This exam has two questions. Both should be answered and they have equal weights. The exam includes five pages.

Problem 1: Supporting the poor (50%)

1. Bitler, Gelbach and Hoynes (BGH): "What Mean Impacts Miss: Distributional Effects of Welfare Reform Experiments" examine a welfare reform that allowed poor single mothers on welfare to keep more of the benefits if they earned private income (up to a cap). They compare two programs: AFDC and Job First. Figure 1 below gives a stylized representation of the budget set for the two programs. In the Job First program clients can keep all benefits and earnings up to the federal poverty line (FPL), if their private earnings goes beyond FPL they lose all benefits (Budget line is A-F if earnings are below FPL). In the AFDC program the government cuts back on benefits as soon as the client start to earn money (budget line is A-B).

   Explain the reasoning behind the following predictions related to labour supply adjustments: Compared to AFDC, Job First will have

   (a) no effect on private earnings for many of those who would have no earnings under AFDC (in point A in Figure 1),

   many of those at point A has a MRS between leisure and income that is steeper than their wage rate

   (a) a positive effect on those with some earnings (e.g. point C in Figure 1)

   for individuals at point C there is and income and substitution effect. There is a positive effect on labour supply if the substitution effect dominates BGH assumes this

   (a) a negative effect on those who would have relatively high earnings (e.g. point D in Figure 1).

here it is only a positive income effect on labour supply and if leisure is a normal good more leisure will be consumed and less labour supplied when there is a positive income effect

2. What is the effective marginal tax rate under the Job First program for a person with earnings equal to FPL.

Far above 100 % (infinite)

1. Bitler, Gelbach and Hoynes have data from a policy that randomizes clients to AFDC and Job First. Why would it be difficult to estimate the effect of the program if clients could choose their preferred program?

Selection - if individuals could self select into programs the effect on labour supply - earnings etc will be a combination of program effect and selection effect. To isolate the program effect we need to get rid of the selection effect, and that is done by random assignment.

1. In Table 3 (page 3) BGH compares the mean of some individual characteristics for those who are on AFDC and Job First. What should we expect to find if randomization was successful, and what does Table 3 show?

We would expect no differences between AFDC and JF. Of course if many characteristics are compared there will by chance be differences in some of them, but if we do a joint test (F-test) on difference it should rejected. We are of course especially worried that there are differences in observable characteristics that are important for the outcome. In table 3 we can see that there are differences in prior earnings and welfare dependence.

1. If the two samples are not balanced in terms of individual characteristics, what can be done to take account of this in the analysis of the program effect?

We can control for observables in a regression. But without balance we are still left with the unpleasant feeling that there may be unobservables that we are not able to control for. BGH uses another technique to adjust for imbalance; they reweigh

1. BGH use the quantile treatment effect (QTE) to estimate the hetereogenous effects of the Job First program. Explain briefly how the QTE estimator works and the findings in Figure 3 below.

1. Discuss this statement: "A limitation of the BGH analysis is that they only examine how the Job First program affect those who already are on benefits. (Hint: entry-exit).

Problem 2: Tax incidence (50%)

1. Imagine that in September 2014 the municipality of Oslo introduced a 15 % tax on restaurant meals served within Ring 1 (a sharp and clearly defined city center in Oslo). You are asked to analyze the incidence of that tax, how would you proceed:

   (a) What data will you collect to analyze the incidence of this tax (hint: what are the prices that are likely be affected by this tax change, does the time-perspective matter)?

They should start with some discussion of what the tax incidence is: It is the analysis of how a tax affects the before (and after) price of different goods - that are, directly and indirectly affected by the tax change. In this case we would definitely collect data on restaurant meals; the short run effect would be on these prices. But in the longer run we may also consider the wages of those working in the restaurant business and the rent paid to those who own the properties where the restaurants are located. In fact - theory would suggest that in the longer run most of the burden of this tax would be borne by those owning "restaurant properties" within Ring1, since these are inelastically supplied.

(a) How would you analyze the data in order to identify the incidence of the tax?

As always in order to assess the effect of a tax (or anything else) we need to compare the outcome (prices, wages and rents) with the tax - with the treatment - with the outcome without the tax. A simple before and after price comparison within ring1 may not give the effect since there may be underlaying price trends in prices that makes identification difficult. One could perhaps compare before and after prices in resurants and in bars within the Ring1. That is, to use the DD estimator. In this case we sue the price trend in "bars" to adjust for the price trend. This is valid if they have a common trend. An alternative is to use a RD and compare price changes just inside and outside the ring before and after the tax increase.

(a) Discuss if there are any threats to identification.

If DD common trend. RD gets a problem if treatment - here whether or not a restaurant is affected by the tax can be influenced.

(a) External validity refers to the generalizability of the results found in one particular study. Discuss the external validity of the results you may find here.

