Final Exam
Public Finance - 180.365
Fall, 2007
Answers

1 Multiple Choice - Circle The Correct Letter

Correct answer indicated by $\Rightarrow$

1. A pay-as-you-go system means

    (a) you pay for your dinner as you go to the table to eat.

    (b) $\Rightarrow$current working citizens pay for current retired citizens.

    (c) there is no need for taxes since current workers pay for current retirees.

    (d) retirees are paid from accounts that have accumulated with interest over their working lives.

    (e) all of the above.

2. An actuarially fair return means

    (a) returns on investments are indexed to the stock market.

    (b) returns on investments have to be positive.

    (c) $\Rightarrow$benefits received, on average, would be equal to the premiums paid.

    (d) premiums for insurance are generally paid by the government.

    (e) none of the above.

3. When workers save less during their working lives due to the fact that they have been paying Social Security taxes, this is known as

    (a) the Social Security effect.

    (b) $\Rightarrow$the wealth substitution effect.

    (c) the bequest effect.

    (d) the life cycle hypothesis.

4. The Social Security earnings test

    (a) $\Rightarrow$applies only to workers between 65 and 69 years of age.

    (b) was redesigned in the 1980s to include foreign workers.

    (c) has a tax rate of no more than 16.9 percent.

    (d) does all of the above.

5. Social Security pension benefits are

    (a) $\Rightarrow$subject to income taxes for those with certain income levels.

    (b) non-taxable for all retirees.

    (c) subject to state, but not federal, income taxes.

    (d) subject to capital gains taxes.

(e) all of the above.

6. Social security taxes are projected to fall short of benefits starting in

   (a) 2005.
   (b) 2010.
   (c) ⇒2017.
   (d) 2040.
   (e) 2050.

7. Social insurance can be justified on the grounds of

   (a) adverse selection.
   (b) decision-making costs.
   (c) income distribution.
   (d) paternalism.
   (e) ⇒all of the above.

8. In 1970 the Social Security tax rate was _____ and had increased to _____ by 2006.

   (a) 0.84%, 0.124%
   (b) 12.4%, 8.4%
   (c) ⇒8.4%, 12.4%
   (d) 84%, 124%

9. An income effect

   (a) is measured as the change in prices over time.
   (b) is not possible when people are unemployed.
   (c) requires interest rates to remain constant.
   (d) ⇒is the change in the quantity demand, due to the fact that real income changes when prices change.
   (e) is none of the above.

10. Equivalent variation means

   (a) ⇒finding an equivalent change in income that puts a person on the same utility as a change in price would.
   (b) finding equal tax rates that insure quantity demanded does not change.
   (c) equalizing excess burden across all markets.
   (d) moving the same distance in either direction from a starting point on an indifference curve.
   (e) price variations that ensure quantity demanded does not change.

11. The compensated demand curve

   (a) shows how the quantity demanded changes when the price changes.
   (b) shows how income is compensated, so that the individual's commodity bundle stays on the same indifference curve.

 (c) is sometimes referred to as the Hicksian demand curve.

 (d) ⇒is all of the above.

 (e) is none of the above.

12. Points on the same utility curve are

 (a) ⇒points where the person is indifferent between bundles on the line.

 (b) points where utility is maximized.

 (c) never possible.

 (d) known as "points of light."

 (e) all of the above.

13. A tax that causes the price that producers receive for a commodity to deviate from the buyer's price is

 (a) a unit tax.

 (b) a compensated tax.

 (c) an income tax.

 (d) ⇒a price-distorting tax.

14. Which of the following would be an example of a lump-sum tax?

 (a) a compensated tax

 (b) a retail sales tax

 (c) ⇒a head tax

 (d) an admission fee

15. Which of the following is a unit excise tax?

 (a) a tax of 15%

 (b) ⇒an admissions fee of $2.00 on each ticket purchased

 (c) an ad valorem tax of $3.00

 (d) an income tax of $3.00

 (e) do all of the above.

16. Taxes

 (a) ⇒are mandatory payments.

 (b) are necessary for financing government expenditures.

