

***UNIVERSITY OF OSLO***  
***DEPARTMENT OF ECONOMICS***

Exam: **ECON4624 – Empirical Public Economics**

Date of exam: Tuesday, November 24, 2015

**Grades are given: December 15, 2015**

Time for exam: 14.30 – 17.30

The problem set covers 6 pages (incl. cover sheet)

Resources allowed:

- No resources allowed (except if you have been granted use of a dictionary from the Faculty of Social Sciences)

The grades given: A-F, with A as the best and E as the weakest passing grade. F is fail.

# 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?
- (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  $\gamma$  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  $\gamma$ .

Consider Figure 2 and Table 1 below.

- (c) Explain the identifying strategy used by Kostøl and Mogstad, and the assumptions it requires.
- (d) In light of the evidence below, do you believe that these assumptions are fulfilled?
- (e) How would you summarize the findings of Kostøl and Mogstad?
- (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?
- (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.

## **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

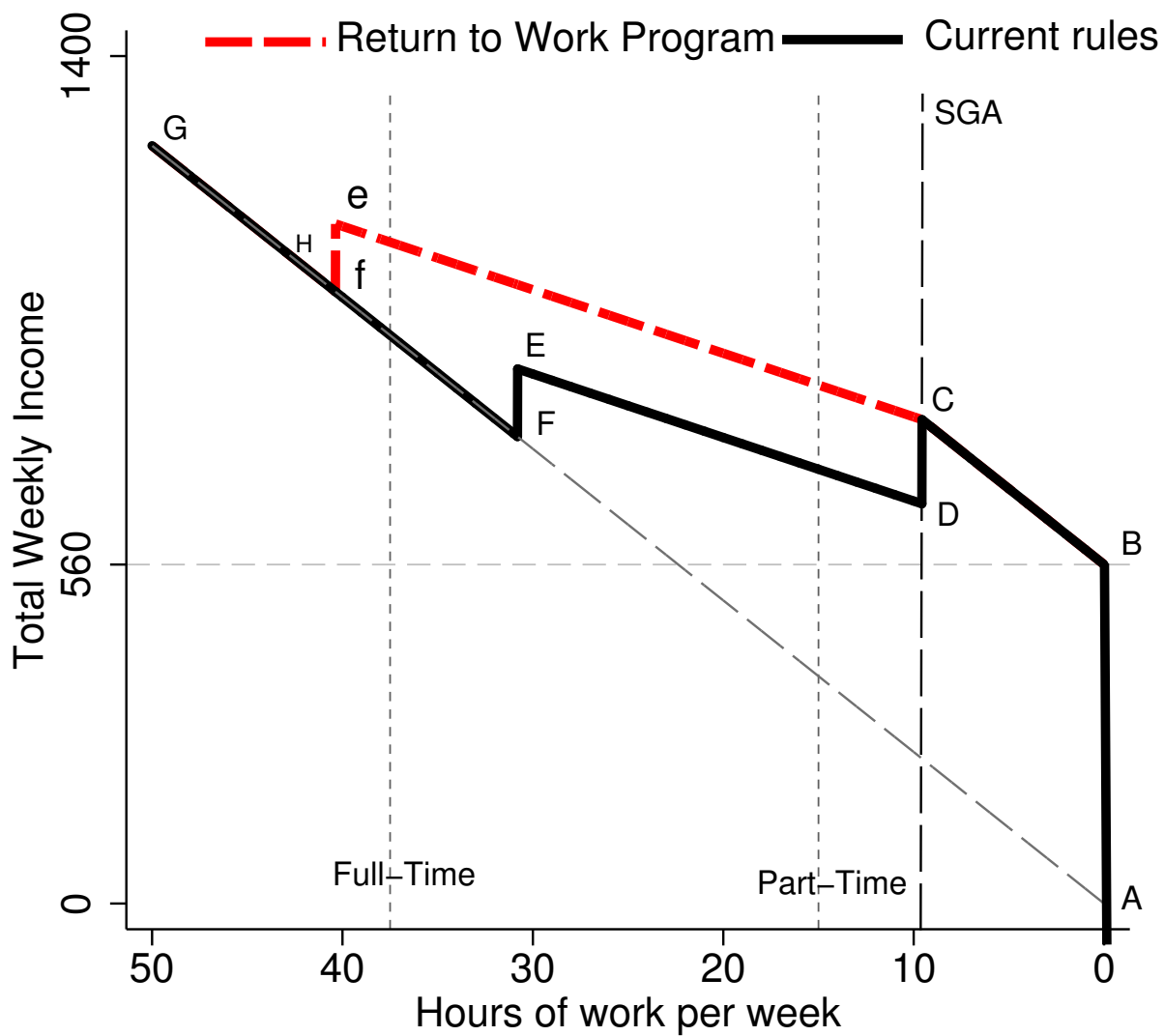


Figure 1:

