Guía de Ejercicios - Examen Parcial 2

Economía Laboral

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Verdadero o Falso

1. Un aumento en la duración del empleo generará una disminución en la tasa de desempleo de estado estacionario.

2. El aumento de la tasa de desempleo durante la década de 1990 se debió principalmente al aumento de la participación laboral de la mujer.

3. La demanda de trabajo de la firma en el corto plazo es más elástica que en el largo plazo.

4. Si el gobierno aumenta el costo de despido de trabajadores la tasa de desempleo de estado estacionario disminuirá.

Problemas

Ejercicios de Equilibrio General:

1. El siguiente problema analiza el efecto de un salario mínimo y de la inmigración de trabajadores ilegales sobre el equilibrio en el mercado de trabajo en una economía que posee dos mercados de trabajo, uno formal y otro informal.

   Asuma que existen dos sectores en la economía, uno formal y otro informal, que emplean el mismo tipo de trabajo. La demanda de trabajadores en el sector formal está dada por $L_F^D = 1000 - 20w_F$ y en el sector informal está dada por $L_I^D = 200$. La oferta de trabajo en la economía es completamente inelástica e igual a 1000 trabajadores. Los trabajadores en la economía son neutrales al riesgo y deciden participar en el sector con el mayor salario esperado. Como consecuencia, en equilibrio el salario esperado será el mismo en los dos sectores (i.e. una de las condiciones de equilibrio es que el salario esperado tiene que ser el mismo en ambos sectores). Básicamente, el problema es determinar cómo el mercado distribuirá los trabajadores entre los dos sectores.

   a. Calcule los salarios y la cantidad de trabajo de equilibrio en cada sector. Ayuda: como no existe ninguna fricción en el mercado, el salario será el mismo en los dos sectores (i.e. en ambos sectores el trabajador recibirá el salario con probabilidad 1).

   Ahora asuma que se impone un salario mínimo de $30 en el sector formal. Para calcular el nuevo equilibrio de mercado asuma que el salario esperado en el sector formal es igual a la tasa de empleo en el sector formal por el salario mínimo (i.e. tasa de empleo x $30). En el sector informal el trabajador recibirá el salario, wI, con probabilidad uno.

   b. Calcule el salario de equilibrio en el sector informal y la cantidad de trabajo de equilibrio en cada sector.

   c. Calcule la tasa de desempleo en el sector formal, la tasa de desempleo en el sector informal y la tasa de desempleo de la economía.

   Ahora asuma que se remueve el salario mínimo de $30, pero que ingresan a la economía 100 trabajadores ilegales que ofrecen su trabajo de manera inelástica únicamente en el sector informal.

d. Calcule el salario de equilibrio en el sector informal y la cantidad de trabajo de equilibrio en cada sector.

2. Suponga que en un mercado operan N establecimientos pequeños de comida rápida que producen cada uno de acuerdo a la siguiente función de producción $f(L) = \frac{L^a}{a}$, en donde $0 < a < 1$. El precio del producto final es igual a 1. La oferta agregada de trabajo está dada por $w^e, \quad e > 0$. Adicionalmente suponga que las empresas son tomadoras de precio en el mercado de factores (i.e. el mercado laboral es competitivo).

   a. Derivar la curva de demanda de trabajo de una empresa individual. Use esto para derivar la curva de demanda agregada de trabajo. Represente gráficamente.

   b. Calcule la elasticidad de la curva de demanda agregada de trabajo.

   c. Calcule la elasticidad de la curva de oferta de trabajo agregada de trabajo.

   d. Calcule el salario de equilibrio competitivo y el nivel de empleo total. Represente gráficamente.

   e. Suponga que se impone un impuesto del $t\%$ del salario de los trabajadores. Calcule el nuevo equilibrio de mercado. ¿Quién paga el impuesto? ¿Los trabajadores, las empresas, o es compartido por ambos? Represente gráficamente.

3. Let total market demand for labor be represented by $E_D = 1,000–50w$ where E_D is total employment and w is the hourly wage.

   a. What is the market clearing wage when total labor supply is represented by $E_S = 100w–800$? How many workers are employed? How much producer surplus is received at the equilibrium wage?

   b. Suppose the government imposes a minimum wage of \$16. What is the new level of employment? How much producer surplus is received under the minimum wage?

