productive/meritorious workers.

2. Suppose there are two goods – meals and steel. Here is how much American and Mexican workers can produce in an hour:

	Steel	Meals
American	10	5
Mexican	1	2

Give a simple example showing how Mexican immigration effectively increases American workers' productivity.

Suppose that an American worker initially works two hours per day, making 10 units of steel and 5 meals in total. Suppose further that with open immigration, the price ratio between steel and meals is 1:1. (This is plausible price, because it gives both Americans and Mexicans an incentive to produce according to their comparative advantage). Then with open immigration, the American can spend TWO hours making steel, produce 20 units of steel, then trade 6 of his units of steel to get 6 meals. As a result, he can now effectively produces 14 units of steel AND 6 units of meals in 2 hours instead of 10 units of steel and 5 meals. Since 14>10 and 6>5, his productivity just went up thanks to immigration.

Economics 321 Midterm
Prof. Bryan Caplan
Fall, 2012

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. T, F, and Explain: **If you are self-employed, you automatically earn your marginal value product.**

TRUE. MVP=MPP*P, and if you're self-employed, you automatically earn whatever you physically produce (your MPP) times the market price (P) for your output. If you earn nothing when you're self-employed, that shows your MVP is zero.

(I gave partial credit, and in one case full credit, for students who objected that you would have to pay other factors of production, too. The point is that if you're self-employed, you automatically earn the full reward for any *additional* ("marginal") production).

2. Suppose that in 2012, workers earn a $50,000 salary plus $10,000 in health insurance benefits. The cost of health insurance always rises $1000 per year in real terms. Assume (a) employers always provide health insurance, (b) labor demand does not rise, and (c) there is 1% inflation.

T, F, and Explain: **The following table is not accurate.**

Year	Nominal Salary Can't Fall				Nominal Salary Can Fall			
	Nominal Salary	Nominal Insurance Cost	Real Salary	Real Insurance Cost	Nominal Salary	Nominal Insurance Cost	Real Salary	Real Insurance Cost
2012	$50,000	$10,000	$50,000	$10,000	$50,000	$10,000	$50,000	$10,000
2013	$50,000	$11,110	$49,504	$11,000	$49,490	$11,110	$49,000	$11,000

FALSE. The table is exactly correct. The 2012 numbers are straight out of the question. For the 2013 numbers, Real Insurance Cost correctly rises by $1000, from $10,000 to $11,000. Then in the "Nominal Salary Can't Fall" block, Nominal Salary remains $50,000, Real Salary=Nominal Salary/1.01 (due to 1% inflation), and Nominal Insurance Cost=Real Insurance Cost*1.01 (due to 1% inflation). In the "Nominal Salary Can Fall" block, Real Salary falls to keep Real Salary+Real Insurance Cost constant at $60,000, Nominal Salary=Real Salary*1.01, and Nominal Insurance Cost=Real Insurance Cost*1.01.

(Several students say that Real Salary in the "Nominal Salary Can't Fall" block should be $49,500, but the correct formula is Real Salary=Nominal Salary/Price Index, and the Price Index rose from 1.00 in 2012 to 1.01 in 2013).

3. T, F, and Explain: **Licensing an occupation typically improves working conditions for workers in that occupation by increasing demand for their services.**

FALSE. Licensing an occupational typically *doesn't* raise quality, so demand shouldn't change. The effect of licensing is simply to reduce supply, raising wages. And as usual, we'd expect better-paid workers to take part of their higher wages in the form of better working conditions.

4. T, F, and Explain: **According to Flynn and Dalmia ("What Part of Legal Immigration Don't You Understand?"), U.S. immigration laws have little effect on low-skilled immigration.**

FALSE. Flynn and Dalmia show that U.S. immigration laws massively reduce low-skilled immigration. There are only 10,000 green cards per year for low-skilled workers "and the wait time approaches infinity." Realistically, low-skilled workers can only legally immigrate if they have family in the U.S. Spouses and minor children can get in fairly easily, but all other relatives have to wait years.

5. "While this literature is actively evolving, in no case has one of these recent and rigorous studies identified a country pair for which large differences in earnings across the border can be mostly accounted for by self-selection of workers (migrant or otherwise) who cross the border." (Clemens, "Economics and Emigration")

T, F, and Explain: **Clemens is saying that low-skilled immigrants to the U.S. approximately earn the median U.S. wage soon after they arrive.**

FALSE. Clemens is saying that low-skilled immigrants soon approximately earn the typical U.S. wage *for natives who have similar skills*. Low-skilled immigrants earn well below the typical U.S. worker, but they don't earn much less than typical low-skilled U.S. worker.