 (c) do not directly relate to the benefit of government goods and services received.

 (d) are all of the above.

17. A demand curve that is perfectly inelastic is

 (a) horizontal.

 (b) ⇒vertical.

 (c) at a 45 degree angle.

 (d) parallel to the X-axis.

18. A tax on suppliers will cause the supply curve to shift

   (a) up.
   (b) down.
   (c) right.
   (d) ⇒left.
   (e) in none of the above directions.

19. When marginal tax rates are constant,
   (a) the change in taxes paid is the same as the change in income.
   (b) the change in taxes paid is greater than the change in income.
   (c) the change in taxes paid is less than the change in income.
   (d) there are no taxes.
   (e) ⇒none of the above.

20. The tax-induced difference between the price paid by consumers and the price received by producers is

   (a) the tax difference.
   (b) ⇒the tax wedge.
   (c) the statutory incidence.
   (d) the supply side effect.
   (e) the substitution effect.

21. A tax on consumers will cause the demand curve to shift

   (a) right.
   (b) ⇒left.
   (c) up.
   (d) down.
   (e) in none of the above directions.

22. Regardless of income level, when the ratio of taxes paid to income is constant then it is called

   (a) lump sum tax
   (b) marginal tax
   (c) progressive tax
   (d) ⇒proportional tax
   (e) regressive tax

23. The government can address _____ by providing universal health insurance coverage and charging uniform premiums.
   (a) expected utility
   (b) asymmetric information
   (c) commodity egalitarianism
   (d) moral hazard
   (e) ⇒adverse selection

24. In the economic analysis of the market for new drugs, it is critical to take into account

    (a) Inefficiency from monopoly power granted by patents

    (b) Inequity generated by drugmakers charging more than a medication costs to make

    (c) Incentives for innovation by inventing new drugs

    (d) Incentives for exploitation of market power

    (e) ⇒All of the above

25. Suppose that you have complete health insurance that covers all expenses. You will use medical care up to the point where your:

    (a) total benefits equal the costs of providing the medical care.

    (b) ⇒marginal benefit is zero.

    (c) marginal benefit is equal to the marginal cost of the medical care.

    (d) marginal benefit is equal to the total costs of providing the medical care.

    (e) total benefits are equal to the cost of your health care insurance.

26. Which of the following is a reason why employers are the predominant source of insurance?

    (a) Insuring at the firm level reduces the extent to which insurance has moral hazard effects.

    (b) Insuring at the firm level allows insurers to create large insurance pools with a predictable distribution of medical risk.

    (c) Employee compensation in the form of medical expenditures is not taxed.

    (d) All of the above are correct.

    (e) ⇒Both b and c are correct.

27. For the government to provide goods and services, citizens

    (a) have to come to an agreement about how much is needed.

    (b) have to agree on a method of financing.

    (c) need to be informed about the opportunity costs.

    (d) ⇒must do all of the above.

28. In an economy with two people, i and j, efficiency for public goods is characterized by

    (a) MSB = MSB.

    (b) MRS = MRT.

    (c) ⇒$MRS_i + MRS_j = MRT$

    (d) MC = MB.

    (e) MRS - MRT = MSB

29. If private cost and social marginal damages are increasing in Q, reducing output from the privately optimal level to the socially optimal level will

    (a) cause a loss of consumption to consumers.

    (b) reduce marginal damages.

    (c) reduce the total production costs.

    (d) ⇒cause all of the above.

30. Which of the following statements about tradable pollution permits is *not* true?

   (a) Tradable permits can be politically easier to enact than Pigouvian taxes because the permits can be given away to existing polluters for free

   (b) $\Rightarrow$ The Coase theorem says that the equilibrium price of pollution depends on who gets the permits; the price of pollution will be higher if the government auctions the permits than if it gives them away to existing polluters

   (c) Permits are better than Pigouvian taxes when the amount of damage caused by pollution is fairly easy to measure

   (d) Pollution permits are likely to achieve a given degree of pollution reduction more efficiently than a "command-and-control" approach

