

Exam

ECON 4624 – Empirical Public Economics

This exercise set consists of five (5) pages.

Exercise 1 (50%)

Kostøl and Mogstad (2014, *American Economic Review*) study the impact of financial incentives on labor supply of disability insurance recipients.

- (a) Consider the budget constraint in Figure 1 below. What are the expected effects on labor supply of getting disability benefits of individuals with counterfactual labor supply (without any disability benefits) of (i) 5, (ii) 20 and (iii) 40 hours? What are the expected effects of the Return to Work-Program for the same individuals?

(a) Disability

- 5 hrs = income effect, reduce LS, move interior on C–B
- 20 hrs = income and substitution effect in same direction, reduce LS, move to C (possibly C–B)
- 40 hrs = substitution effect, reduce LS, move to C (possibly C–B) or move to E–D

(b) RTW

- 5 hrs = no effect
- 20 hrs = substitution effect, increase LS
- 40 hrs =
 - if C, then substitution effect, increase LS
 - if E–D, then income effect, decrease LS

(b) In practice, disability recipients face different wages, and therefore different financial incentives on labor supply. Consider the regression

$$\ln h_i = \alpha + \gamma \ln w_i + X_i\beta + \epsilon_i$$

where h_i is the observed hours of individual i when he is on disability, w_i is the (predicted) wage rate and X_i is a vector of observed characteristics (labor supply before disability, gender, age, experience, education, region, etc.). How would you interpret an estimated γ of 0.2 from a sample of disability recipients? Explain why this may not be a good estimate for the effect of financial incentives on labor supply. Give one concrete example that may cause bias in the estimate of γ .

γ gives the elasticity of disability labor supply wrt the wage. If $\gamma = 0.2$ a doubling of the wage is associated with a 20 % increase in working hours on disability. This may not be a good estimate because the wage rate is likely correlated with unobserved characteristics that are also correlated with labor supply, for instance:

- (a) people with high value of leisure may in general have low wages due to earlier human capital or labor market investments and also be less willing to work. This may cause upward bias.
- (b) people with high wages and low value of leisure may put a higher cost on being on disability, since this ties up their labor supply. Then high wage will be correlated with high value of leisure in the sample of disability recipients. This may cause downward bias.

Consider Figure 2 and Table 1 below.

- (c) Explain the identifying strategy used by Kostøl and Mogstad, and the assumptions it requires.

RD: requires that the potential outcomes are continuous through the discontinuity:

- (a) no sorting around the discontinuity
- (b) no other treatments coinciding
- (c) no change in other covariates at the discontinuity

- (d) In light of the evidence below, do you believe that these assumptions are fulfilled?

A potential worry could be that there are changes in application around New year. But this looks good here: covariates are continuous around the discontinuity, in particular no changes in the labor supply in previous year. No info on sorting or other treatments here, but they report in the paper that this is ok.

- (e) How would you summarize the findings of Kostøl and Mogstad?

Financial incentives have a substantial effect on labor supply of disability recipients. In the short and medium run, about 3–4 ppt higher labor participation (above 1 basic amount/SGA), in the longer run almost 9 ppt higher labor participation.

- (f) Assume that the increase in earnings comes only from individuals that are induced to participate in the labor market by the Return to Work-program. How would you then interpret the coefficient on average earnings?

We can then scale the earnings effect by the effect on LFP: $1,644/0.085 = 19,341$. So the induced entrants earn on average *USD* 19,341 more per year under RTW. If their counterfactual labor earnings on disability is truly $1SGA = USD 12,500$, then their mean RTW labor earnings are *USD* 31,841. This corresponds to relatively substantial labor participation, well above that among rejected applicants, but well below average earnings of employed workers in the economy at large. This should not be surprising, given that these individuals are (i) expected to be of poorer health and (ii) collecting disability benefits alongside their labor earnings.

- (g) Assume that only types (i) and (ii) from exercise 1(a) exist among disability recipients. Say further that both face the budget constraint in Figure 1, and that types are otherwise identical (except for their preference for leisure). Say finally that all individuals of the same type are identical (also in preferences). Given the estimates on LFP (2007), column 3, what fraction would you expect of each among disability recipients? Explain your reasoning.

Type (a) must work less than 10 hours and is therefore unaffected. Hence, all response must come from the other group, which must then constitute a fraction of 8.7%.

Exercise 2 (50%)

- (a) Policymakers would like to have information on how tax payers respond to a planned reduction in marginal tax rates. You have access to individual income data for several years with a panel dimension (repeated observations for the same individual). Describe how you would design a research strategy in order to inform policymakers on the expected effects on income of their planned policy change. Discuss what types of responses that may be reflected in an observed change in income.