4. Let total market demand for labor be represented by $E_D = 1,200–30w$ where E_D is total employment and w is the hourly wage. Suppose 750 workers supply their labor to the market perfectly inelastically. How many workers will be employed? What will be the market clearing wage? How much producer surplus is received?

5. A firm faces perfectly elastic demand for its output at a price of \$6 per unit of output. The firm, however, faces an upward-sloped labor supply curve of

$$E = 20w–120$$

   where E is the number of workers hired each hour and w is the hourly wage rate. Thus, the firm faces an upward-sloped marginal cost of labor curve of

$$MC_E = 6 + 0.1E$$

   Each hour of labor produces five units of output. How many workers should the firm hire each hour to maximize profits? What wage will the firm pay? What are the firm's hourly profits?

Ejercicios de Desempleo:

6. (**Capítulo 12 Borjas - Desempleo**) Suppose 25000 persons become unemployed. You are given the following data about the length of unemployment spells in the economy:

Duration of Spell (in months)	Exit Rate
1	0,60
2	0,20
3	0,20
4	0,20
5	0,20
6	1,0

where the exit rate for month t gives the fraction of unemployed persons who have been unemployed t months and who "escape" unemployment at the end of the month.

   a. How many unemployment months will the 25000 unemployed workers experience?
   b. What fraction of persons who are unemployed are "long-term unemployed" in that their unemployment spells will last 5 or more months?
   c. What fraction of unemployment months can be attributed to persons who are long-term unemployed?

7. (**Capítulo 12 Borjas - Desempleo**) Suppose the marginal revenue from search is

$$MR = 50 - 1,5w$$

where w is the wage offer at hand. The marginal cost of search is

$$MC = 5 + w$$

   a. Why is the marginal revenue from search a negative function of the wage offer at hand?
   b. Can you give an economic interpretation of the intercept in the marginal cost equation; in other words, what does it mean to say that the intercept equals \$5? Similarly, what does it mean to say that the slope in the marginal cost equation equals \$1?
   c. What is the worker's asking wage? Will a worker accept a job offer of \$15?
   d. Suppose Unemployment Insurance benefits are reduced, causing the marginal cost of search to increase to $MC = 20 + w$. What is the new asking wage? Will the worker accept a job offer of \$15?

8. (**Capítulo 12 Borjas - Desempleo**) Compare two unemployed workers; one is 25 years old while the other is 55 years old. Both workers have similar skills and face the same wage offer distribution. Suppose that both workers also incur similar search costs. Which worker will have a higher asking wage? Why? Can search theory explain why the unemployment rate of young workers differs from that of older workers?

Ejercicios de Diferencias Igualadoras:

9. Politicians who support the green movement often argue that it is profitable for firms to pursue a strategy that is "environmentally friendly" (for example, by building factories that do not pollute), because workers will be willing to work in environmentally friendly factories at a lower wage rate. Evaluate the validity of this claim.

10. Suppose there are 100 workers in the economy in which all workers must choose to work a risky or a safe job. Worker 1's reservation price for accepting the risky job is \$1; worker 2's reservation price is \$2, and so on. Because of technological reasons, there are only 10 risky jobs.

    a. What is the equilibrium wage differential between safe and risky jobs? Which workers will be employed at the risky firm?

    b. Suppose now that an advertising campaign, paid for by the employers who offer risky jobs, stresses the excitement associated with "the thrill of injury," and this campaign changes the attitudes of the work force toward being employed in a risky job. Worker 1 now has a reservation price of -\$10 (that is, she is willing to pay \$10 for the right to work in the risky job); worker 2's reservation price is -\$9, and so on. There are still only 10 risky jobs. What is the new equilibrium wage differential?

11. Suppose all workers have the same preferences represented by

$$U = \sqrt{w} - 2x$$

    where w is the wage and x is the proportion of the firm's air that is composed of toxic pollutants. There are only two types of jobs in the economy, a clean job (x = 0) and a dirty job (x = 1). Let w0 be the wage paid by the clean job and w1 be the wage paid for doing the dirty job. If the clean job pays \$16 per hour, what is the wage in dirty jobs? What is the compensating wage differential?

