

# Econometrics Assignment 6b

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A copy of our Do-File can be found below.

1.

```
. * First
. reg residual_weight i.treatment#c.sorting i.week i.route, cluster(route)
note: 513.route omitted because of collinearity
```

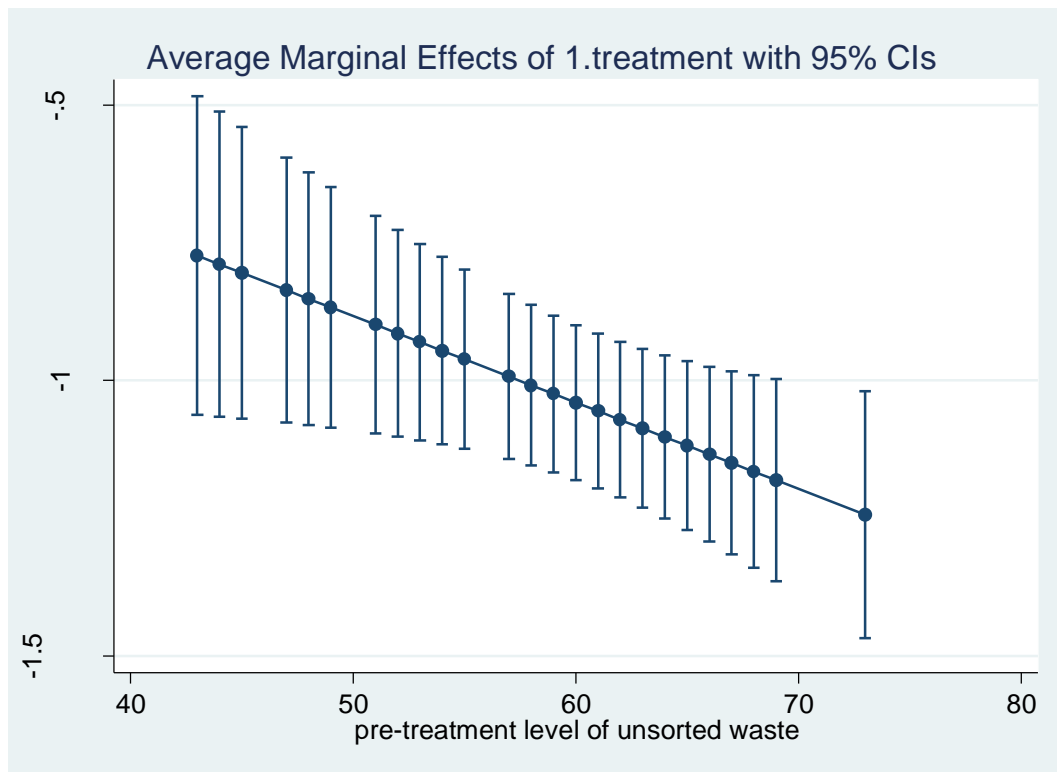
```
Linear regression               Number of obs   =       3,340
                               F(52, 64)         =           .
                               Prob > F           =           .
                               R-squared           =       0.6969
                               Root MSE        =       .93823
```

(Std. Err. adjusted for 65 clusters in route)

residual_weight	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
1.treatment	-.0989032	.4392877	-0.23	0.823	-.9764813	.7786749
sorting	.0636891	.0050957	12.50	0.000	.0535093	.0738688
treatment#c.sorting						
1	-.0156784	.0071413	-2.20	0.032	-.0299448	-.001412

