

**Labor/Public Sector Field Exam**  
**June 26, 2013**

Answer ALL PARTS of this exam. Please provide the most complete answer you can. You are graded on the COMPLETENESS of your answer.

**Part I—Labor Economics**  
**Professor Moshe Buchinsky**

**Question I.1 (50 points):**

Provide a short discussion on three out the following five questions/statements.

1. Discuss briefly the main reasons for the vast changes in the wage structure in the United States over the past few decades.
2. The rise in the college education premium (i.e., the return to college education) should have induced more individuals to attend college. Discuss this statement.
3. One cannot explain the accumulation of human capital without allowing for individuals to obtain direct utility from education.
4. There are no reasons, other than discrimination, for the fact that there are less women in the labor market, and in particular in managerial positions.
5. Briefly discuss the role of immigration in the labor market. In particular, what are the roles of high-skilled and low-skilled immigrants?

**Question I.2 (50 points):**

Consider a female who has finished high school and is considering whether or not to attend college. The individual would live for  $T$  more periods with absolute certainty. She derives utility from consumption and leisure. She also derives utility from being married, and from her children. That is, the individual's per-period utility is:

$$u(c_t, l_t, M_t, N_t; \theta_0),$$

where  $c_t$  denote consumption,  $l_t$  denote leisure,  $M_t$  is a dummy variable that takes the value one if she is married, and zero otherwise,  $N_t$  is the number of children that she has, and  $\theta_0$  is a vector of parameters associated with the utility function.

The individual has the option of working in a full-time job or in a part-time job. Her per-period earnings are a linear function of one's education level ( $ed$ ) and experience ( $ex$ ). That is,

$$\log w_{it} = \beta_0 + \beta_1 ed + \beta_2 (ed)^2 + \beta_3 ex + \beta_4 (ex)^2 + \beta_5 (ed \cdot ex) + \varepsilon_{it}.$$

If she works part-time, every year of experience is worth  $\gamma$  ( $0 < \gamma < 1$ ) the fraction of a year of experience obtained in a full-time job. In addition she may obtain income from other sources (non-earned income), denoted by  $I_{it}$ .

1. Specify the life-time utility from the present value of discounted expected utility. In doing so, specify all the relevant budget constraints. Explain briefly each constraint.
2. Define the state vector, say  $z_{it}$ , and the decision vector, say  $s_t$ . Explain the role of each of the state and decision variables.
3. What would be the implication for a woman to get married and have children? Explain briefly.
4. Would a woman tend to obtain less education than an equivalent man? Explain briefly.
5. Consider the case in which you were to collect the data. Assume that you have access to any population of interest. Also assume that you face no budget constraints for collecting the data. Describe in detail the data you would collect that would enable you to estimate the above model.
6. In reality, wages are determined in the market place, that is, as a result of the interaction between supply of labor and demand for labor? How would you go about accounting for this factor in the model? How will this general equilibrium consideration affect the interpretation of counterfactual experiments?
7. Please give references to at least two papers that have dealt with similar questions and briefly provide your opinion about these two papers.

**Part II—Labor Economics**  
**Professor Maria Casanova**

**Question II.1:**

Indicate whether the following statements are true or false and explain your answer in approximately half a page. Be specific and refer to the topics studied in the course when possible. No points will be given for vague answers. Each question is worth 10 points.

1. A researcher can observe the exact day of the month on which retirees are paid their Social Security benefits (suppose that this day varies randomly across the population). He uses a regression discontinuity analysis to test for changes in consumption around this date. He finds that consumption is 15% higher on the day in which households receive their Social Security check than it was the previous day.

**True or False:** These results can be unambiguously interpreted as a rejection of the Life-Cycle/Permanent Income Hypothesis.

2. You read a newspaper article claiming that many Baby Boomers are at risk of running out of assets before the end of their lives, since a significant proportion of them have virtually no savings by the time they retire.

**True or False:** Households who have failed to accumulate significant savings by age 50 are behaving suboptimally from a life-cycle perspective.