6. After graduation, engineering majors make a lot more money than art history majors.

T, F, and Explain: **This proves that studying engineering creates more human capital than studying art history.**

FALSE. Engineering *might* create more human capital than art history, but it's very likely that engineers also had more human capital before they started college – higher IQ, better work ethic, more determination, etc. Unless you statistically adjust for these pre-existing differences, post-graduation earnings don't "prove" anything.

(I gave partial credit to students who pointed out that art history majors might enjoy their jobs more, so properly measured their degrees could have as large a return as engineers'. This is true, but it overlooks the more fundamental point that comparing earnings ignoring initial ability overstates the effect of education).

<u>Part 2:</u> Short Answer
(20 points each)
In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. Some economists argue that the minimum wage has no effect on employment because employers respond by requiring their workers to work faster. Use a supply-and-demand diagram to illustrate this story. If this story is true, do minimum wage laws make the typical worker better off?

This story makes sense as long as product demand is relatively elastic. In such a market, requiring workers to work faster increases labor demand (since workers produce more value per hour) and reduces labor supply (since workers don't like working faster). This might be enough to eliminate any labor surplus created by the minimum wage:

However, this does *not* show that minimum wage laws make the typical worker better off. It was already legal for employers to offer to pay higher wages in exchange for faster work, so the fact that this didn't already happen is a strong sign that workers prefer a more leisurely pace to higher wages. And if product demand is relatively *in*elastic, working faster actually makes labor demand go down!

2. Consider two different guest worker programs the U.S. might adopt: (a) anyone on earth can legally work in the U.S.; (b) anyone on earth can legally work in the U.S. *as long as they score above the U.S. average on an IQ test*. Both programs make guest workers ineligible to collect government benefits or vote. Compare the economic effects of (a) and (b). Which is better for mankind? Which is better for Americans?

Guest worker program (a) would lead to a large increase in the supply of high-skilled workers and a very large increase in the supply of low-skilled workers. The net effect on foreign wages would be large and positive. The net effect on native wages in unclear: higher supply tends to reduce wages, but specialization and trade increases labor demand and increase wages. Low-skilled native wages would probably fall. However, the overall effect on native well-being would be positive, because massive immigration would massively help employers, investors, retirees, land-owners, etc.

Guest worker program (b) would lead to a large increase in the supply of high-skilled workers, but little increase in the supply of low-skilled workers. The net effect on high-skilled foreign wages would be positive, but low-skilled workers wouldn't benefit much. The net effect on native wages remains unclear, but low-skilled natives would clearly gain. The overall effect of native well-being would still be positive due to the effects on employers, investors, retirees, land-owners, etc., but this gain would be much smaller than in (a).

(a) is clearly better for mankind. (a) is better for Americans, though low-skilled Americans might lose out since there would be a much bigger influx of low-skilled than high-skilled workers.

Economics 321 Midterm
Prof. Bryan Caplan
Fall, 2013

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. T, F, and Explain: **Bastiat (*Economic Sophisms*) argues that reducing labor productivity in any occupation makes everyone poorer.**

FALSE. Bastiat repeatedly explains that reducing labor productivity in one occupation makes the people in that occupation better off *at the expense* of the rest of society: "In so far as we are producers, it must be admitted, each of us has hopes that are antisocial. Are we vineyardists? We should be little displeased if all the vines in the world save ours were blighted by frost: *this is the theory of scarcity.* Are we the owners of ironworks? We want no other iron to be on the market but our own, whatever may be the public need for it, precisely because this need, keenly felt and incompletely satisfied, brings us a high price..."

2. Suppose a country's nominal maximum wage in 2013 is $10/hr, and there is 5% inflation per year. The market-clearing real wage - $9/hr in 2013 dollars - will not change until 2020.

T, F, and Explain: **After two years, the labor shortage will have turned into a labor surplus.**

FALSE. A MAXIMUM wage will NEVER cause a labor surplus. And since this maximum wage starts below the market-clearing real wage, it will not initially even cause a labor *shortage*. Every year, however, inflation makes the real maximum wage fall. This will eventually cause a labor shortage, but after two years, there will still be no effect because inflation-adjusted maximum wage is only $\$10/1.05^2=\$9.07$, which exceeds the market-clearing wage of $9.00.