   (e) Some environmentalists oppose pollution permits on the grounds that they are immoral because they make it seem that polluting is OK as long as you pay a certain price

2 Baby Bust and Boom

Consider a society in which consumers have only two periods of life, 'youth' and 'old age.' This society has always had a Pay As You Go (PAYG) Social Security system so that total Social Security taxes paid by the young in a period are equal to total benefits paid to the old in that period; for example, for period $t - 1$,

$$P_{t-1}\tau_{y,t-1} = -P_{t-2}\tau_{o,t-1} \tag{1}$$

where $\tau_{y,t-1}$ is the per-capita level of taxes paid by the young generation in period $t - 1$, $\tau_{o,t-1}$ is the per-capita Social Security benefits received by the old in that period, P_{t-1} is the size of the generation of young consumers in period $t - 1$ and P_{t-2} is the size of the generation that was young in period $t - 2$ (and is therefore the size of the generation that is old in period $t - 1$).

Previously, this society had always had a constant population: $P_{t-1} = P_{t-2} = \ldots = \bar{P}$. Per-capita Social Security taxes and benefits have always been constant, $\tau_{y,t-1} = \tau_{y,t-2} = \ldots = \tau^*$ and $\tau_{o,t-1} = \tau_{o,t-2} = \tau_{o,t-3} = \ldots = -\tau^*$.

1. Show that the generational account for all of the generations born in period $t - 2$ and before can be written as
$$GA_{t-n} = \tau^*(1 - 1/R). \tag{2}$$
   where $R = (1 + r)$ is the (constant) interest factor.

   Answer:

   We learned in class that the generational account of the old generation in the steady-state of a PAYG Social Security system is:

   $$GA_{t-2} = \tau_{y,t-2} + \tau_{o,t-1}/R \tag{3}$$

   But the setup of the problem said to assume that Social Security benefits and taxes were constant over time,

   $$\tau_{y,t-2} = -\tau_{o,t-1} = \tau^* \tag{4}$$

   implying that

   $$GA_{t-2} = \tau^* - \tau^*/R \tag{5}$$
   $$= \tau^*(1 - 1/R) \tag{6}$$

   Now, suppose that the generation born in period t is only 80 percent as large as all previous generations ($P_t = 0.8\bar{P} = 0.8P_{t-1}$); but the generation born in period $t + 1$ is 120 percent as large as before period $t - 1$ ($P_{t+1} = 1.2\bar{P} = 1.2P_{t-1}$). Call the small generation the 'baby bust' generation, and the large generation the 'baby boom' generation. After $t + 1$ the population returns to $P_{t+2} = \bar{P}$, and population is constant thereafter, $P_{t+3} = P_{t+4} = \ldots = \bar{P}$.

2. In the face of this unexpected shock, suppose the government decides that it must maintain the benefits of the old generation in period t at the same level that this generation was promised when it was young ($\tau_{o,t} = -\tau^*$ per person). The government furthermore decides that the per-capita benefits for all future old generations will also be maintained at $\tau_{o,t+1} = \tau_{o,t+2} = \ldots = -\tau^*$. Calculate the generational accounts for the generations born at $t - 1$, t, $t + 1$, $t + 2$, $t + 3$ and all future periods, and discuss in words which generations are better and worse off. (Hint 1: Start

by figuring out what level of per-capita taxes must be imposed on each young generation in order to finance the constant benefits to the old; Hint 2: You should seek to express the generational account by an expression of the form $GA_s = \tau^*(? - 1/R)$ where your job is to figure out what replaces the ? for each s).