12. Suppose a drop in the compensating wage differential between risky jobs and safe jobs has been observed. Two explanations have been put forward:

    - Engineering advances have made it less costly to create a safe working environment.
    - The phenomenal success of a new action serial "Die On The Job!" has imbued millions of viewers with a romantic perception of work-related risks.

    Using supply and demand diagrams show how each of the two developments can explain the drop in the compensating wage differential. Can information on the number of workers employed in the risky occupation help determine which explanation is more plausible?

13. Consider a competitive economy that has four different jobs that vary by their wage and risk level. The table below describes each of the four jobs.

Job	Risk(r)	Wage (w)
A	1/5	\$3
B	1/4	\$12
C	1/3	\$23
D	1/2	\$25

All workers are equally productive, but workers vary in their preferences. Consider a worker who values his wage and the risk level according to the following utility function:

$$u(w, r) = w + \frac{1}{r^2}$$

Where does the worker choose to work? Suppose the government regulated the workplace and required all jobs to have a risk factor of 1/5 (that is, all jobs become A jobs). What wage would the worker now need to earn in the A job to be equally happy following the regulation?

14. The EPA wants to investigate the value workers place on being able to work in "clean" over "dirty" mines. The EPA conducts a study and finds the average annual wage in clean mines to be \$42,250 and the average annual wage in dirty mines to be \$47,250.

    a. According to the EPA, how much does the average worker value working in a clean mine?

    b. Suppose the EPA could mandate that all dirty mines become clean mines and that all workers who were in a dirty mine must therefore accept a \$5,000 pay decrease. Are these workers helped by the intervention, hurt by the intervention, or indifferent to the intervention?

15. There are two types of farming tractors on the market, the FT250 and the FT500. The only difference between the two is that the FT250 is more prone to accidents than the FT500. Over their lifetime, one in ten FT250s is expected to result in an accident, as compared to one in twenty-five FT500s. Further, one in one-thousand FT250s is expected to result in a fatal accident, as compared to only one in five-thousand FT500s. The FT250 sells for \$125,000 while the FT500 sells for \$137,000. At these prices, 2,000 of each model are purchased each year. What is the statistical value farmers place on avoiding a tractor accident? What is the statistical value of a life of a farmer?

16. Consider the labor market for public school teachers. Teachers have preferences over their salary, amenities, and school characteristics.

    a. One would reasonably expect that high-crime school districts pay higher wages than low-crime school districts. But the data consistently reveal that high-crime school districts pay lower wages than low-crime school districts. Why? (Hint: in many cities the primary source of funding for teacher salaries is local property taxes.)

    b. Does your discussion suggest anything about the relation between teacher salaries and school quality?

17. Suppose everyone is highly productive, college educated, hard-working, etc. People still differ in their preferences for jobs—while some would prefer to be doctors than lawyers, others prefer to be lawyers than doctors, and so on—and everyone prefers to be a professional to being a trash collector, but as usual preferences vary across individuals. In order for this economy to function at all, someone needs to choose to be the trash collector. Who will be the trash collector, and in general terms how much will the job of trash collector pay?

18. Consider two identical jobs, but some jobs are located in Ashton while others are located in Benton. Everyone prefers working in Ashton, but the degree of this preference varies across people. In particular, the preference (or reservation price) is distributed uniformly from \$0 to \$5. Thus, if the Benton wage is \$2 more than the Ashton wage, then 40 percent (or two-fifths) of the worker population will choose to work in Benton. Labor supply is perfectly inelastic, but firms compete for labor. There are a total of 25,000 workers to be distributed between the two cities. Demand for labor in both locations is described by the following inverse labor demand functions:

$$\begin{aligned} \text{Ashton:} \quad & w_A = 20 - 0,0024 \cdot E_A \\ \text{Benton:} \quad & w_B = 20 - 0,0004 \cdot E_B \end{aligned}$$

Solve for the labor market equilibrium by finding the number of workers employed in both cities, the wage paid in both cities, and the equilibrium wage differential.