3. T, F, and Explain: **The "nominal wage fairness" theory of unemployment can explain short-term unemployment but not long-term unemployment, because employers can easily adjust nominal wages for new workers.**

FALSE. The "nominal wage fairness" theory CAN explain long-term unemployment. New workers may initially be content with whatever wages they receive. Eventually, however, they will resent the fact that they are paid less than the original workers to do the very same job, hurting morale. Employers who anticipate this reaction will refrain from cutting wages even for new hires.

4. T, F, and Explain: **According to human capital theory, firms have no incentive to train workers' general skills.**

FALSE. While workers who improve their general skills can easily bargain for a raise, firms' obvious response is to pay them a below-market wage – or even a zero wage – during their training period. Internships are an excellent example. (If training builds worker loyalty, the below-market wage may not even be necessary).

5. Suppose the government suddenly requires employers to provide their workers with free health care, and nominal wages do not adjust.

T, F, and Explain: **Unemployed workers have an incentive to acquire additional education.**

TRUE. When the mandate goes into effect, the opportunity cost of education (foregone wages plus benefits) goes UP for the lucky workers who earn the same income plus health insurance. But the opportunity cost of education goes DOWN for the unlucky unemployed workers, because now they no longer have any wages to forego.

6. Suppose better nutrition increases all workers' IQ, but not their Conscientiousness.

T, F, and Explain: Average wages will rise; total hours of work will stay the same.

TRUE. Since the question specifies ALL workers, we should analyze this as an Aggregate Labor Market. In such markets, higher IQ means higher worker productivity, so ALD goes up. However, our default assumption in such markets is that ALS is vertical; and since Conscientiousness remains unchanged, there is no reason for ALS to shift. When ALD goes up and ALS is vertical and unchanged, average wages rise and total hours of work stay the same.

Part 2: Short Answer
(20 points each)

In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. Using everything you've learned, how would the labor market change if there were no medical licensing laws? Discuss the effect on both health care workers and other workers.

Getting rid of medical licensing laws increases the supply of medical workers, and decreases the supply of non-medical workers as they move into the medical field. So wages of medical workers go down, and wages of non-medical workers go up. If medical quality fell, the overall social effect could be negative. But market forces have many ways to maintain quality: reputation (including user reviews), warrantees, and lawsuits. So not only will non-medical workers enjoy higher wages; their money will buy more because they can pay less for health care of similar quality.

2. What argument in Caplan's "Why Should We Restrict Immigration?" can be most easily improved? Carefully explain how you would improve the argument.

[Students offered several good answers. Here are a few of the best.]

Caplan argues that the quality of the electorate could be maintained by denying immigrants the right to vote. But it would be easier and less controversial if the U.S. simply adopted an annual test of political knowledge, with cash prizes for good scores. Such a test would give immigrants (like everyone else) an incentive to learn about politics AND retain their knowledge.

Caplan argues that immigrants could pay admission fees or surtaxes to compensate low-skilled Americans who lose out from increased labor market competition. But since immigration has a large effect on real estate prices, it might be better to simply use extra property tax revenues for compensation instead.

Economics 321 Midterm
Prof. Bryan Caplan
Fall, 2014

Part 1: True, False, and Explain

(10 points each - 2 for the right answer, and 8 for the explanation)

State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. T, F, and Explain: **When wages rise, individual workers always respond by working more hours.**

FALSE. At the individual level, workers' tendency to work more as the wage rises (the substitution effect) may be overpowered by workers' tendency to consume more leisure as the wage rises (the income effect). Some workers do work more when wages rises, but others work less.

2. "Productivity growth in one sector can very easily reduce employment in that sector." (Krugman, The Accidental Theorist)

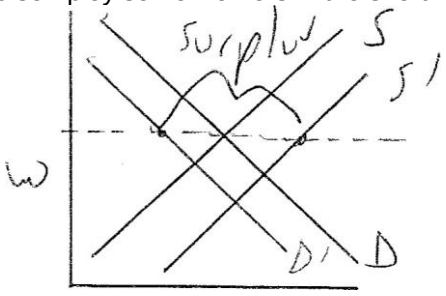
T, F, and Explain: **The good news, Krugman argues, is that workers in declining sectors can easily find better-paying jobs in expanding sectors.**

FALSE. Krugman only argues that productivity growth is good for workers in general. He does not say that workers in declining sectors automatically share in this rising prosperity. They may find themselves stuck in long-term unemployment, or end up settling for a new job far inferior to their old job.

