Policy Comp Fall 2014
PhD Policy Comprehensive: 2nd field.
Directions: Answer Question (1) and answer ONE from Questions (2) – (4). You have three hours.

1) Economics and Statistics

A recent article in a peer-reviewed journal examines whether "walkability" influences home prices. Walkability is defined as the straight-line (average) distance from the home to the nearest amenities, defined as restaurants, schools, parks, shopping, coffee shops, grocery stores, bookstores, banks, and entertainment. Home value is the home's value on the local property tax roll.

Previous research indicates numerous positive effects of living in a more walkable area. The built environment of cities influences local transportation patterns. Urban forms and land-use patterns that encourage walkability are expected to decrease reliance on the automobile, improving local environmental conditions. A neighborhood's built environment and walkability have implications for public health, especially physical activity. Recent research indicates that walkable neighborhoods may lead to lower resident weight and obesity and lower residential body mass index. Walkable neighborhoods may also improve neighborhood social conditions. A study of Australian neighborhoods indicates that walkability decreases incidences of neighborhood incivilities like vandalism. A built environment that encourages walking improves the probability that residents interact with each other, and leads to a greater sense of community among residents. Residents of walkable neighborhoods report more instances of neighborly behavior and sociability occurring in their neighborhoods compared to residents of less walkable neighborhoods. These instances of increased sociability and neighborly behavior promote the growth of social capital.

a) What, if any, market failure(s) might explain why walkability might be a policy concern? In theory, what policy (or policies), if any, is/are likely to be an optimal response (or set of responses) to the lack of residential housing "walkability"? Be sure to consider whether doing nothing might (or might not) be optimal.

b) The investigators estimated a conventional theoretically based hedonic pricing model to examine whether there is a price premium for more walkable versus less walkable homes. They use data on a random sample of house values in Miami, Florida, which is listed in July 2013 as the eighth most walkable city in the United States (Walk Score, 2013). The Walk Score, ranging from 1 (not walkable at all) -100 (most walkable) measures the extent to which people are car-dependent in residential areas. Miami's Walk Score is 73. For practical purposes, any amenity that requires more than a 30-minute walk (using the assumption of a three miles per hour walk speed) is less desirable than those with lesser walk times. Walk Scores are scaled between 0 and 100. Scores of 0–49 are described as "car-dependent," scores from 50–69 "somewhat walkable," scores greater than 70 and less than 90 are "very walkable," and those over 90 are a "walker's paradise".

The dependent variable is the logarithm of each home's market value, as determined by its 2012 appraisal on the property tax rolls. The independent variables include the home's age (age), in years, and its square (age^2). Age is squared to account for nonlinear effects of age. Other predictors include the number of bathrooms (baths), the number of bedrooms (beds), the median neighborhood income (in dollars) (income), and whether or not a residence is a condominium (condo = 1, otherwise 0). We also measure the distance to the CBD (central business district), the size of the lot (lot size, in square feet), square footage of the home (sq ft), whether there is a pool (pool = 1, otherwise 0, and the Walk Score, which ranges from 0 to 100.

Use the information from the Table below to answer the following questions:

        i)   Using the estimates in column 1 of the Table, carefully and precisely explain how to interpret the estimated coefficient of the "walk score." Is the relationship between walk score and home price statistically significant? Is it practically significant?

        ii)   Considering the information only in Column 1 of the Table, carefully and precisely explain how to interpret the estimated coefficients of the variables "pool" and "bedrooms." .

        iii)   Note that the 3 columns of the Table report standard errors that are clustered at different levels: subdivision, section, and zip code. Does the level at which the standard errors are clustered have a substantive effect on the magnitudes of the standard errors, or the resulting statistical inference? Does the level at which the standard errors are clustered have a substantive effect on the magnitudes of the estimated coefficients? Are you surprised by the differences (or similarities) in estimated standard errors and coefficients across the 3 columns of the Table?

        iv)   Carefully and precisely explain why the authors chose to report clustered standard errors. What are the consequences of failing to do so? Which is your preferred level of clustering (subdivision, section, or zip code), and why?

c) Do you believe that the estimated relationship between walkability and home value in the Table is causal? Why or why not? Use the conditions for unbiased and efficient estimators to guide your response to this question. How, if at all, do the indicators of model fit reported in the Table affect your response?

d) What research design is implicit in the estimates from the Table below? How, if at all, would you alter the design and/or the estimating model to improve the likelihood that the estimates are BLUE?

The Table below reports the OLS estimates.