It may be that the inner city of Oslo is special in the sense that they have all the best restaurants and they are so special (what do I know) that demand is completely inelastic, in that case you will find that prices increases by 15 %, but this would not be the case for a general 15% tax on restaurant meals.
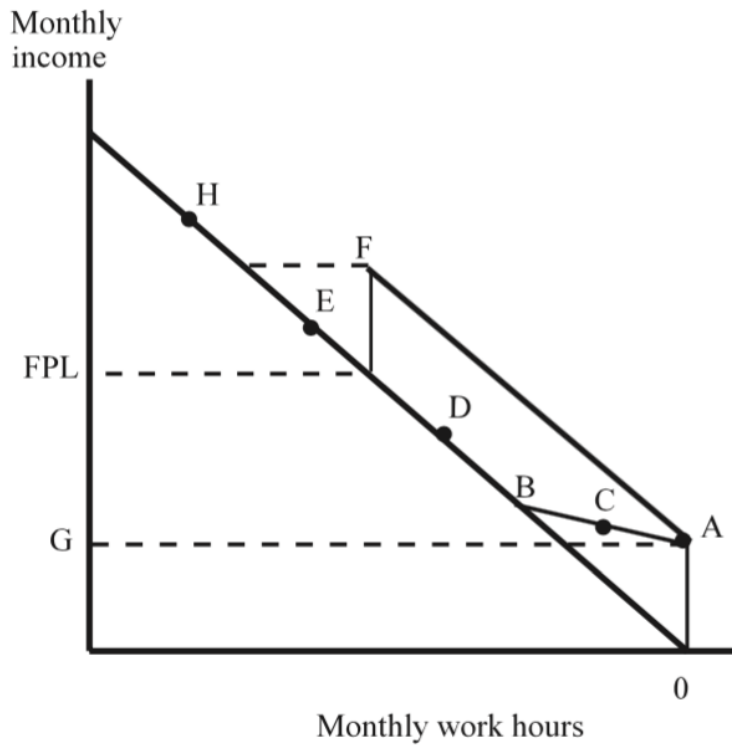
FIGURE 1. STYLIZED CONNECTICUT BUDGET CONSTRAINT
UNDER AFDC AND JOBS FIRST

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TABLE 3—CHARACTERISTICS OF NATIONAL CASELOAD AND EXPERIMENTAL SAMPLE

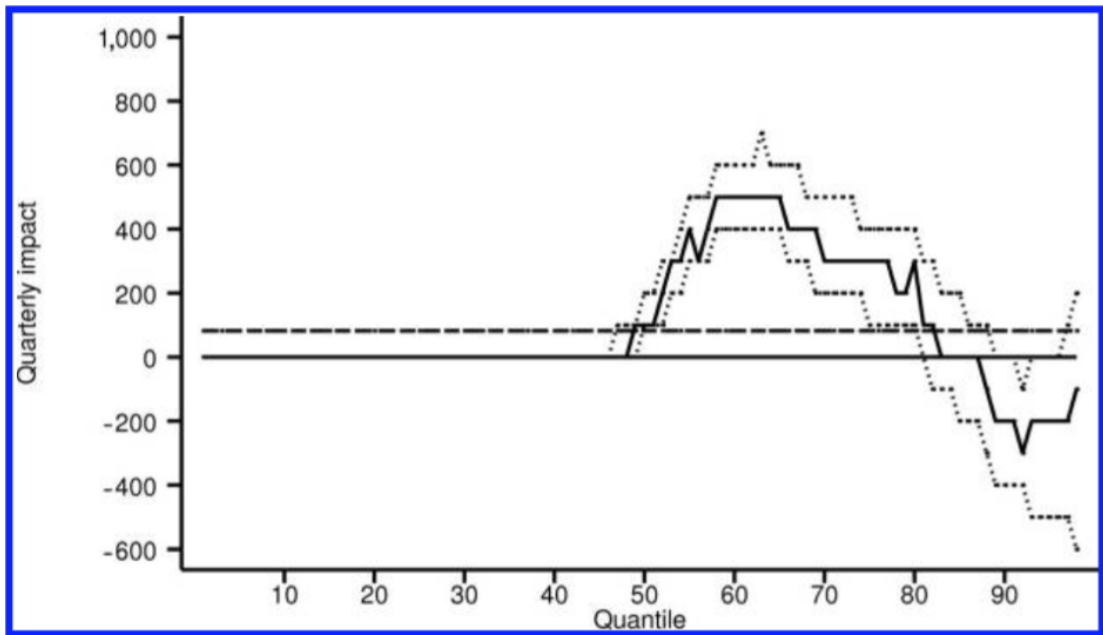|	National caseload (CPS)	Experimental sample			
		Levels		Differences	
		Jobs First	AFDC	Unadjusted	Adjusted
Demographic characteristics					
White	0.405	0.362	0.348	0.014	0.001
Black	0.344	0.368	0.371	−0.003	−0.000
Hispanic	0.206	0.207	0.216	−0.009	−0.001
Never married	0.474	0.654	0.661	−0.007	−0.000
Div/wid/sep/living apart	0.316	0.332	0.327	0.005	0.000
HS dropout	0.399	0.350	0.334	0.017	−0.000
HS diploma/GED	0.358	0.583	0.604	−0.021	0.001
More than HS diploma	0.243	0.066	0.062	0.004	0.000
More than two children	0.280	0.235	0.214	0.021*	−0.000
Mother younger than 25	0.251	0.289	0.297	−0.007	−0.000
Mother age 25–34	0.436	0.410	0.418	−0.007	0.000
Mother older than 34	0.313	0.301	0.286	0.015	0.000
Recipient (stock) sample		0.624	0.593	0.031**	−0.001
Average quarterly pretreatment values					
Earnings		679	786	−107***	−1
		(1,304)	(1,545)	(41)	(32)
Cash welfare		891	835	56**	−1
		(806)	(785)	(23)	(2)
Food stamps		352	339	13	0
		(320)	(304)	(9)	(1)
Fraction of pretreatment quarters with					
Any earnings		0.322	0.351	−0.029***	0.000
		(0.363)	(0.372)	(0.011)	(0.001)
Any cash welfare		0.573	0.544	0.029**	−0.001
		(0.452)	(0.450)	(0.013)	(0.001)
Any food stamps		0.607	0.598	0.009	0.000
		(0.438)	(0.433)	(0.013)	(0.001)

FIGURE 3. QUANTILE TREATMENT EFFECTS ON THE DISTRIBUTION OF EARNINGS, QUARTERS 1–7