3. Sometimes unions bargain for safer workplaces rather than higher wages.

T, F, and Explain: **This will not disemploy workers, because increasing worker safety has clear benefits for employers as well as workers.**

FALSE. If increased safety really benefited both employers and workers, employers would already have adopted it. Any additional safety is a costly benefit, leading to lower Labor Demand and higher Labor Supply. With perfectly flexible wages, this simply leads to lower wages without causing unemployment. In the real world, however, there is likely to be some nominal rigidity, so the union's demand will disemploy some workers in the short-run.



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4. In the real world, immigration increases Aggregate Labor Demand along with Aggregate Labor Supply.

T, F, and Explain: **The reason is that central banks adjust the money supply to keep the price level from falling.**

FALSE. Aggregate Labor Demand depends on MVP=MPP*P - workers' average MPP times the price level. In the real world, immigration raises MPP via comparative advantage: Workers with different skills specialize and trade, increasing productivity per worker. When central banks stabilize P, Aggregate Labor Demand rises because MPP rises, not because P stays the same.

5. Female college students are more likely to complete their degrees, but less likely to actually work after graduation.

T, F, and Explain: **Taken together, these facts do not imply that women have a higher return to education than men.**

TRUE. Women's higher degree completion rate gives them a higher expected return to education; their educational investments are more likely to lead to a diploma. But their lower labor force participation rate gives them a lower expected return to education, because they are less likely to "cash in" on their diplomas in the job market. We cannot know the NET effect of these two opposing factors on returns without more empirical details.

6. After graduation, electrical engineering majors make about 75% more than education majors.

T, F, and Explain: **If the typical education major switched to electrical engineering, his expected earnings would rise by less than 75%.**

TRUE. Engineering and education majors differ long before they start college. Most obviously, engineers tend to be much stronger students, especially in math and science. The typical education major who switched to engineering would be near the bottom of his classes, and therefore likely to earn far less than the average engineer (even assuming he could graduate).

Part 2: Short Answer

(20 points each)

In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. According to Bastiat:

> [I)f the secret wishes of each producer were realized, the world would speedily retrogress toward barbarism. The sail would take the place of steam, the oar would replace the sail, and it in turn would have to yield to the wagon... (Economic Sophisms)

Carefully diagram Bastiat's argument using an Aggregate Labor Market diagram. Is he right? Why or why not?

Bastiat is merely saying that if overall labor productivity sharply fell, this would be an economic disaster. From an Aggregate Labor Market perspective, this means that ALD falls. He's exactly right. (Many students talked about individual occupations rather than Aggregate Labor Markets, and pointed out that Bastiat's argument hinges on product demand elasticity. Quite right, but the question asked about the Aggregate Labor Market!)

2. Obamacare fines firms that fail to provide health insurance for their full-time workers. What are the expected negative side effects of this employer mandate? How would you expect these side effects to differ if inflation had been higher since Obamacare's passage?

The mandated benefit reduces labor demand (employers are less eager to hire if they have to provide health insurance) and increases labor supply (workers are more eager to work if they get health insurance). The expected negative side effects: Since wages are somewhat nominally rigid, real wages will fall AND unemployment will rise. You should also expect a switch to parttime workers. If inflation had been higher, this would have made nominal rigidity less relevant, leading to larger declines in real wages but less unemployment.

Economics 321 Midterm
Prof. Bryan Caplan
Fall, 2016

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. Suppose that product demand for tomatoes is relatively elastic. Initially, the minimum wage is below the market-clearing wage for tomato farmers, so it has no effect.

T, F, and Explain: **The minimum wage will never cause unemployment unless demand for tomatoes or farmers' physical productivity falls.**

TRUE. Since the minimum wage starts out below the intersection of labor supply and labor demand, it will only cause unemployment if labor demand falls. This only occurs if (a) product demand falls, or (b) if MPP falls (because with elastic product demand, MPP*P only falls if MPP falls).

[Since I neglected to specify that labor supply stays the same, I would have given full credit if a student said ALL the above, but added: FALSE. The minimum wage might also cause unemployment if labor supply increases.]

2. Suppose the public loses respect for teachers.

T, F, and Explain: **The theory of compensating differentials predicts that teachers' wages will fall.**

FALSE. Workers enjoy respect, so a fall in respect would reduce labor supply, RAISING teachers' wages.

3. "We ask you to be so good as to pass a law requiring the closing of... all openings, holes, chinks, and fissures through which the light of the sun is wont to enter houses..." (Bastiat, *Economic Sophisms*)

T, F, and Explain: **Bastiat is making fun of regulations against "moonlighting" (working a second job during the evening).**

FALSE. Bastiat is making fun of regulations that reduce productivity, especially regulations against foreign competitors. In this piece, the foreign competitor is the sun, which drastically reduces demand for candle-makers and similar trades. "Moonlighting" is a red herring.