19. U.S. Trucking pays its drivers \$40,000 per year, while American Trucking pays its drivers \$38,000 per year. For both firms, truck drivers average 240,000 miles per year. Truck driving jobs are the same regardless of which firm one works for, except that U.S. Trucking gives each of its trucks a safety inspection every 50,000 miles while American Trucking gives each of its trucks a safety inspection every 36,000 miles. This difference in safety inspection rates results in a different rate of fatal accidents between the two companies. In particular, one driver for U.S Trucking dies in an accident every 24 million miles while one driver for American Trucking dies in an accident every 30 million miles. What is the value of a trucker's life implied by the compensating differential between the two firms?

Soluciones

Problemas

1. Solución no disponible.

2. Solución no disponible.

3. a. Set $E_D = E_S$ and solve for w yields $w^* = \$12$. At this wage, $E_D = 400$ and $E_S = 400$, which is the equilibrium level of employment. Lastly, producer surplus is the area below the demand curve but above the wage. Mathematically, producer surplus $= (0.5)(\$20–\$12)400 = \$1,600$ where the \$20 comes from solving for w when $E_D = 0$.

   b. At a minimum wage of \$16, labor demand will equal 200 (while labor supply will equal 800). As firms are not required to hire workers if they don't want to, the new level of employment will be 200 workers. In this case, producer surplus $= (0.5)(\$20–\$16)200 = \$400$.

4. As the 750 workers supply their labor perfectly inelastically, all 750 will be employed. The wage that the firms must pay satisfies $750 = 1,200–30w$ which solves as $w^* = \$15$. In this case, producer surplus $= (0.5)(\$40–\$15)750 = \$9,375$ where the \$40 comes from solving for w when $E_D = 0$.

5. First, solve for the labor demand curve: $VMP_E = P \cdot MP_E = \$6 \cdot 5 = \$30$. Thus, every worker is valued at \$30 per hour by the firm. Now, setting $VMP_E = MC_E$ yields $30 = 6 + 0,1 \cdot E$ which yields $E^* = 240$. Thus, the firm will hire 240 workers every hour. Further, according to the labor supply curve, 240 workers can be hired at an hourly wage of \$18 as

$$240 = 20w - 120 \longrightarrow 240 = 20(18) - 120 \longrightarrow w = \$18$$

   Finally, as $Q = 5L = 5 \cdot 240 = 1,200$, the firm's hourly profits are:

$$\pi = pQ - wL = \$51,200 - \$18 \cdot 240 = \$2,880$$

6. Reordenando los datos:

Duration (months)	Exit rate	Unemploment start of month	Nº exiters	Nº stayers	Months for duration
1	0,6	25.000	15.000	10.000	15.000
2	0,2	10.000	2.000	8.000	4.000
3	0,2	8.000	1.600	6.400	4.800
4	0,2	6.400	1.280	5.120	5.120
5	0,2	5.120	1.024	4.096	5.120
6	1	4.096	4.096	0	24.576

En el primer mes hay 25.000 desempleados, en el segundo mes hay 10.000 desempleados (25.000-0.6*25.000) y así sucesivamente.

a. 58.616 meses de desempleo (suma de última columna que es la multiplicación de exiters*duration), un promedio de 2,34 meses por trabajador.

b. 5.120 individuos (20,5% del total).

c. Los desempleados por 5 meses o más representan 29.696 del total de meses de desempleo, esto es, 50,7% de 58.616.

d. La mayoría de los spells duran poco, pero los trabajadores en spells largos representan a la mayoría del desempleo observado en la economía. Así, el principal problema es demasiados spells largos.

7. a. Si la oferta en mano es baja, conviene seguir buscando en tanto la próxima oferta sea probablemente mayor que la oferta en mano. Si la oferta en mano es alta, no conviene seguir la búsqueda en tanto que será poco probable que la próxima búsqueda genere un salario ofrecido mayor.

   b. Los $5 representan los costos de la búsqueda. Aunque la oferta en mano sea cero (es decir, no hay costos de oportunidad de la búsqueda), de todas maneras, hay costos de aprender sobre los detalles que ofrece la potencial oferta laboral. La pendiente es $1 porque los costos de la búsqueda también varían directamente con los costos de oportunidad de la búsqueda que es el salario ofrecido en mano. Si el salario ofrecido en mano es $10, el costo de oportunidad de cada búsqueda adicional es $10, si el salario ofrecido en mano es $11, el costo de oportunidad será $11 y así sucesivamente.