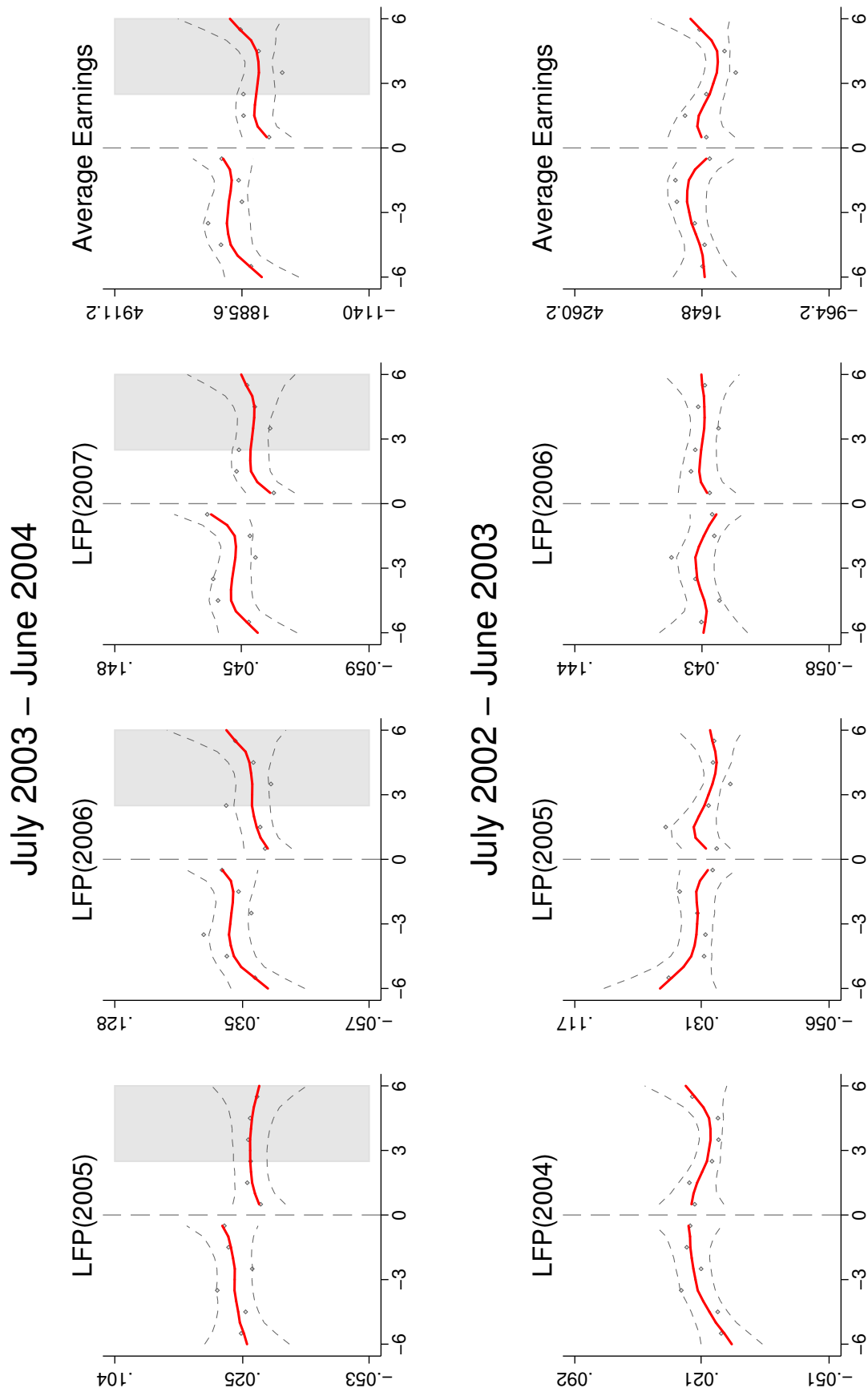


Figure 2:

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