OLS Regression of log home value on Walk Score (standard errors clustered by subdivision, section, or zipcode)

Std. Errors Clustered by Variables	Subdivision ln_mkt_value	Section ln_mkt_value	Zip Code ln_mkt_value
Age	−0.003***	−.003***	−0.003***
	(0.001)	(0.001)	(0.001)
Age^2	−7.54e-05***	−7.54e-05***	−7.54e-05**
	(1.85E-05)	(2.54E-05)	(3.34E-05)
Baths	0.04***	0.04***	0.04**
	(0.01)	(0.01)	(0.02)
Bedrooms	0.03***	0.03***	0.03***
	(0.01)	(0.01)	(0.01)
Condo	−0.08***	−0.08***	−0.08**
	(0.02)	(0.03)	(0.03)
Distance to CBD	−0.02***	−0.02***	−0.02***
	(0.003)	(0.004)	(0.01)
Income ($1,000)	0.01***	0.01***	0.01***
	(0.001)	(0.001)	(0.001)
Lot size	4.80e-06***	4.80e-06***	4.80e-06***
	(9.71E-07)	(1.15E-06)	(1.14E-06)
Pool	0.14***	0.14***	0.14***
	(0.01)	(0.02)	(0.02)
Sq ft	0.0003***	0.0003***	0.0003***
	(1.56E-05)	(1.87E-05)	(2.49E-05)
Walk Score	0.004***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)
Constant	10.86***	10.86***	10.86***
	(0.06)	(0.09)	(0.16)
Observations	3,353	3,353	3,353
Adj. R^2	0.75	0.75	0.75

Robust standard errors in parentheses.
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

2) Implementation:

Discuss and evaluate any TWO of the competing arguments among scholars that the study of implementation (a) has reached a theoretical dead-end vs. (a') has raised critical theoretical challenges to the general field of policy analysis; (b) offers little in the way of practical advice to policy makers vs. (b') offers more than the field of policy analysis in the way of practical advice to policy makers, and (c) is no longer a major research focus among policy scholars vs. (c') continues as a major research focus among policy scholars. Be sure to incorporate literature, concepts, and theories from all three generations of implementation research in your response.

3) Program Evaluation

Not too long ago, a headline in the *Washington Post* claimed: "Atkins Fares Best in Study of Four Weight-Loss Regimens"

In support of this claim, the following table and explanation were reported:

Diet Comparisons

	Average weight loss (in pounds) after 12 months
Atkins (Very low carbohydrate, high protein, high fat diet)	10.4
The Zone (Low carb, high fruit/veg, low protein/fat diet)	3.5
LEARN (Low fat, low calorie + exercise diet)	5.7
Ornish (Very low fat diet)	4.9

"The 311 overweight and obese women in the study were randomly assigned to one of the four groups. Each received a book detailing her prescribed diet. For the first eight weeks, the women also attended one-hour weekly group sessions with a registered dietician trained to explain the diet in detail. Participants received follow-up phone calls and e-mails to remind them of appointments, and they were paid $25 to $75 for each appointment they made."

a) What research design was used to generate these results? What regression equation was likely used to generate these results?

b) Do you believe the claim in the headline? Specifically, what are the likely threats to the internal validity of the claim in the headline, and what, if any, additional information would you like to assess the validity of that claim? How would you improve the internal validity of the design?

c) Carefully and precisely describe the concept of external validity. From the information provided, are you able to speak to the study's external validity? Why or why not?

d) Suppose that only a nationally representative longitudinal dataset containing information on women's weights, diets, demographic (age, race, ethnicity), socioeconomic backgrounds (educational attainment, household income), employment status, household composition, and geographic locations is available. Describe a (feasible) quasi-experiment to evaluate the impact of these 4 different diets. Which design would you choose, and why?

4) Policy Analysis

The Environmental Protection Agency (EPA) is considering the issuance of a rule that would regulate the discharge of surface water runoff from small municipalities in Washington State into Puget Sound. (Large municipalities currently regulate such discharges.) The rule would cause small municipalities to incur one-time capital improvement costs and impose annual enforcement and inspection costs on EPA and state regulators. EPA analysts estimate that the rule would improve water quality, thereby enhancing the value of commercial and public fishing for crab, oysters, and salmon. Analysts believe that the improvements would also provide less tangible benefits, such as improved wildlife observation and ecological quality. Wildlife observation can be priced (commercial boats take customers to watch whales) but general ecological quality has not.

Estimates for the various costs and benefits vary, but are thought to fall within the following ranges.

Benefits:

Value of enhancements to a contaminant free fishery for crabs and oysters: $20 to $40
    million annually
Value of enhancements to a contaminant free fishery for salmon: $10 to $15 million
    annually
Consumer and producer surplus changes for affected commercial activities: $2 to $3
    million annually
Added benefits for wildlife observation: $1 to $2 million annually
Ecological and other non-use benefits: not estimated

Costs:

One time capital improvement costs: $100 to $150 million at the start of the first year
Annualized costs for enforcement and inspection: $20 million incurred yearly at the end
    of each year

Answer the follow two questions:

1. Assuming a discount rate of 5%, estimate the present value of net benefits associated with the first five years of the project. State any assumptions you

make. We recommend that you show the calculations that lead to your overall estimate.

2. Should the policy be implemented? Include in your answer a discussion of the strengths and weaknesses of the EPA analysis, as well as a discussion of potential opposing viewpoints. What factors other than ones for which values are given might be considered?