(The rest of this page and the next page are left blank for your answer)

Answer:

If the old generation in period t (which was young in $t - 1$) is paid exactly what it expected to receive before learning of the 'baby bust,' its generational account is not changed by the baby bust, so

$$GA_{t-1} = \tau^*(1 - 1/R).$$

Now consider the generation that is young in period t (the 'baby bust'). The baby bust generation must have a tax rate high enough to pay for the benefits of the (larger) previous generation:

$$P_t \tau_{y,t} = -P_{t-1} \underbrace{\tau_{o,t}}_{-\tau^*} \tag{7}$$

$$\tau_{y,t} = \tau^*(P_{t-1}/P_t) \tag{8}$$

$$= \tau^*(1/.8) \tag{9}$$

$$= 1.25\tau^*. \tag{10}$$

Next consider the 'baby boom' generation that is young in period $t+1$. The taxes raised from that generation only need to pay benefits for the smaller 'baby bust' generation:

$$P_{t+1}\tau_{y,t+1} = -P_t \underbrace{\tau_{o,t+1}}_{-\tau^*} \tag{11}$$

$$\tau_{y,t+1} = \tau^*(P_t/P_{t+1}) \tag{12}$$

$$= \tau^*(0.8/1.2) \tag{13}$$

$$= 0.67\tau^* \tag{14}$$

Consider the generation that is young in period $t + 2$. This generation will be the same size as the generation born in period $t - 1$, and the old generation is the young in 'baby boom' period $t + 1$. Thus

$$P_{t+2}\tau_{y,t+2} = -P_{t+1} \underbrace{\tau_{o,t+2}}_{-\tau^*} \tag{15}$$

$$\tau_{y,t+2} = \tau^*(P_{t+1}/P_{t+2}) \tag{16}$$

$$= \tau_*(1.2/1) \tag{17}$$

$$= 1.2\tau^* \tag{18}$$

Finally, consider the generation that is young in period $t + 3$. This generation will be the same size as the generation born in period $t + 2$, and both of them are the same size as all the generations before the 'baby bust'. Thus

$$P_{t+3}\tau_{y,t+3} = -P_{t+2} \underbrace{\tau_{o,t+2}}_{-\tau^*} \tag{19}$$

$$\tau_{y,t+3} = \tau^* \tag{20}$$

The generational accounts for the successive generations are therefore:

$$GA_t \;=\; \underbrace{\tau_{y,t}}_{1.25\tau^* \text{ from } (10)} - \underbrace{\tau_{o,t+1}/R}_{=-\tau^*} \tag{21}$$

$$\;=\; \tau^*(1.25 - 1/R) \tag{22}$$

$$GA_{t+1} \;=\; \underbrace{\tau_{y,t}}_{0.67\tau^* \text{ from } (14)} - \underbrace{\tau_{o,t+1}/R}_{=-\tau^*} \tag{23}$$

$$\;=\; \tau^*(0.67 - 1/R) \tag{24}$$

$$GA_{t+2} \;=\; \underbrace{\tau_{y,t}}_{1.2\tau^* \text{ from } (18)} - \underbrace{\tau_{o,t+1}/R}_{=-\tau^*} \tag{25}$$

$$\;=\; \tau^*(1.2 - 1/R) \tag{26}$$

$$GA_{t+3} \;=\; \underbrace{\tau_{y,t}}_{\tau^* \text{ from } (20)} - \underbrace{\tau_{o,t+1}/R}_{=-\tau^*} \tag{27}$$

$$\;=\; \tau^*(1 - 1/R) \tag{28}$$

Recall that a larger value for a generational account is worse. Thus, the generation that is worst off is the 'baby bust' generation and the generation following 'baby boom' ((22) and (25) is a larger number than either (24) or (27)) because it must pay taxes high enough to pay for the benefits of a generation that is much larger than it is. The best-off generation is the 'baby boom' generation ((24) is the smallest GA), because it is larger than the 'baby bust' generation and therefore each 'baby boom' doesn't have to pay as much as they would have if the generation whose retirement they are supporting had been normal sized. Finally from period $t + 3$ onward, everything is back the way it was before the baby bust came along.

3. Now suppose that the government chooses to implement a different solution to the population shock: It declares that it will keep the tax rate on the young constant at τ^* and pay whatever benefits to the old that this constant tax rate on the young will finance. Calculate the generational accounts for the various generations under this scheme. (Hint 1: Start by calculating the benefits each old generation will receive; Hint 2: Again, express each generation's generational account in a form like $GA_n = \tau^*(1-?/R)$).