4. T, F, and Explain: **Supply-and-demand shows that immigration *could* reduce native wages, but doesn't have to.**

TRUE. As long as natives and immigrants have different skills, immigration increases BOTH Aggregate Labor Supply (more workers means more hours sold at a given wage) AND Aggregate

Labor Demand (specialization and trade between workers with different skills effectively increases worker productivity). When both supply and demand rise, the net effect on wages is theoretically ambiguous.

5. Suppose IQ tests are culturally biased against immigrants.

T, F, and Explain: **Profit-maximizing employers who know about this cultural bias will pay immigrants less than natives with identical IQs.**

FALSE. As long as employers know about cultural bias, they will realize that immigrants are BETTER workers than their test scores indicate. The profit motive in turn leads them to offer immigrant workers more money than they would offer natives with identical scores.

6. T, F, and Explain: **When tuition rises, the return to education falls.**

TRUE. Foregone wages and tuition are the main costs of education. If either goes up, the PDV of educational investments falls, implying a lower rate of return.

Part 2: Short Answer
(20 points each)

In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. In a simple supply-and-demand model, does unemployment insurance increase *involuntary* unemployment? Could this result be different in the long-run? (Hint: How might unemployment insurance affect the strength of wage-fairness norms?)

In a simple supply-and-demand model, unemployment insurance reduces labor supply by making work less appealing. If markets are in equilibrium, this increases voluntary unemployment, but involuntary unemployment doesn't exist. If the market wage is initially above the market-clearing level, however, unemployment insurance CONVERTS some or all of the involuntary unemployment into voluntary unemployment. Some workers who wanted but were unable to get a job at the market wage decide they'd rather not work at all.

But in the long-run, unemployment insurance will plausibly STRENGTHEN norms against wage cuts. After all, it's easier to stay angry about unfair wages when you have enough money to survive. Since wage fairness norms increase involuntary unemployment, unemployment insurance might cause unemployment in the long-run despite its short-run effects.

2. Use the arguments in Krugman's "In Praise of Cheap Labor" to make a *humanitarian* defense of late-19th-century America's laissez-faire labor and immigration policies.

Krugman strongly argues that bad jobs at bad wages are better than no jobs at all. Extending this reasoning to late-19th-century America: Despite harsh conditions, free labor markets and immigration allowed millions of people to make better lives for themselves in the growing industrial economy. Regulation would have trapped many of these people in unemployment – and many of the immigrants in far worse (if not deadly) conditions in their home countries. And true humanitarian should be happy to see the poor's living standards go from very bad to pretty bad.

Economics 321 Midterm
Prof. Bryan Caplan
Fall 2017

Part 1: True, False, and Explain
(10 points each - 2 for the right answer, and 8 for the explanation)
State whether each of the following six propositions is true or false. In 2-3 sentences, explain why. Use diagrams if helpful.

1. Suppose surgeons enjoy coffee, but it makes them less productive by making their hands (slightly!) tremble.

T, F, and Explain: **Surgeons' wages will definitely fall.**

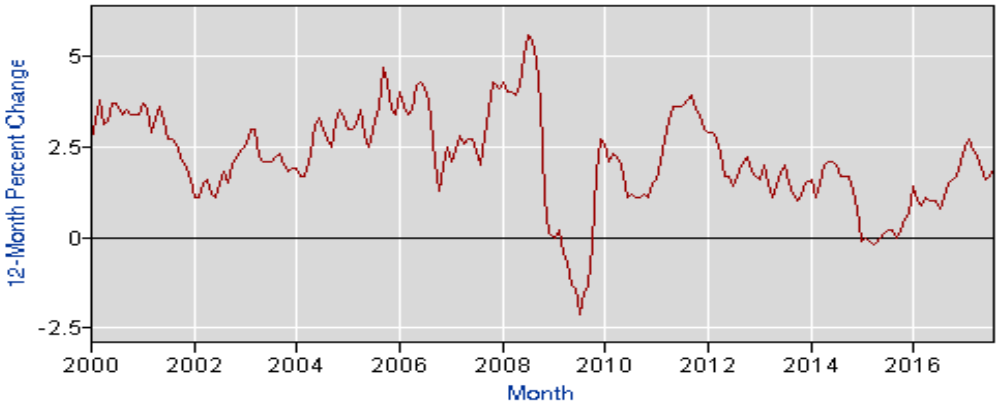
FALSE. Since surgeons enjoy coffee, their labor supply increases, which does indeed tend to reduce wages. But the effect of their reduced MPP on labor demand depends on demand elasticity for surgery. If demand for surgeon is relatively inelastic, reduced MPP will actually raise labor demand, which tends to increase wages. The net wage effect is ambiguous.

