PhD Policy Comprehensive 2nd field
May 2015
Directions: Answer Question (1) and answer ONE from Questions (2) – (4)

Q1: Applied Economics and Statistics

a) Economics:
"Income inequality in the United States has been increasing since the mid-1970s, with a particularly striking surge in the income of the very wealthy. Most empirical evidence identifies a range of socioeconomic sources of this growth, including skill-biased technological change..., top wage compensation and rent-seeking..., and changing social norms...." Yet public policy choices may also help to fuel inequality. Hatch and Rigby (2015) recently examined this question in the context of states in the U.S. They note the great variation in state-level policies regarding redistribution, and ask whether state level policy changes enacted between 1980-2005 affected income inequality in the state. They identify four policy approaches likely to affect income inequality: taxes on the wealthy, taxes on the poor (including tax payments), spending on the poor, and labor market policy (e.g., minimum wage laws).

What, if any, market failure(s) might explain why income inequality should be a policy concern? In theory, is there an "optimal" level of income equality? Why or why not? Could you estimate it? If so, briefly indicate how you would estimate an optimum. Does income inequality represent market failure? Why? In theory, what policy (or policies), if any, is (or are) likely to be an optimal response (or set of responses) to market failure regarding income inequality? Be sure to consider whether doing nothing might (or might not) be optimal. Briefly consider the policy approaches listed above (taxes on the wealthy, taxes on the poor (including tax payments), spending on the poor, and labor market policy (e.g., minimum wage laws)). How well does each of these policy approaches conform to what is likely to be optimal? What, if any, government (or non-market) failures would you anticipate? Use diagrams to illustrate, explain (and shorten!) your verbal responses.

b) Statistics:
Hatch and Rigby examine whether changes in state policies affect state income inequality. They use two indicators of inequality. The first is the Gini coefficient, which is a measure of variance in relative income shares that ranges from 0 (perfect equality: each percent of persons have an additional percent of income) to 1 (1 person has all the income). The second indicator is the top 1%, which measures the income share held by the wealthiest, represented by the top 1% of the population, measured as a proportion. The national average Gini coefficient rose from about .51 in 1980 to about .6 in 2005; the income share of the top 1% rose from about .05 in 1980 to 0.2 in 2005. The correlation between these two indicators from 1980-2005 is about 0.9.

Hatch and Rigby constructed 4 scales to measure the each of the 4 different types of policies states use that might affect income distribution. They used 9 specific policies to construct these 4 scales. The specific policies included the capital gains tax rate, the corporate tax rate, the top marginal tax rate, the tax rate on poor (which can be negative,

if it is a credit), per capita spending on health, welfare and education, presence of a right-to-work law, and the minimum wage. Each scale is a different linear combination of standardized scores on these indicators. Thus, each scale (taxes on the wealth, taxes on the poor, spending on the poor, labor market policies) is a standardized score, so that the mean is 0 and the variance is 1; a higher score is a more liberal policy. For example, during the 1980-2005 period, New York had a mean score of +0.85 for taxes on the wealthy, while Illinois had a score of -0.27.

To examine whether these state policies had any effect on inequality in the state, the authors used a cross-sectional, pooled analysis of 1300 cases, each representing one state-year from 1980-2005. The two dependent variables are changes (in Top1% and Gini, respectively) during a 3-year period ((t+3)-t). They also entered the initial level of each measure (t) on the right-hand side, as a control. The model also includes the following state-level control variables: the percentage of the population that is less than 18 years old, the percentage that is 18 to 65 (the reference group), the percentage that is over age 65, per capita income in 2005 dollars, the percentage of the population that is nonwhite, citizen ideology, union membership, and the unemployment rate. A higher score on the citizen ideology measure represents a more liberal (progressive) citizenry; a value of zero is entirely conservative while a value of 10 is completely liberal. Equation (1) represents the full model used to estimate the results reported in the Table below. Z represents the vector of control variables, S is the state, and T is the year.

$$\Delta Y_{\text{INEQUALITY } s((t+3)-t)} = \beta_1 Y_{\text{INEQUALITY } st} + \beta_2 X_{\text{TAX WEALTHY} st} + \beta_3 X_{\text{TAX POOR } st}$$
$$+ \beta_4 X_{\text{SPENDPOOR } st} + \beta_5 X_{\text{LABOR MARKET} st} + \beta_6 Z_{st} + \beta_7 S + \beta_8 T + \varepsilon_{st} \quad (1)$$

b.1 Interpret the results for the lagged variable and for the policy variables reported in Table 3 below. Specifically, assess the statistical and practical significance of each estimate for these variables only.

b.2 Why did the authors include a lagged value of inequality in the estimating equation? Can you think of an alternative specification that might better represent change in state equality? (Assume the 3-year lag is not the problem; the authors tested alternative lags and found the same results.)

b.3 What, if any, theory justifies the linear specification of the policy variables? If you think an alternative, non-linear specification, makes more theoretical sense, how would you write the equation, and how would you test whether one specification is better than the other?

b.4 Do you believe that the estimates of the relationship between state policies and changes in the two measures of inequality reported in Table 3 can be given a causal interpretation? Why or why not? Be specific about the assumptions that are required for unbiased estimates of the "effect" of public policy choices and whether these assumptions are likely to hold in the current context.

b.5 Short of running a randomized experiment, what, if anything, could the researchers do to increase the credibility of the research design. Carefully explain what additional data and/or methods the authors might use to more convincingly identify the causal effect of state tax, spending and labor market policies on inequality.