Answer:

For the generation that is old in period t,

$$P_{t-1}\tau_{o,t} \;=\; -P_t\tau_{y,t}$$
$$\tau_{o,t} \;=\; (P_t/P_{t-1})\tau^*$$
$$\tau_{o,t} \;=\; -0.8\tau^*$$
$$GA_{t-1} \;=\; \tau_{y,t-1} + \tau_{o,t}/R$$
$$\;=\; \tau^* - 0.8\tau^*/R$$
$$\;=\; \tau^*(1 - 0.8/R)$$

Note that this is a larger number than $\tau^*(1-1/R)$, and recalling that a larger generational account makes you worse off (because it means the excess of taxes over benefits is greater), this generation is worse off than it would have been if the generation born in t had been the normal size. This is obvious: their taxes paid when young are unaffected, but when they are old they get less benefits than they had expected.

For the generation that is old in $t+1$,

$$
\begin{aligned}
P_t \tau_{o,t+1} &= -P_{t+1}\tau_{y,t+1} \\
\tau_{o,t+1} &= -(P_{t+1}/P_t)\tau^* \\
&= -(1.2/0.8)\tau^* \\
&= -1.5\tau^* \\
GA_t &= \tau_{y,t} + \tau_{o,t+1}/R \\
&= \tau^* - 1.5\tau^*/R \\
&= \tau^*(1 - 1.5/R)
\end{aligned}
$$

So life is great for the 'bust' generation: they don't have to pay any extra taxes to support the (large) generation that is old when they are young, but they share the large total tax payments made by the (large) generation that follows them.

For the generation that is old in $t+2$,

$$
\begin{aligned}
P_{t+1}\tau_{o,t+2} &= -P_{t+2}\tau_{y,t+1} \\
\tau_{o,t+2} &= -(P_{t+2}/P_{t+1})\tau^* \\
&= (1/1.2)\tau^* \\
&= 0.83\tau^* \\
GA_{t+1} &= \tau^* - 0.83\tau^*/R \\
&= \tau^*(1 - 0.83/R)
\end{aligned}
$$

which is larger than the generational account of the generations that were born in period $t-2$ and earlier and 'baby boom' generation is worse off.

For the generation that is old in $t+3$,

$$
\begin{aligned}
P_{t+2}\tau_{o,t+3} &= -P_{t+3}\tau_{y,t+2} \\
\tau_{o,t+3} &= -(P_{t+3}/P_{t+2})\tau^* \\
&= \tau^* \\
GA_{t+2} &= \tau^* - \tau^*/R \\
&= \tau^*(1 - 1/R)
\end{aligned}
$$

which is the same as the generational account of the generations that were born in period $t-1$ and earlier. Thus, by period $t+3$ things are back to 'normal'.

4. Finally, suppose that the government declares the following policy: It will abandon the Pay As You Go (PAYG) aspect to the Social Security system for one period only, period t, in which it will run a budget deficit so that it can pay the old the benefits that they expected without raising taxes on the young (assume that at the beginning of year t there was no national debt, $B_t = 0$, and assume for simplicity that the government does no spending other than social security spending ($G_t = 0$ for all t)). In every period after period t the government will impose a 'Social Security tax' at the same level τ^* as before the shock, and will also impose a

'debt service tax' that will raise enough extra tax revenue to pay the interest r on the stock of debt $B_{t+1} = B_{t+2} = \ldots = DEF_t$ that it incurred in order to pay benefits greater than taxes during period t. Calculate the generational accounts for this plan. (Hint 1: You need to first calculate the size of the budget deficit in period t, then calculate the size of the interest on that debt in subsequent periods, and add to the taxes paid by the young an amount corresponding to that debt service burden; Hint 2: The government budget deficit in period t is equal to $DEF_t = -(\tau_{o,t} P_{t-1} + \tau_{y,t} P_t)$; explain why this is true in your answer).

