The final exam will take place on Thursday, May 3, at 8:00 in our regular classroom. The exam will cover the entire course but will place greater emphasis on topics covered since the second midterm examination. There will be two parts to the exam: a set of multiple choice questions and a set of short answer and essay questions. In addition to the following practice questions, there is also a set of practice multiple choice questions. Both are posted on the class web page (www.unc.edu/~salemi).

In preparing answers for the following questions, please assume normal shapes to demand and supply schedules and no external effects unless instructed otherwise.

1. Ann lives in Princeton and commutes by train each day to her job in New York City (20 round trips per month). When the price of a round trip goes up from $10 to $20, Ann consumes exactly the same number of trips as before while spending $200 less per month on restaurant meals. Is Ann’s behavior compatible with economic rationality? Explain. Does it make economic sense that an increase in the price of commuting leads Ann to reduce the amount she spends on restaurant meals? Why or why not?

2. In an attempt to induce citizens to conserve energy, the government enacted regulations requiring that all air conditioners be more efficient in their use of electricity. After this regulation was implemented, government officials were then surprised to discover that people used even more electricity than before. Using the concept of price elasticity, explain how this increase might have occurred.

3. Ellie and Vince are trying to decide whether to purchase a new home. The house they want is priced at $200,000. Annual expenses such as maintenance, taxes, and insurance equal 4 percent of the home’s value. If properly maintained, the house’s real value is not expected to change. The real interest rate in the economy is 6 percent, and Ellie and Vince can qualify to borrow the full amount of the purchase price (for simplicity, assume no down payment) at that rate. Ignore the fact that mortgage interest payments are tax-deductible in the United States.
   a. Ellie and Vince would be willing to pay $1,500 monthly rent to live in a house of the same quality as the one they are thinking about purchasing. Should they buy the house?
   b. Does the answer to part a change if they are willing to pay $2,000 monthly rent?
   c. Does the answer to part a change if the real interest rate is 4 percent instead of 6 percent?
   d. Does the answer to part a change if the developer offers to sell Ellie and Vince the house for $150,000?
   e. Why do home-building companies dislike high interest rates?

4. Unskilled workers in a poor cotton-growing region must choose between working in a factory for $6,000 a year and being a tenant cotton farmer. One farmer can work a 120-acre farm which rents for $10,000 a year. Such farms yield $20,000 worth of cotton each year. The total non labor cost of producing and marketing the cotton is $4,000 a year. A local politician whose motto is "working people come first" has promised that if he is elected, his administration will fund a fertilizer, irrigation, and marketing scheme that will triple cotton yields on tenant farms at no charge to tenant farmers.
   a. If the market price of cotton would be unaffected by this policy and no new jobs would be created in the cotton-growing industry, how would the project affect the incomes of tenant farmers in the short run? In the long run?
   b. Who would reap the benefit of the scheme in the long run? How much would they gain each year?
5. TotsPoses, Inc., a profit-maximizing business, is the only photography business in town that specializes in portraits of small children. George, who owns and runs TotsPoses, expects to encounter an average of eight customers per day, each with a reservation price shown in the following table.

<table>
<thead>
<tr>
<th>Customer</th>
<th>Reservation Price (Dollars per Photo)</th>
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<tbody>
<tr>
<td>A</td>
<td>50</td>
</tr>
<tr>
<td>B</td>
<td>46</td>
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<tr>
<td>C</td>
<td>42</td>
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<td>D</td>
<td>38</td>
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<td>E</td>
<td>34</td>
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<td>F</td>
<td>30</td>
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<tr>
<td>G</td>
<td>26</td>
</tr>
<tr>
<td>H</td>
<td>22</td>
</tr>
</tbody>
</table>

a. If the total cost of each photo portrait is $12, how much should George charge if he must charge a single price to all customers? At this price, how many portraits will George produce each day? What will be his economic profit?
b. How much consumer surplus is generated each day at this price?
c. What is the socially efficient number of portraits?
d. Suppose alternatively that George knows the reservation price of each of his customers and is allowed to charge any price he likes to any customer. How many portraits will he produce, what will he charge for them, and how much profit will he make?
e. Is the allocation of portraits that you arrived at in part d efficient (Pareto Optimal)?