   c. El salario solicitado por el individuo se obtiene el ingreso marginal de la búsqueda con el costo marginal de la búsqueda:

   $$50 - 1,5 \cdot w = 5 + w$$

   Resolviendo, $w = \$18$. Entonces el trabajador no aceptará la oferta de $15.

   d. Igualando en nuevo costo marginal con el ingreso marginal, el $w = \$12$. El trabajador aceptará ahora la oferta de $15

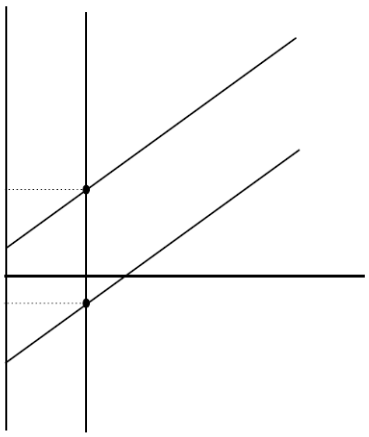
8. El ingreso marginal de la búsqueda depende de la duración del período de pago. Los trabajadores más jóvenes tienen más que ganar al obtener trabajos mejor pagos, ya que luego pueden obtener los beneficios de su inversión de búsqueda durante una vida laboral más larga. Como resultado, a los trabajadores más jóvenes les conviene fijar el salario que piden en un nivel relativamente alto. Esto implica que los trabajadores más jóvenes tenderán a tener tasas de desempleo más altas y períodos de desempleo más largos que los trabajadores mayores, en igualdad de condiciones. Pero es importante recordar que los trabajadores más jóvenes pueden diferir de otras maneras: por ejemplo, pueden enfrentar una distribución diferente de la oferta salarial.

9. If it is profitable for firms to build factories that do not pollute, firms would build these factories without government interference as doing so would maximize profits. After all, firms could build these profit-maximizing factories and attract persons to work at these factories at lower wages because no compensating differential would be needed. The fact that compensating differentials exist and that governments attempt to regulate the

quality of the workplace implies that providing these amenities to workers is more costly than cost-saving.

10. a. The supply curve to the risky job is given by the fact that worker 1 has a reservation price of \$1, worker 2 has a reservation price of \$2, and so on. As the figure below illustrates, this supply curve (given by S) is upward sloping, and has a slope of 1. The demand curve (D) for risky jobs is perfectly inelastic at 10 jobs. Market equilibrium is attained where supply equals demand so that 10 workers are employed in risky jobs; the market compensating wage differential is \$10 (or, at least some number at least \$10 at not yet \$11) since this is what it takes to entice the marginal (tenth) worker to accept a job offer from a risky firm. Note that the firm employs those workers who least mind being exposed to risk.

    b. If tastes towards risk change, the supply curve shifts down to S and the market equilibrium is attained when the compensating wage differential is -\$1. This is the compensating differential required to hire the marginal worker (that is, the 10th worker). Note that this compensating differential implies that even though most workers (from worker 12 onwards) dislike risk, the market determines that risky jobs will pay less than safe jobs.



11. If all persons have the same preferences regarding working in a job with polluted air, market equilibrium requires that the utility offered by the clean job be the same as the utility offered by the dirty job, otherwise all workers would move to the job that offers the higher utility. This implies that:

$$\sqrt{w_0} - 2(0) = \sqrt{w_1} - 2(1) \quad \Longrightarrow \quad \sqrt{16} = \sqrt{w_1} - 2$$

    Solving for w1 implies that w1 = \$36. The compensating wage differential, therefore, is \$20 as the risky job pays \$36 per hour and the clean job pays \$16 per hour.

12. The engineering advances make it cheaper for firms to offer safe jobs, and hence reduce the gain from switching from a safe environment to a risky one (or reduce the cost of switching from a risky environment to a safe one). This will decrease (shift in) the demand curve for risky jobs and reduce the compensating wage differential (Figure 1 below). Note that the equilibrium number of workers in risky jobs goes down.

    The glamorization of job-related risks may make people more willing to take these risks. This increases the supply (shift out) of workers to risky jobs and reduces the compensating

differential (Figure 2 below). Note that the equilibrium number of workers in risky jobs goes up.