Answer:

The budget deficit in period t can be calculated using the assumption that the per-capita taxes paid by the young are τ^* and the per-capita benefits of the old are given by $-\tau^*$. Thus the absolute tax revenues received in period t will be $\tau^* P_t$ and the absolute Social Security expenditures will be $\tau^* P_{t-1}$. The budget deficit will be given by the gap between expenditures and taxes.

In class we had the definition

$$DEF_t = G_t + rB_t - T_t \tag{29}$$

But we have assumed that G_t and B_t are zero. T_t is the net of transfer expenditures and tax receipts, $T_t = P_t \tau_{y,t} + P_{t-1} \tau_{o,t}$ (always remember that $\tau_{o,t}$ is a negative number).

$$
\begin{aligned}
DEF_t &= -(\tau_{o,t} P_{t-1} + \tau_{y,t} P_t) \\
&= \tau^* P_{t-1} - \tau^* P_t \\
&= \tau^* (P_{t-1} - P_t) \\
&= \tau^* (\bar{P} - 0.8\bar{P}) \\
&= 0.2 \tau^* \bar{P}
\end{aligned}
$$

Thus, the stock of bonds in period $t + 1$ and for every period thereafter is equal to $0.2\tau^* \bar{P}$.

The interest on these bonds in each period comes to $r0.2\tau^* \bar{P}$.

The generational account for the generation born in period $t - 1$ remains unchanged because they are paid what they expected before the demographic shock.

The per-capita Social Security benefits of the generation born in period t are given by

$$
\begin{aligned}
\tau_{o,t+1} P_t &= -\tau_{y,t+1} P_{t+1} \\
\tau_{o,t+1} &= -\tau_{y,t+1} (P_{t+1}/P_t) \\
&= -\tau^* (1.2/0.8) \\
&= -1.5\tau^*
\end{aligned}
$$

The generational account for each member of the generation born in period t is

$$
\begin{aligned}
GA_t &= \tau_{y,t} + \tau_{o,t+1}/R \\
&= \tau^* (1 - 1.5/R) \\
&= \tau^* (R - 1.5)/R
\end{aligned}
$$

which is better than the GA of the previous generation because it reflects the large Social Security tax revenues paid in by the $t + 1$ generation.

The per-capita Social Security benefits of the 'baby boom' generation born in period $t + 1$ are given by

$$
\begin{aligned}
\tau_{o,t+2} P_t &= -\tau_{y,t+2} P_{t+2} \\
\tau_{o,t+2} &= -\tau_{y,t+2}(P_{t+2}/P_{t+1}) \\
&= -\tau^*(1/1.2) \\
&= -0.83\tau^*
\end{aligned}
$$

The generational account for each member of the generation born in period $t + 1$ is

$$
\begin{aligned}
GA_{t+1} &= \tau_{y,t+1} + \tau_{o,t+2}/R + r(0.2)\tau^* \bar{P}/1.2\bar{P} \\
&= \tau^*(1 - 0.83/R) + r(0.17)\tau^*
\end{aligned}
$$

which is worse than the GA of the previous generation because it reflects the small Social Security tax revenues paid in by the $t + 2$ generation.

Per capita benefits of the generation born in periods $t + 2$ and later are just equal to $-\tau^*$ because the population size is assumed to remain constant from period $t + 2$ onward. However, generations $t+2$ and after must pay the 'debt service burden' when young, in addition to their Social Security taxes. Thus their generational accounts are:

$$
\begin{aligned}
GA_{t+2} &= \tau_{y,t+1} + r(0.2)\tau^* + \tau_{o,t+2}/R \\
&= \tau^* - \tau^*/R + r(0.2)\tau^* \\
&= \tau^*(1 - 1/R) + r(0.2)\tau^*
\end{aligned}
$$

This is clearly larger than the GA they would have had if the baby bust had never happened, because all future generations are paying interest on the debt that was incurred in period t, which would not have been incurred if not for the baby bust.

3   Slots and Philosophy

1. The Maryland legislature has argued for years about whether to permit slot machine gambling in the state ('slots'). This year the legislature decided to submit the issue to voters in a referendum next fall. The legislature says it wants to legalize slots because taxes on casinos raise money, and the state is facing a budget crunch.