6. The Convention on the International Trade in Endangered Species listed the African Elephant as “threatened with extinction” in 1989. Nevertheless, elephants continue to be killed for their ivory. The price of a kilogram of ivory is currently $700 and the average elephant has 50 kilograms of usable ivory in its tusks. You are adviser to the minister of natural resources in Kenya and are considering alternative proposals to protect Kenyan elephants. Proposal one would make the killing of an elephant a crime punishable by a $100,000 dollar fine. Proposal two would make each Kenyan elephant the property of a Kenyan citizen who lives in the grazing area of the elephant. Kenyan citizens who could document that they live in an elephant area could apply to obtain an elephant. If there were more applicants than elephants, elephants would be assigned to applicants by a lottery. A citizen could obtain one elephant at most. A Kenyan citizen who obtains elephant would be allowed to raise it, kill it, or allow hunters to shoot it.

Write an essay in which you answer the following questions. (a) Would proposal one deter the killing of elephants? Why or why not? (b) Would proposal two deter the killing of elephants? Why or why not? (c) Which proposal do you favor? Explain using relevant course concepts.

7. Does Taylor or Bernanke provide the more accurate assessment of the effects of monetary policy after 2001 and during the Great Recession? Explain why.
   a. Along the way, please explain what Taylor means when he claims that the end to the Great Moderation was caused by a “Great Deviation.”
   b. Along the way, please explain what Bernanke means when he claims that the Fed did not keep interest rates too low after 2001.
   c. Along the way, please explain clearly what evidence leads you to favor one explanation over the other.
8. In 1989, the poorest one fifth of American families earned $16,003 or less, the richest one fifth of families earned $59,551 or more, and the median family (50th percentile) earned $34,213. The shape of the US income distribution has not changed greatly since 1949. Some argue that the above degree of income inequality is beneficial to rich and poor alike because it creates incentives that raise the growth rate of GDP per capital. If you were a poor person, in which sort of nation would you prefer to live? Explain your answer using what you know about growth and also about the benefit-cost principle.
   a. A nation where real GDP per capita grew at the rate of 2.0 percent per year and the income distribution was that given above.
   b. A nation where real GDP per capita grew at a rate of 1.0 percent per year and the income distribution was far more equal (for example, the ratio of the break points for the first and fifth quintiles was 0.6 rather than .27 as it is in the US).

9. Joanne has just completed high school and is trying to determine whether to go to junior college for two years or go directly to work. Her objective is to maximize the savings she will have in the bank five years from now. If she goes directly to work, she will earn $20,000 per year for each of the next five years. If she goes to junior college, for each of the next two years she will earn nothing - indeed, she will have to borrow $6,000 each year to cover tuition and books. This loan must be repaid in full three years after graduation. If she graduates from junior college, in each of the subsequent three years, her wages will be $38,000 per year. Joanne’s total living expenses and taxes, excluding tuition and books, equal $15,000 per year.
   a. Explain the benefits and costs to Joan of going to Junior college.
   b. If the real interest rate is zero, say because Joan’s parents provide her with an “interest free” loan, what should Joan do? Explain.
   a. Explain why your answer may change if Joan must borrow funds from the bank?
   b. What is the likely affect on Joanne’s decision to attend or not attend Junior college if she takes a longer perspective on her future?

10. The ten years between 1965 and 1975 are widely viewed as a time when monetary policy ignited inflation. Some economic researchers have argued that part of the problem was that policy makers overstated the potential growth rate of the economy during that period because they underestimated the negative effect on growth of OPEC’s decision to raise oil prices. Use our macroeconomic model to explain how well intentioned policy might have resulted in inflation.