Table 3. Policy Determinants of Changes in Inequality

	Gini Coefficient	Share Top 1%
Inequality measure (t)	−0.549*	−0.652*
	(0.030)	(0.032)
Taxes on the wealthy	−0.000	−0.006*
	(0.002)	(0.002)
Taxes on the poor	−0.010*	−0.004*
	(0.002)	(0.002)
Spending on the poor	0.011*	0.004*
	(0.002)	(0.002)
Labor market policies	−0.008*	−0.007*
	(0.002)	(0.001)
Population less than 18 (%)	−0.003*	−0.003*
	(0.001)	(0.001)
Population 65+ (%)	−0.002	0.002
	(0.001)	(0.001)
Per capita income (thousands 2005$)	0.001*	−0.000
	(0.000)	(0.000)
Nonwhite (%)	0.001	0.002*
	(0.000)	(0.000)
Citizen ideology	0.002*	−0.001
	(0.001)	(0.001)
Union membership (%)	−0.000	−0.000
	(0.000)	(0.000)
Unemployment rate (%)	0.001	0.001*
	(0.000)	(0.000)
Constant	0.379*	0.072*
	(0.031)	(0.027)
R-squared	0.872	0.864
Adjusted R-squared	0.862	0.854

Notes: Inequality measure is the three-year change in inequality ((t+3)-t). Standard errors in parentheses. $N = 1{,}150$, *$p < 0.05$. All models include state and year fixed effects.

Q2. Implementation

Writing in the 1970s, Pressman and Wildavsky (1973) famously argued that public administration scholars had failed to study policy implementation. Nearly a decade later, Waldo (1984) sarcastically wrote that if policy implementation scholars could not find an implementation focus in public administration research, he "stood ready to tell them where they can find it" (74). During the next decade, Kettl (1990) implied that policy implementation *was* quite different by arguing that it had been a threat to replace public administration as a field of study. By the late 1990s, however, Meier (1997-98) argued that there "was no there, there" to replace public administration or any other field when it came to policy implementation theory, while others felt that either new units of analysis had to be studied or new methodologies applied. As a new decade dawned, O'Toole (2000) contended that much theoretically grounded research was going on in policy implementation, and identified several promising approaches for future development. Others, however, suggested that a less instrumental and more democratic focus was necessary for policy implementation theory to advance and remain relevant as a field (deLeon and deLeon 2002), while others argued that a new unit of analysis—networks—was needed for theory building to improve (Hill and Hope 2014).

In an essay informed by the policy implementation literature, discuss what you see as the state of policy implementation theory building today, and what is necessary for theory building to advance over the next decade. Discuss in terms of (1) the rationale each of the above theorists offered for their assessment of policy implementation theory, (2) existing strengths and weaknesses of the literature today, and (3) how to strengthen theory building in the years ahead.

QIII. Policy Analysis: Street Lamps

a) Using the economic definition of a public good, argue that street lamps on a main city street are, indeed, a public good. Carefully explain why the private sector will fail to provide street lamps and why it is socially optimal for the public sector to provide and maintain street lamps.