3. Consider a scenario where a technology is introduced that allows women to better control their fertility decisions (both in terms of the number of children and the timing of births). The technology is available to all women at a negligible cost. Let  $t$  and  $t + 1$  be the periods before and after the technology is introduced, respectively.

**True or False:** Some women who optimally choose not to use the new technology in  $t + 1$  will be worse off after its introduction (i.e., their wellbeing was higher in period  $t$ ).

4. A researcher has data on individual wages for different industries. For each industry, he regresses wages on age and education and then computes the variance of the residuals. He finds that this variance is very low in the textile industry and is very high in the publishing industry.

**True or False:** This result implies that wage risk, and in particular productivity risk, is higher in the publishing industry than in the textile industry.

## Question II.2:

Choose **TWO** out of the next three question. Each answer should be approximately two pages long. Each is worth 30 points.

1. The paper by Bernheim et al. (2001) "What Accounts for the Variation in Retirement Wealth Among U.S. Households?" shows that wealth holdings before retirement vary considerably, even for households with similar socioeconomic characteristics.

There are many factors that could explain heterogeneity in retirement savings within the context of a life cycle model. Bernheim et al. claim that these factors can be divided in categories according to the type of correlation they would generate between consumption and wealth profiles.

- (a) Describe the different categories.
  - (b) Given an example of one factor for each category, explaining in detail what type of correlation it would generate between pre-retirement wealth and consumption.
2. The following table appears in the paper by Card and Levine (2000) "Extended Benefits and the Duration of UI Spells".

Table 1  
UI exhaustion rates in New Jersey, Pennsylvania and the United States<sup>3</sup>

Period	New Jersey	Penn.	US except NJ	Differences	
				NJ-Penn.	NJ-US
	(1)	(2)	(3)	(4)	(5)
July-Nov. 1995	49.9 (1.4)	31.8 (1.2)	36.1 (0.6)	18.1 (1.9)	13.7 (1.5)
July-Nov. 1996	49.4 (1.5)	29.0 (1.4)	33.9 (0.6)	20.4 (2.1)	15.5 (1.6)
July-Oct. 1997	45.1 (3.1)	27.3 (1.1)	35.2 (0.8)	17.8 (3.2)	9.9 (3.2)
1996-1995	-0.4 (2.1)	-2.8 (1.8)	-2.2 (0.8)	2.3 (2.8)	1.8 (2.2)
1997-1996	-4.4 (3.4)	-1.7 (1.8)	1.3 (1.0)	-2.7 (3.8)	-5.7 (3.6)
1996-Average of 1995 and 1997	2.0 (2.3)	-0.5 (1.6)	-1.8 (0.8)	2.5 (2.8)	3.7 (2.4)

The description of the table is as follows: "The first three columns of this table present average monthly exhaustion rates in New Jersey, Pennsylvania, and the US for the July-November periods of 1995, 1996 and 1997. Columns (4) and (5) report the differences in exhaustion rates in New Jersey relative to the two comparison groups. The row labeled "1996-1995" gives the change in exhaustion rates between the 1995 and 1996 periods, while the row labeled "1997-1996" gives the change from 1996 to 1997. The entries for these rows in columns (4) and (5) are the 'differences-in-differences' in exhaustion rates between New Jersey and either comparison group. Finally, the last row of the table shows

the difference in average exhaustion rate for July-November, 1996, relative to the average for the same months in 1995 and 1997. Standard errors are in parentheses".

The NJBE program extended unemployment benefits in the state of New Jersey for 6 months (from June to November) in 1996. The objective of the paper is to estimate the impact of NJBE on exhaustion rates. At least 3 alternative estimates of the impact of NJEB can be obtained from the information provided in the table. Describe these estimates and the underlying assumptions regarding underlying trends in each case.

3. In his 2005 paper "The Effects of Health, Wealth, and Wages on Labour Supply and Retirement Behaviour" E. French uses an iterative procedure to control for selection in the estimated wage profile. Explain why this is important in the context of a retirement model. Discuss other factors that must be accounted for in the estimation of the wage profile of older workers.