Thus, information on whether employment in the risky sector increased or decreased can help discern between the two competing explanations: if employment in risky jobs went down then it is likely due to technology; if employment in risky jobs went up it is likely due to preferences.

Figure 1. Labor Market for Risky Jobs

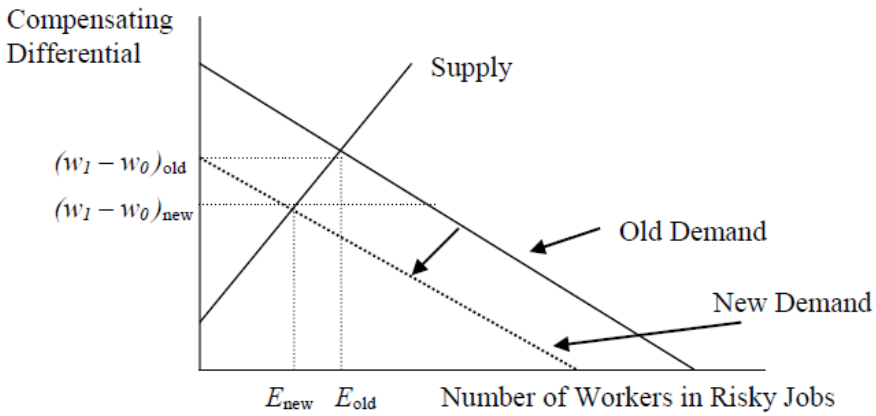
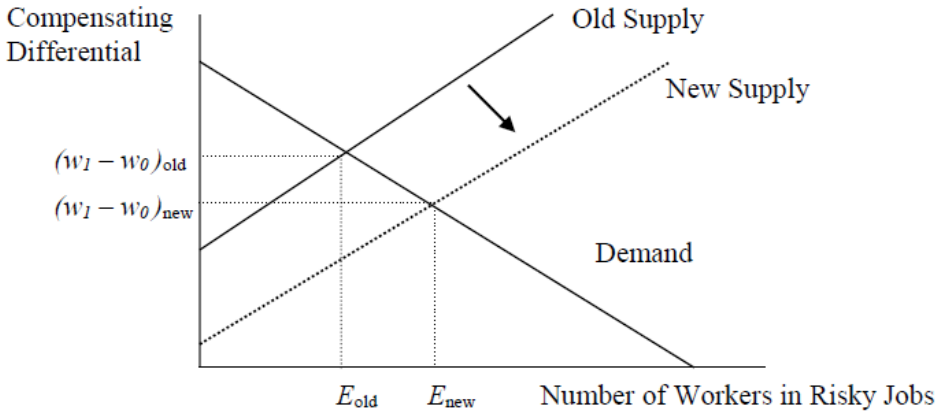


Figure 2. Labor Market for Risky Jobs



13. Calculate the utility level for each job by using the wage and the risk level: U(A) = 28, U(B) = 28, U(C) = 32, and U(D) = 29. Therefore, the worker chooses a type C job and receives 32 units of happiness. If she is forced to work a type A job, the worker needs to receive a wage of \$7 in order to maintain her 32 units of happiness as 7 + 25 = 32.

14. a. The average value is \$47,250 - \$42,250 = \$5,000.

    b. All except the marginal worker are hurt by the intervention. The workers who sort themselves into the dirty jobs are those workers who prefer to work in a dirty mine than in a clean mine when the wage differential is \$5,000. These workers, in essence,

value working in a dirty job at less than \$5,000, and therefore being required to give up \$5,000 to have a clean job is a bad deal for them. (Similarly, if all of the workers in the clean jobs were forced to accept dirty jobs for \$5,000 more, all of them except the marginal worker would be hurt as they all value working in a clean job at more than \$5,000.)

15. The FT500 is associated with an extra cost of \$12,000, but its accident rate is only 4% compared to the 10% accident rate of the FT250. Also, each farmer that buys the FT250 is willing to accept the additional risk in order to save \$12,000. These workers are willing to receive \$24 million (\$12,000 x 2,000) in exchange for $(0.1 - 0.04) \cdot 2000 = 120$ more accidents. Thus, the value placed on each accident is \$24 million $\div$ 120 = \$200,000. Likewise, the 2,000 farmers who buy the FT250 are willing to receive \$24 million in exchange for $(0.001 - 0.0002) \cdot 2000 = 1.6$ more fatal accidents. Thus, the value placed on each life is 24 million $\div$ 1.6 = \$15 million.