   In a sentence or two, describe each of the three political philosophies below and explain what position you would expect someone adhering to the political belief system would argue for.

   - A Libertarian

     Answer:

     > A Libertarian believes that people should be allowed to do whatever they want so long as it does not directly infringe the rights of others. The libertarian would probably be in favor of slots.

   - A Paternalist who believes gambling hurts everyone who gambles

     Answer:

     > A Paternalist believes that often the government must step in to prevent people from doing things that are ultimately harmful to them. A Paternalist who believes gambling is harmful would say that slots should be kept illegal.

   - An Instrumental Libertarian who believes that permitting gambling will increase overall political corruption

     Answer:

     > An instrumental libertarian believes that the reason to structure society so that people have "rights" is that society works better when we grant people the right to do most things that they want to do. However, the bottom line is always "are we better off as a whole" by granting these rights. An instrumental libertarian who believes that permitting slots will cause massive corruption of the political process might conclude that the benefits of slots are small but the cost in terms of corrruption is large, and therefore could oppose slots

4   Reading And Discussion Question

Read the article at the end of the exam and answer the following questions about it.

1. We discussed three reasons why markets may not work properly in situations where there is uncertain or imperfect information. Name those three reasons, and explain which of them is the best interpretation for the problem identified in the article; explain why.

   Answer:

   > Adverse Selection, Moral Hazard, and Ignorance/Stupidity. This is a clear example of a problem caused by Ignorance/Stupidity.
   >
   > If consumers could perfectly judge what was wrong with their cars (they had no 'ignorance') then the problem emphasized in the article would not exist. The problems are caused by the fact that consumers often do not know what is wrong, and the mechanics have an incentive to lie.

The student who conducted this research, Henry Schneider, is actually a health economist. Another part of the article (not included) said that said he *wanted* to study the health care system, "but he couldn't very well give himself a heart murmur and then visit 40 cardiologists."

But, aside from developing a bad reputation (like mechanics can), there are several extra ways that bad doctors can be punished:

- They can be sued for malpractice if they give treatment or advice that harms a patient
- They can be banned from practicing medicine if their peers determine that they are incompetent or have engaged in fraudulent or deceptive behavior

Knowing this, answer the questions on the following pages.

2. If doctors could never have any possible financial incentive ever to give one kind of diagnosis or treatment compared to another kind, explain why the "expert service problem" that is a big problem with mechanics would probably not be worth worrying about for doctors

   Answer:

   > If there is a small possibility of being punished for giving bad advice (through any of the mechanisms identified above), but no financial incentive to give bad advice, there would be no reason for them ever to give bad advice, but some reasons *not* to give bad advice

3. In recent years, it has become common for doctors to invest some of their personal money in companies that perform medical tests (like blood tests). Often, when a doctor recommends that a patient should have a large number of tests performed, those tests are performed by a company in which the doctor has invested. Explain A) why a skeptical patient might say that this makes the situation of doctors more like that of mechanics; B) how this situation could be affected by the "moral hazard" problem that exists when patients are not paying for most of the costs of tests that they get.

   Answer:

   > If a doctor now has a financial incentive to say "you need to get the following 8 tests" and his own company will be performing the tests, patients could be forgiven for starting to wonder whether the tests are always medically needed and worth the money. But if someone else (the insurance company; the government) is paying most of the cost of the tests, both the doctor and the patient have an incentive to get too many tests done.

4. Doctors sometimes also have other financial interests affected by their advice. (For example, a surgeon who recommends surgery instead of drug therapy for a heart patient will be paid for performing the surgery). Given this fact, explain why the "expert service problem" could lead insurance companies to require a second opinion even if all competent doctors would be able to agree upon the "true" medical situation of a patient and the "correct" best treatment.