Suppose that the cost of installing and maintaining a street lamp is $100. Further suppose that in a neighborhood of 5 individuals, there are only 5 possible locations for street lamps and residents' individual (private) benefits of street lamps are as follows:
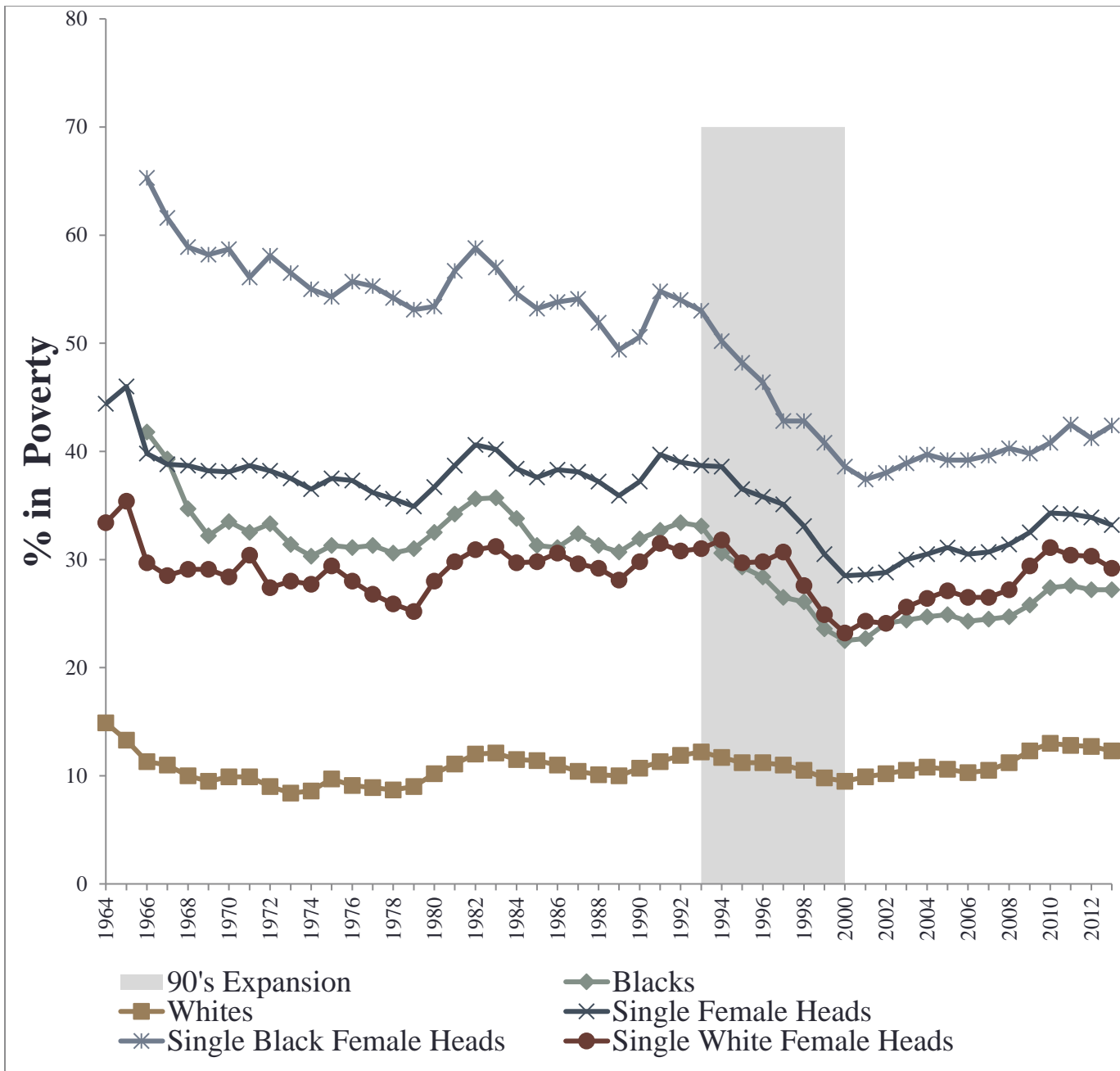
# Lamps	Total Benefit to Person 1	Total Benefit to Person 2	Total Benefit to Person 3	Total Benefit to Person 4	Total Benefit to Person 5
1	$5	$20	$50	$100	$200
2	$10	$30	$100	$150	$301
3	$15	$35	$150	$175	$400
4	$18	$40	$200	$200	$450
5	$20	$45	$250	$200	$499

b) Using the information in the table above, how many street lamps would be purchased on the private market, by individuals? Explain.

c) Using the information in the table above, what is the socially optimal number of street lamps to install?

d) What is the socially optimal number of street lamps if the cost of street lamps increases to $300 per lamp?

e) Suppose that residents can also install lights over their front doors, which all face the main street. Is there any economic justification for a proposed policy to subsidize the installation of "front door lights"? Explain, carefully, using both a verbal argument and using a graph that plots the market for "front door lights" with price on the vertical axis and quantity on the horizontal axis. Include both Supply and Demand curves.

Q4: Social Policy

BACKGROUND: Discrimination in the labor market is a topic with great policy salience. For this question, assume you have panel data on economic, demographic, education, and geographic variables at the individual unit of measurement. Refer to evidence from the literature and readings from your conduct and policy courses.

a) Many commentators refer to the trends depicted in the table below below as evidence of economic discrimination. Discuss the strengths and weaknesses of such an approach.

b) (see the questions below the table)

$$\ln W_i = a + bM_i + X_i c + u_i$$

b) Empirical estimates of the human capital earnings function (HCEF), like the one shown above, represent another approach to understanding discrimination. What available, standard variables should analysts include in X to better ascertain the relationship between economic outcomes W and a demographic characteristic (e.g. race, gender) M unrelated to productivity? Discuss the consequences of accounting for or not accounting for these variables.

c) Recent research emphasizes the role of non-cognitive skills – perseverance, effort, and "grit" – in driving observable economic outcomes. How might you control for such variables using panel data methods? How does your underlying model of skill acquisition inform whether and how you model such non-cognitive skills using panel data methods? How, if at all, does the static or dynamic nature of such skills influence the empirical modeling and interpretation of results? Write this down using formal mathematical notation (like the HCEF in (b)) and also describe this model.

d) Why might models such as those described in (b) attempt to control for environmental factors, inputs, and variables experienced between ages 0 and 15? Some analysts refer to these as pre-market factors. What are good proxies, and how do these pre-market factors relate, if at all, to the larger policy discussion on labor market discrimination?