2. "Productivity growth in one sector can very easily reduce employment *in that sector*." (Krugman, *The Accidental Theorist*)

T, F, and Explain: **Krugman is arguing that increases in productivity increase Aggregate Labor Demand.**

FALSE. Krugman is arguing that productivity growth in a specific sector can (and often does) reduce employment in their specific sector. This is not, however, a sign that labor markets work poorly or that productivity increases are socially bad.

3. This figure shows the U.S. inflation rate (% CPI change) for 2000-present.



T, F, and Explain: **If Congress hadn't raised the legal minimum wage during this time, the REAL minimum wage would have continuously declined.**

FALSE. The real minimum wage declines every year as long as inflation (the rate of change of the price level) is POSITIVE. During this period, however, there were two periods of deflation, which actually temporarily increased the real minimum wage.

4. T, F, and Explain: **According to the "standard history of labor," wages have risen rapidly since the 19th-century because birth rates sharply fell, leading to a continuous fall in Aggregate Labor Supply.**

FALSE. According to the "standard history of labor" (which Caplan critiqued in the Week 3-4 notes), wages have risen because of government regulation and unions. Almost no one credits falling ALS for raising wages, because – despite falling birth rates – population is MUCH higher today than it was in the 19th-century.

[Most students presented the correct story about rising wages, namely increased worker productivity. But this was a question about an incorrect VIEW of labor markets, not a question about how labor markets actually work. I generally awarded 4 points for such answers.]

5. Suppose all U.S.-born workers are in manufacturing, and all immigrants are farmers.

T, F, and Explain: **Allowing more immigration helps U.S. employers, but hurts U.S.-born workers.**

FALSE. Immigrants who produce what you produce hurt you, but immigrants who produce what you consume help you. Since, by assumption, natives and immigrants are in completely separate industries, immigration is entirely beneficial for U.S. employers and U.S.-born workers. Previous immigrants, however, will lose from increased competition.

6. The (non-profit) military provides teaches its employees a lot more general job skills than most for-profit employers.

T, F, and Explain: **This is precisely what you would expect, because for-profit employers have no incentive to teach general job skills.**

FALSE. For-profit employers can easily profit from teaching general job skills. They simply have to pay trainees lower wages (or zero wages) to make up for training costs. For-profit employers can also profit if free training builds worker loyalty, so workers don't immediately demand a raise or switch employers as soon as their productivity goes up.

<u>Part 2:</u> Short Answer
(20 points each)
In 4-6 sentences, answer both of the following questions. Use diagrams if helpful.

1. Historians often argue that since the unemployment rate during World War II was extremely low, labor demand must have been much higher than it was today. But economists point out that real wages are MUCH higher today than they were during World War II. Use Aggregate Labor Demand and Aggregate Labor Supply curves to resolve this dispute. *Hint:* During World War II, regulations often set <u>maximum</u> wages.

The historians are mistaken: Labor demand is MUCH higher today than it was during WWII. Where do they go wrong? They assume that unemployment is determined by labor demand alone, rather than the *difference* between the actual wage and the equilibrium wage. During WWII, regulation held the actual wage well below the equilibrium wage, leading to a labor shortage and very low unemployment. Today, in contrast, regulation tends to push actual wages above the equilibrium wage, leading to labor surplus and higher unemployment.

2. How does Michael Clemens' defense of immigration ("Economics and Emigration: Trillion-Dollar Bills on the Sidewalk") differ from the conventional economic defense of immigration? Give details.

As discussed in class, the conventional economic defense of immigration says that there are two kinds of economically desirable immigrants: (a) high-skilled immigrants, and (b) low-skilled immigrants who "do jobs Americans won't do." The conventional view never even considers the possibility that immigrants are more *productive* in the U.S. than they would be in their home countries. Clemens, in contrast, emphasizes that, if anyone could work anywhere, global production would rise by many trillions of dollars per year. Why? Because immigrants would relocate to countries where their productivity is much higher, enriching both themselves and the world. Clemens admits that immigrants aren't quite as productive as U.S. natives, but strongly argues that most of the earnings gap between Americans and foreigners stems from where they work, not where they're born.