(a) Budget constraints

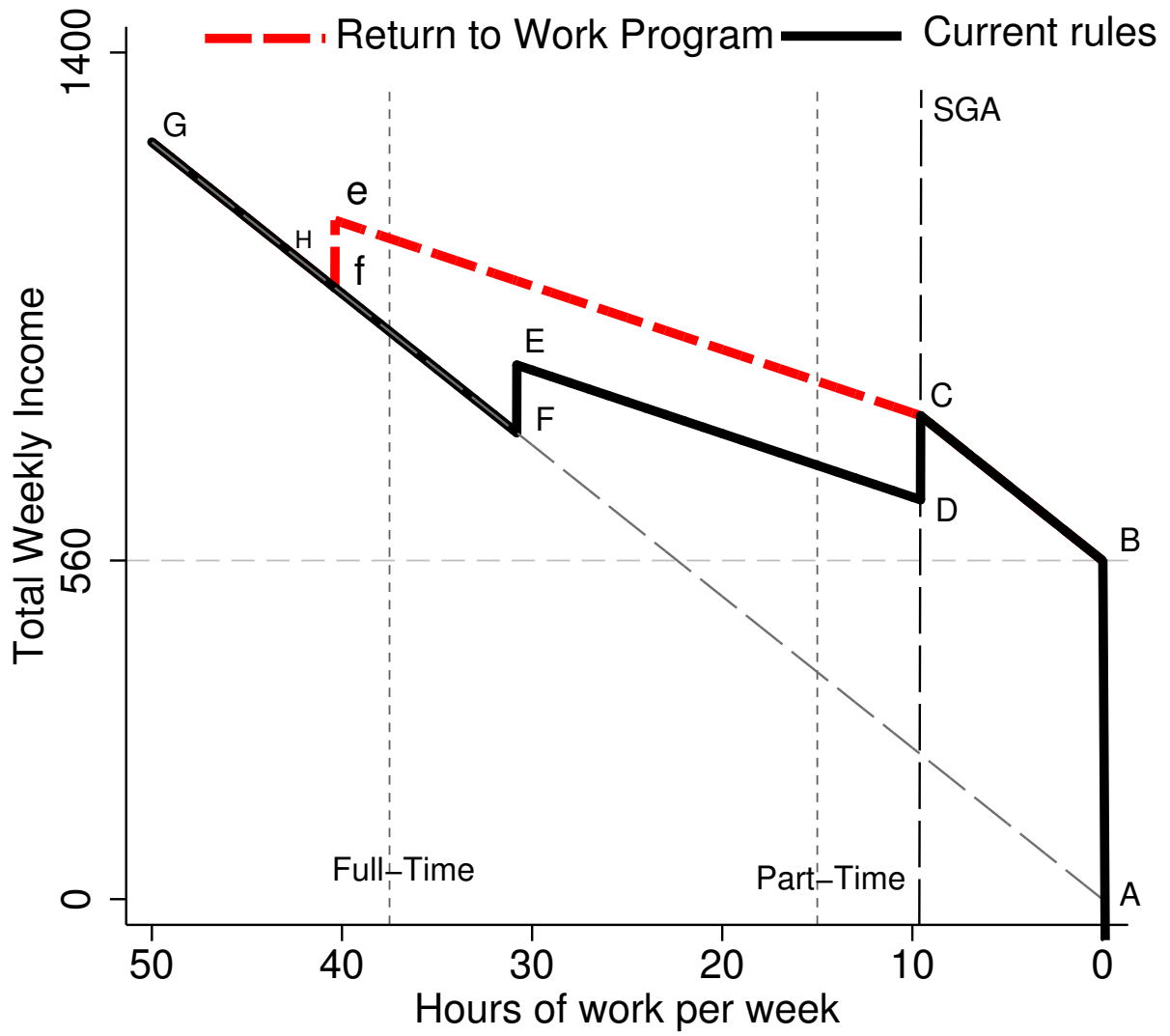


Figure 1:

