

Resource Economic Preliminary

Examination

January 18, 1983

You have four hours to complete this written examination, 8:00 to 12:00. Pace yourself in responding to questions. Exams will be collected after four hours; i.e., do not spend an undue amount of time on any specific question at the expense of the other questions. Write your student ID number on the top of each page of your answers; your name should not be on the answers you turn in.

A. Answer all three of the following questions.

1. In recent years there has been an intense debate concerning the question of who should control western U.S. lands which are currently owned and managed by the federal government. These lands are very diverse and have productive potential for forestry, mining, and grazing. Some of these lands possess special geologic formations and unique "scenic wonders". Much of these lands offer diversified recreational opportunities (hunting, hiking, camping, skiing, ect.) and serve as important natural habitats and watersheds.

Should these lands remain public or should they be auctioned to the private sector? Fully describe the issues involved in this question and identify the approach you would take as an economist in resolving an answer to this question.

2. Soil erosion has often been cited as an example of market failure. To correct this market failure, public sector policies are argued to be necessary to constrain the actions of individuals and private sector enterprises. It is argued by proponents (advocates) of this view that farmers do not take actions that reduce soil erosion to socially optimal levels because private discount rates are much higher than the true social discount rate. Opponents of this view state that differing private and social discount rates are not unique to agriculture but are present in all sectors of the economy; therefore, any public action(s) to promote additional soil conservation will create a misallocation of resources between agriculture and other sectors of the economy.

Discuss and attempt to resolve the controversy surrounding these two opposing arguments.

3. There is a proposal that the State of Texas provide low-interest loans to irrigation farmers on the Texas High Plains for the purpose of purchasing the latest irrigation technology which is more energy efficient (uses less pressure) and more efficient in distributing water. More efficient in distributing irrigation water means that the new technology results in less water being lost to evaporation or, in other words, a specific crop yield can be obtained with less irrigation water.

Describe how you would analyze such a state policy including the major factors to be considered and what would be important in your recommendation regarding this policy to the Texas Legislature. Keep in mind other economists will critique your work as well as the citizens of Texas since taxes are required to provide the funds for low interest loans.

Answer any two of the following questions.

B. From the following set of four questions,  
answer any two.

4. Property rights and similar social institutions have been argued by many economists to be of paramount importance to the issue of externalities. Why? What role do these institutions play in an economy?

Assume an externality situation of your own and fully describe it (who are parties involved and how does the problem constitute an externality?). Discuss the role(s) of property rights and alternative institutions in various proposals to solve this externality.

5. In 1929, Weber made the following statement concerning the location of industry:

"The economic causes determining the location of an industry seem to be a network of complex, diverse elements often in individual instances so arbitrarily, or at least incidentally, composed that there appears to be no place for more than an analysis of the individual case. It seems impossible to make any general statement for most industries concerning the places to which their factories go or concerning the causes upon which their location depend"

- (a) Discuss this quotation and then develop a modern theory of industrial location. Include within your development of this modern theory the major features and factors that influence the location decisions of present day industrial plants. Such factors may differ among types of plants.
- (b) Using your modern theory, from (a) above, project in general what you expect the nature of industrialization in Texas rural communities (less than 10,000 population) to be now and in the future.
6. Coastal fisheries are subjected to a variety of public sector regulatory and incentive programs in order to aid in their management.
- (a) What characteristics or special features provide justification for the existence of these public sector programs, or is there any economic justification?
- (b) Management programs to control quantities harvested typically include species size limitations, vessel size restrictions, season length regulations, gear restrictions, marketing quotas, etc. Discuss the economic consequences of each of these tools for harvest control and place particular emphasis upon their implications in relation to economic efficiency.
7. Current literature in natural resource economics quite frequently uses the concept of economic surplus.
- (a) Briefly define these concepts for both the producer and the consumer of economic products.

- (b) Narrow your viewpoint to look at just the consumer. Discuss in detail the distinctions between Hicksian and Marshallian measures of welfare change and illustrate how they are related to each other using either a graphical or mathematical presentation. What determines which measure is conceptually correct in a given situation and what is the importance of this choice for applied research?