   Answer:

   > Requiring a second opinion means that a doctor who might be tempted to give advice that is motivated by his financial interests could be "caught" when the second opinion is different from the advice he gave the patient. The knowledge that a second opinion will be required should help remove any financial incentive the doctor might have to give bad advice for the patient to pursue an expensive or dangerous treatment, since that advice will not be confirmed by the "second opinion"

5. The doctors' union (called the American Medical Association) wants to make malpractice lawsuits much more difficult, or even illegal; explain why this could make the "expert service problem" more serious

   Answer:

   > If doctors have less to fear from making decisions that are bad for patients but in the doctor's own financial interest, their decisions are more likely to be influenced by their financial interests rather than the patient's health interests

6. Suppose that doctors can never be sued for recommending more tests, nor can they be judged incompetent for asking for more tests; suppose furthermore that another doctor's "second opinion" is never required to authorize more tests. Discuss why these circumstances have led some

people to propose that doctors should be banned from investing in or owning medical testing companies.

Answer:

The bottom line is that doing medical tests imposes no cost on the doctor and little cost on the patient (since someone else is paying). Under these circumstances, even a small financial benefit could lead to a greatly excessive amount of tests being recommended.

When Trust in an Expert Is Unwise
Condensed from *Economic Scene* Column by David Leonhart
http://www.nytimes.com/2007/11/07/business/07leonhardt.html

A few years ago, an economics graduate student named Henry Schneider drove his dad's old Subaru station wagon up to Montreal. He had heard about a Canadian consumer interest group that had done undercover investigations of auto-repair shops, and he wanted to try a more academic version of its experiment.

So when he arrived in Montreal, he handed the Subaru over to the mechanics working for the group, the Automobile Protection Association, for a complete inspection. They found that it had a small hole in its exhaust pipe, a blown taillight and several other relatively minor problems. Mr. Schneider took careful notes.

But he also did something that no ordinary car owner would do. He asked the mechanics to show him how to mess up the car in a couple of serious but obvious ways. They taught him how to loosen the battery cable (which can prevent a car from starting) and how to suck out coolant (which can leave an engine vulnerable to overheating).

Armed with this knowledge, Mr. Schneider drove home to Connecticut and undertook a devilish little test. Over the next few months, he took the Subaru to 40 garages, loosening the battery cable and draining some coolant before each visit. He even wrote himself a script and memorized it, to make sure he was telling every garage the same thing. "We bought the car recently, and we should have had it looked at before we bought it, but we didn't," he would say. "It hasn't started a few times. Can you check that out?" He also asked for a thorough inspection.

Mr. Schneider was trying to answer a question that has occurred to everyone who been given the unsettling news that a car needs more repairs than they had expected: Does it really? Or is the garage just looking to make some extra money off me?

Economists sometimes refer to this situation as an "expert service problem," because the same expert who is diagnosing the flaw is the one who will be paid to fix it. In most of these cases, consumers aren't sophisticated enough to make an independent judgment. That's why they went to the expert.

The problem, of course, extends well beyond the car business. Anytime you call a plumber or roofer to your home or anytime you visit a doctor or dentist, you're at risk of having an expert service problem. There is one school of thought that says we shouldn't worry so much about these problems. Even if most consumers can't distinguish between good and bad expert service, some can. These informed consumers will tell their friends and relatives which experts to use, and an expert's reputation will eventually become well known. The market, according to this view, solves the problem.

But there haven't been too many real-world tests of the theory, which is precisely what makes Mr. Schneider's research so interesting – and so depressing.

At only 27 of the 40 garages did mechanics tell Mr. Schneider that he had a disconnected battery cable, the very problem to which he had pointed them by saying his car didn't always start. Only 11 mentioned the low coolant, a problem that can ruin a car's engine. Ten of the garages, meanwhile, recommended costly repairs that were plainly unnecessary, like replacing the starter motor or the battery.

In all, only about 20 percent of the garages deserved a passing grade. "And that's with a pretty low bar," Mr. Schneider told me. "I'm even allowing them to have missed a blown taillight that should have been caught."

So, how can you be sure you're not getting swindled?

"That's an excellent question," Mr. Schneider says. "When people ask me that, I say, 'If you're an uninformed consumer, it's going to be very hard to know if you're getting good service."' For an expensive repair, a second opinion makes sense, but it will be hard to know which garage to believe.