

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
```

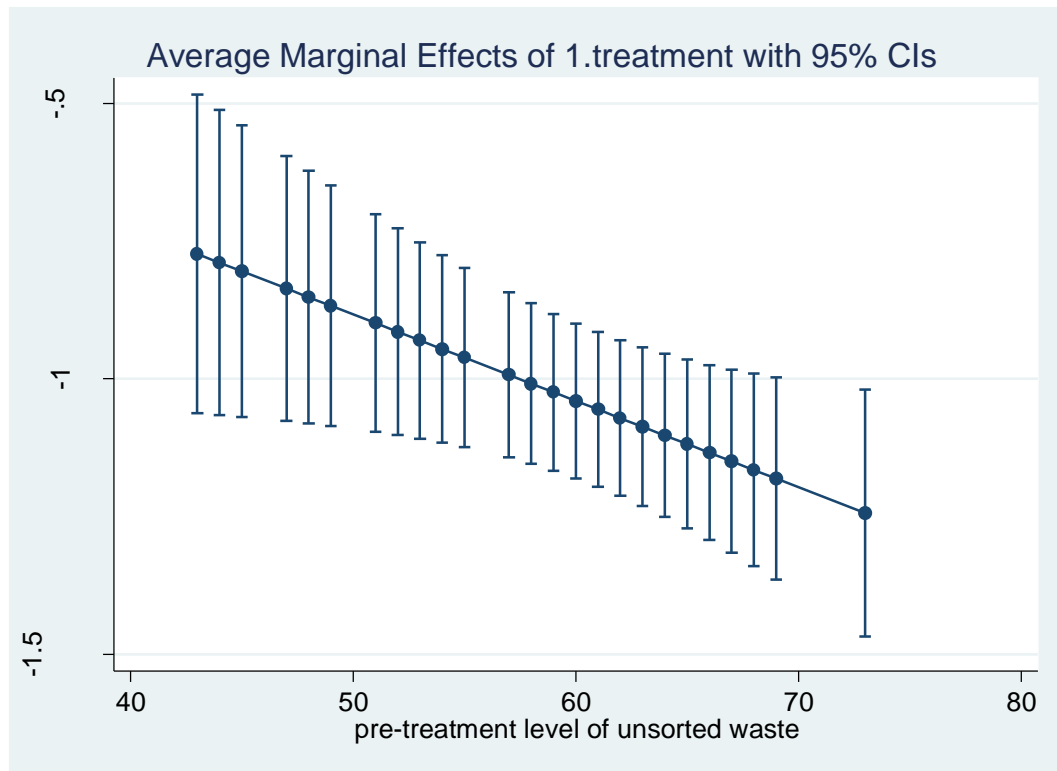
```
Linear regression                               Number of obs   =       3,340
                                                F(52, 64)         =           .
                                                Prob > F           =           .
                                                R-squared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

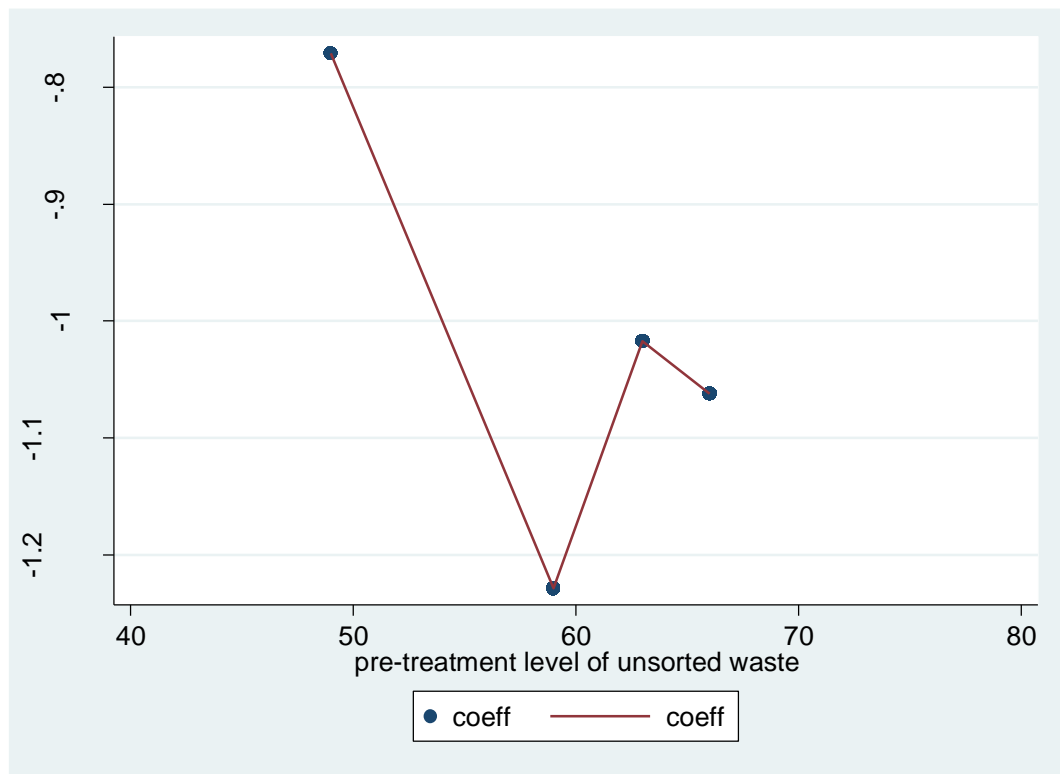
From these regression results we find that the marginal treatment effect found by looking at the coefficient of the interaction term *treatment* · *sorting* is -0.0157 and statistically significant at the 5%-level. This implies the marginal treatment effect is affected negatively by the pre-treatment characteristic of sorting. This effect does make sense, since it implies people who had a high level of unsorted waste are more strongly affected by the treatment i.e. their residual waste decreases to a greater extent, since there was more residual waste in the first place.

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)
```