16. a. The likely reason for this is not that teachers do not care about crime–they almost certainly do–but rather that school funding is determined in large part by local property taxes. If high-crime schools are located in low-income cities, there is nothing (or at least very little) the local school board can do to raise more money to pay the compensating differential.

    b. In the end, because high-crime schools cannot offer the necessary compensating differential, they will not be able to attract the highest quality workers. Therefore, one would expect that the worst schools with the worst teachers are located in the poorest communities with the most crime. This is the typical story told by proponents of replacing the local property tax scheme to fund public education with state or federal funds.

17. In order for this economy to function at all, someone needs to choose to be the trash collector, so the salary paid to the trash collector will adjust until someone willing chooses to do the job. The person will be highly productive, college educated, hard-working, etc. The person will most likely earn a lot of money, as the salary must be high enough to encourage someone to take the job. Moreover, the person will be, of all people in the economy, the one who least objects to being a trash collector. So, to recap, because of other people's aversion to collecting trash and the necessity to have someone collect the trash, the person with preferences far from the norm (i.e., most willing to pick up trash) earns a very high wage.

18. There are five equations that must hold simultaneously to make the equilibrium. In particular, and defining $\Delta = w_B - w_A$, the equations are:

$$w_A = 20 - 0,0024_A \tag{1}$$
$$w_B = 20 - 0,0004_B \tag{2}$$
$$\Delta = w_B - w_A \tag{3}$$
$$E_A + E_B = 25000 \tag{4}$$
$$E_B = 25000\Delta/5 = 5000\Delta \tag{5}$$

Equation (5) is the most difficult for most students to see. And once they see it, they wonder why a sixth equation of $E_A = 25000 - 5000\Delta$ isn't also included. Of course, this

sixth equation plus (4) and (5) are perfectly collinear, so only two of the three can be used. Now consider the following algebraic manipulations:

$$(2) - (1) \Longrightarrow w_B - w_A = \Delta = 0,0024E_A - 0,0004E_B$$

Substituting in (4) yields: $\Delta = 0,0024(25000 - E_B) - 0,0004E_B = 60 - 0,0028E_B$. Substituting (5) into this last equation yields:

$$\begin{aligned}
&\Delta = 60 - 0,0028 \cdot E_B \\
&\Delta = 60 - 0,0028 \cdot 5000\Delta \\
&\Delta = 60 - 14\Delta \\
&15\Delta = 60 \\
&\Delta = \$4
\end{aligned}$$

A little more work, now provides the entire equilibrium:

$$\begin{aligned}
&\text{Equation (5)} \longrightarrow E_B = 5000\Delta = 5000(4) = 20000 \\
&\text{Equation (4)} \longrightarrow E_A = 5000 \\
&\text{Equation (2)} \longrightarrow w_B = 20 - 0,0004E_B = 20 - 0,0004(20000) = \$12 \\
&\text{Equation (1)} \longrightarrow w_A = 20 - 0,0024E_A = 20 - 0,0024(5000) = \$8
\end{aligned}$$

Thus, the labor market equilibrium is for 20,000 workers to work in Benton, each being paid \$12 per hour; for 5,000 workers to work in Ashton, each being paid \$8; and for the equilibrium wage differential to be \$4.

19. To make things easy, suppose both firms require driving 120 million miles each year. This requires each firm hiring 120 million miles ÷ 240,000 miles per driver = 500 drivers. U.S. Trucking expects to experience 5 deaths in a year (120 ÷ 24) while American Trucking expects to experience 4 deaths in a year (120 ÷ 30). The 500 drivers for U.S. Trucking, therefore, are each paid \$2,000 more than drivers for American Trucking to take on the expected risk of having one more death. Thus, the 1 expected life is worth 500 × \$2,000 = \$1,000,000. Thus, the value of a trucker's life implied by the compensating differential between the two firms is \$1 million.