

Answer I, II, and any ONE other question:

I. Develop a research design that provides evidence on a theoretically non-trivial problem in the context of either: evaluating the impact of an ongoing public program, policy, or institutional design; comparing the impact of program, policy, or institutional design alternatives; examining cause (or causes) of policy or institutional choice by legislators, legislatures, bureaucrats or bureaus; or examining reasons for the differential implementation of policy by bureaucrats or bureaus.

Choose any policy area that you are familiar with. Discuss the theory or theories that motivate the empirical question and the statistical model. Briefly describe the program or policy alternatives, or policy decisions, that you are examining, and discuss and justify the outcome measure(s) you will use. Based on theory, what do you expect to find? Why will your findings be theoretically important? Cite relevant literature and previous findings, and discuss briefly what your project will add.

Develop a feasible research design to estimate the parameters of your theoretical model. In your design, consider some of the problems you anticipate in making unbiased and efficient estimates, and suggest how you might go about coping with these problems. Include in your discussion the following items, as well as others you believe are pertinent:

- *how you propose to collect data;
- *problems of measurement;
- *threats to internal, external, and statistical validity;
- *how you will analyze and interpret the data you collect;
- *how the findings relate to the theoretical question you are asking.

II.

(a). Economics

Sports are a prominent political issue. (They are also a prominent and popular topic in policy analysis and policy studies.) Local governments consider the location, funding, and maintenance of sports arenas; some local governments even own sports teams; local governments provide police security and sometimes even parking during sports events. State governments indirectly sponsor sports in public universities, and there is another connection between sports and public education in school districts. Focusing on sports in public school, could there be any economic justification for school districts to use public resources to encourage or discourage the demand or supply of sports? Are there any considerations that might warrant the use of public resources for sports in school, or are school sports (especially interscholastic competition in high school) an economic waste of public resources? (Use diagrams if they help to illustrate your answer.)

(b). Statistics

Using data from all Texas school districts with a minimum of 1000 students, a group of researchers investigated the impact of the per student athletic budget (in \$, but measured as log of dollars) on two educational district-wide outcomes:

- a) Average daily attendance (ADA)
- b) Percentage of students passing the Texas Assessment of Academic Skills (TAAS)

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Tables 1 and 2 (shown at the end of this exam) report these results. The control variables were defined as follows. Low income is the percent on free and reduced price lunches; gifted is gifted class enrollments as a percent of total enrollments; state aid is dollars per pupil; instructional funds are in 1000's of dollars per pupil; teacher experience is the average years of experience in each district; teacher salary is the district average, in 1000's of dollars. (Iterative reweighted least squares is a form of robust parameter estimates.)

- a) Limiting your interpretation of the results to the effects of the policy relevant variable and two significant control variables of your choosing, what do the results in Table 1 say?
- b) Considering the results in both Tables, what do the results say about the impact of expenditures on athletics on student outcomes? What do the results imply about the policy questions raised in part I?
- c) Do you believe the results about the impact of sports expenditures on student outcomes reported in Tables 1 and 2? That is, to what extent do the results conform to the requirements for unbiased parameter estimates and efficient hypothesis tests? How would you improve the model?

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(c). Program evaluation

Briefly and clearly outline both an experimental and quasi-experimental option for designing an evaluation to choose between the competing causal claims that sports in school improves (or harms, according to some) academic outcomes. (You need to consider only one quasi-experimental option.) (If you prefer, you could consider a different outcome measure; for example, some claim that school sports induces juvenile delinquency, while others claim that it reduces juvenile delinquency.) Discuss strengths and weaknesses of each design, particularly from the perspectives of internal, external, and statistical validity, as well as political and technical feasibility and, if relevant, ethical considerations. Finally describe which evaluation design you would select and why.

III. There is a large theoretical and empirical literature in public choice and political economy on rent-seeking. What is rent-seeking? (Use a diagram, if it aids your discussion.) What, if any, is the difference between rent-seeking and corruption? In the theoretical literature, what are the causes of rent-seeking, and what are the consequences? (If you like, use a particular policy area to answer this question, such as energy policy, education policy, defense or national security, including anti-terrorism.) What does the

empirical literature say about these same questions? (Give some examples from the empirical literature.) What are some current problems of theory and/or problems in the empirical literature, and what opportunities for research do they open? Suggest such a research question, and, if applicable, a corresponding empirical test.

IV. Virtually all nations supply education services to citizens. What, if any, market failure justifies such intervention? Are the failures the same for the primary, secondary, and tertiary levels? Why? If they are different, explain the differences. What are the consequences of the market failure, and what are the implications of the failure for a theoretically optimal set of responses? Would the optimal response be the same in an established democracy as in a developing or less developed nation? What are the likely government failures? Are the likely government failures the same for the primary, secondary, and tertiary levels? Why? If they are different, explain the differences. What are the probable consequences of likely failures with respect to efficiency and equity? Are the failures likely to be the same in an established democracy as in a developing or less developed nation, or in a totalitarian nation? Select one of your conjectures and suggest how you could test it empirically. (You may consider a within-nation study, or a between nation study. Cite relevant literature, and show how your study would add to or contrast with what others have done.)

V. Policy researchers can choose among three major types of designs: randomized field experiments (RFEs), quasi-experiments, and non-experiments.

A) In general, briefly discuss the primary characteristics, advantages, and disadvantages of each of these three types of designs.

B) Which of these three types of designs would you use to test the hypothesis that women who earn higher salaries are more likely to return to work after childbearing than women with lower salaries. Justify your answer with a discussion of internal validity, external validity, and feasibility. (You do not need to describe the details of your design; however, it may be useful to identify a specific type of design within the general category of design that you recommend.)

C) What underlying general theory (if any) underlies this expectation, and how (if at all) does the use of a general theory help you to evaluate the validity of your design?

Table 1. The Impact of Athletics on Student Attendance
(Dependent Variable = Average Daily Attendance)

Variable	Coefficient	T-Score
Athletic Expenditures (logged)	.0651	4.53
<i>Control Variables</i>		
Percent black	-.0019	1.71
Percent Latino	-.0064	7.17
Low Income	-.0242	19.23
Gifted	.0082	2.50
Teacher Salary K	.000007	.75
Class size	-.1173	9.24
Percent Teachers with Advanced Degrees	-.0001	.09
Teacher Experience	.0174	2.15
State Aid	.0038	5.79
Instructional Funds (k)	-.00002	.36
R-Square	= .38	
Adjusted R-Square	= .38	
F	= 84.78	
Standard error	.40	
N	1,923	

Iterative reweighted least squares estimates using Andrews Sine, one iteration.

Table 2. The Impact of Athletics on Student Performance: Basic Skills (Dependent Variable = TAAS Scores)

Variable	Coefficient	T-score
Athletic Expenditures (logged)	.0962	.91
<i>Control Variables</i>		
Percent black	-.1473	16.80
Percent Latino	-.0510	7.56
Low Income	-.1581	16.00
Gifted	.1722	6.38
Attendance	2.7171	21.41
Teacher Salary K	-.0001	1.91
Class size	.0615	.62
Percent Teachers with Advanced Degrees	.0004	.04
Teacher Experience	.4864	8.08
State Aid	-.0250	4.92
Instructional Funds (k)	.0008	1.85
R-Square	= .78	
Adjusted R-Square	= .78	
F	= 449.81	
Standard error	3.04	
N	1,922	

Iterative reweighted least squares estimates using Andrews Sine, one iteration.