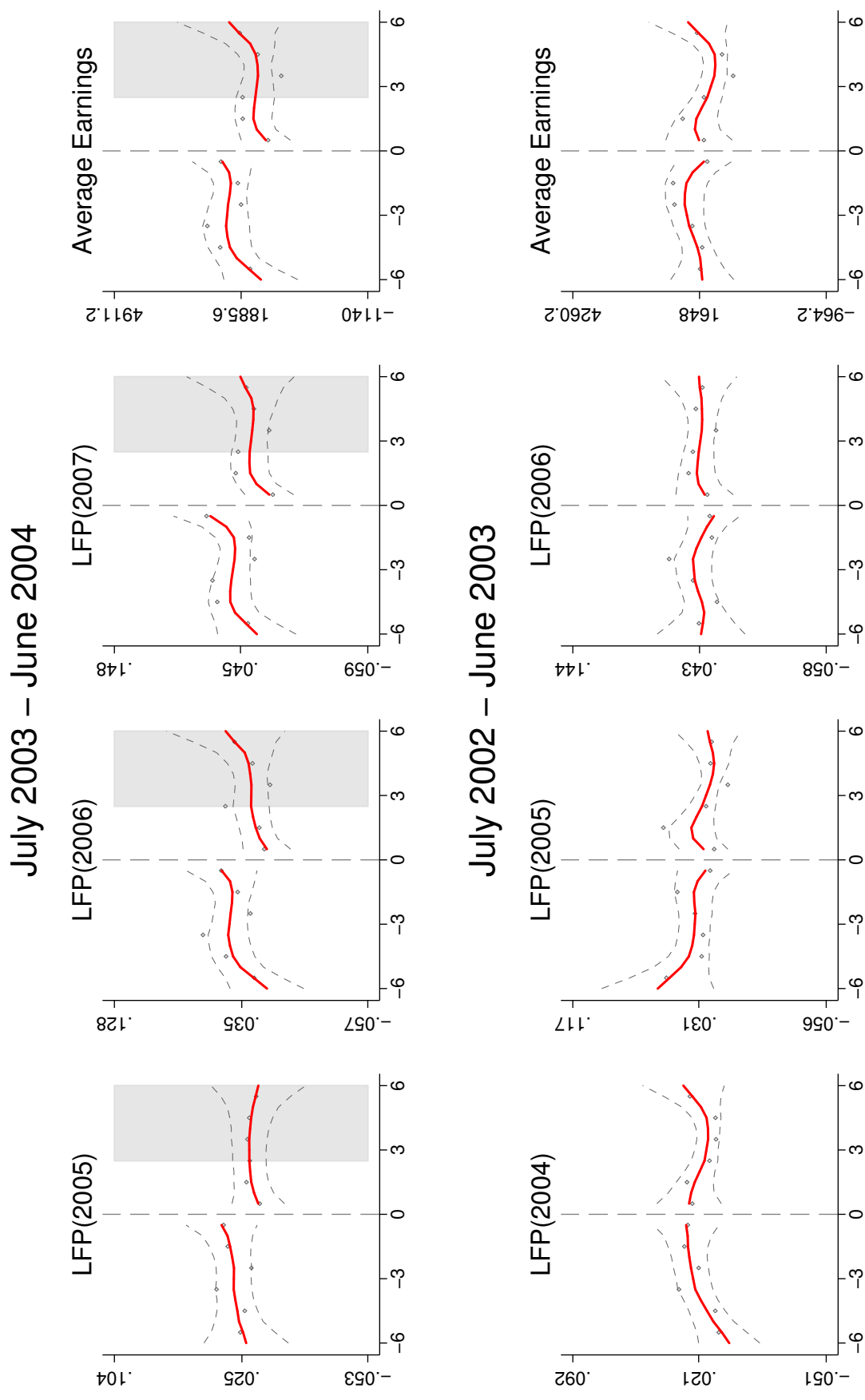


Figure 2:

Table 1:
TABLE 1—PROGRAM IMPACT ON LABOR FORCE PARTICIPATION AND EARNINGS

<i>Outcome variables:</i>	FD	FD w/c	RD	RD w/c	Comparison means [SD]	
					Jan. and Feb. 04	Rejected applicants
LFP(2005)	0.022 (0.015)	0.033** (0.016)	0.028 (0.024)	0.038 (0.025)	0.018 [0.134]	0.26 [0.440]
LFP(2006)	0.031* (0.017)	0.033* (0.018)	0.039 (0.027)	0.042* (0.026)	0.02 [0.142]	0.316 [0.466]
LFP(2007)	0.054*** (0.02)	0.053** (0.022)	0.087*** (0.031)	0.085*** (0.031)	0.034 [0.182]	0.316 [0.466]
Average earnings (2005–2007)	1,126** (508)	1,247** (535)	1,630** (799)	1,644** (781)	1,551 [5,033]	13,223 [21,314]
<i>Characteristics:</i>	FD		RD		Comparison means	
Age at DI award	–0.30 (0.91)		–0.20 (1.44)		38.4 [9.7]	38.6 [7.5]
Male	–0.052 (0.048)		–0.076 (0.075)		0.50 [0.50]	0.515 [0.50]
Years of schooling	0.32 (0.28)		0.29 (0.44)		10.5 [3.1]	9.9 [3.8]
Experience	–0.21 (0.92)		–0.43 (1.45)		13.9 [10.0]	11.3 [9.0]
AIE	–290 (1,565)		–1,123 (2,486)		38,013 [17,686]	34,558 [15,118]
Local unemployment rate	–0.001 (0.001)		–0.002 (0.001)		0.024 [0.008]	0.024 [0.009]
Local DI rate	0.004 (0.003)		0.005 (0.004)		0.098 [0.024]	0.098 [0.024]
Number of children	–0.031 (0.11)		–0.08 (0.17)		0.90 [1.13]	0.954 [1.23]
Musculoskeletal system	0.013 (0.040)		0.026 (0.062)		0.22 [0.415]	0.332 [0.472]
Mental disorders	0.041 (0.048)		0.041 (0.075)		0.386 [0.487]	0.321 [0.468]
Observations	435		897		440	196