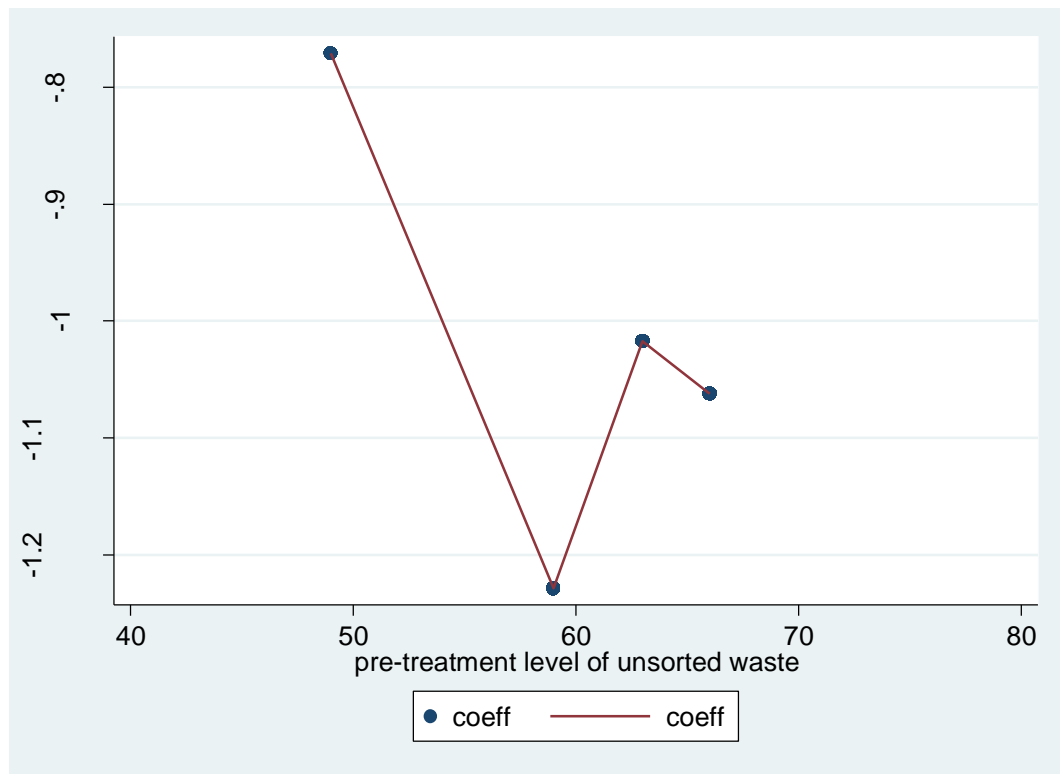
From these regression results we find that the implied relationship between the marginal treatment effect and the pre-treatment characteristic of routes is negative with a coefficient value of 0.0637. This effect appears to be positive and significantly different from zero at the 1% significance level. This effect makes sense as people that sort their waste relatively much/little before treatment are likely to sort their waste relatively much/little after treatment. In other words, we find it logical that the relative level waste sorting does not change as much as the absolute level of waste sorting does.

2.



These results suggest evidence for a difference in treatment effect among different pre-treatment unsorted waste levels. Thus, there is a clear linear downward trend of the pre-treatment level of unsorted waste on the conditional average treatment effect.

3.



Results in this graph appear to be very different from the marginal effect plot created above. As the values represented by the scatter plot now show the values of the average marginal effect per bin for four bins that have been created to estimate quartiles.

The new results imply that the true relationship between the treatment and the interaction variable is negative. However, the relationship appears to be likely to be non-linear.

# Copy of our Do-File

\* Computer Asssignment 6b

```
use "C:\Users\u1266283\Downloads\ca6b.dta", clear
xtset route week
```

\* First

```
reg residual_weight i.treatment##c.sorting i.week i.route, cluster(route)
margins, eydx(treatment)
```

\* Second

```
margins, over(sorting) dydx(treatment)
marginsplot
```

\* Third

```
gen low=(sorting<57)
gen medium1=(sorting>=57&sorting<=61)
gen medium2=(sorting>61&sorting<=64)
gen high=(sorting>64)
gen treatment_low=treatment*low
gen treatment_medium1=treatment*medium1
gen treatment_medium2=treatment*medium2
gen treatment_high=treatment*high
xtreg residual_weight treatment_low treatment_medium1 treatment_medium2
treatment_high i.week, fe i(route) cluster(route)

gen coeff=.
replace coeff=_b[treatment_low] if sorting==49
replace coeff=_b[treatment_medium1] if sorting==59
replace coeff=_b[treatment_medium2] if sorting==63
replace coeff=_b[treatment_high] if sorting==66
sort sorting
graph twoway (scatter coeff sorting) (line coeff sorting)
```