Econometrics part 2, PS 7

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1 7.1: Low birth weight and infant death

1.1 a)

See Stata do.file.

1.2 b)

From the three histograms reported in figures 1, 2 and 3 it seems that the distrubution is smooth around the cutoff.

1.3 c)

Non-random sorting across the threshold is a problem in RDD since if the prople could allocate themself above or below the cutoff then the threshold would not be exogenous anymore and the estimates would be biased.

In our case it could be the case that, knowing that a baby is treated only if his weight is lower than 1500 grams, some babies are registered with a lower weight just to give them the treament.

1.4 d)

Figures 4, 5 and 6 report the three plots relative to the 10 grams bin with bandwidth equals to 100. Overall it seems that the running variable is smooth across the cutoff. Similar results are obtained for the other combination of bins and bandwidths (see do.file).

We should use robust standard error in order to take into account the potential heteroskedasticity in our regression.

1.5 e)

In seems that actually there is a significant different across the cutoff for the two control variables considered.

Table 1: Paramater estimates from OLS, race, cluter se

	(1) OLS, band = 90	(2) OLS, band = 60	(3) OLS, band = 30
bwtcent	-0.000125	-0.000383	-0.000999^{**}
	(-0.96)	(-1.54)	(-2.54)
1.dummy	0.00988	0.0182	0.0389^{***}
	(0.84)	(1.33)	(3.51)
1.dummyc.bwtcent	0.000195	0.000424	-0.000518
	(0.94)	(1.24)	(-0.74)
N	233887	163422	72941

t statistics in parentheses

$^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.010$

Table 2: Paramater estimates from OLS, education, cluter se

	(1) OLS, band = 90	(2) OLS, band = 60	(3) OLS, band = 30
bwtcent	0.000123	0.000191	0.00115^{***}
	(0.94)	(0.85)	(3.98)
1.dummy	-0.00512	-0.00548	-0.0257^{***}
	(-0.62)	(-0.52)	(-2.93)
1.dummyc.bwtcent	-0.000193	-0.000334	-0.00109^{***}
	(-1.37)	(-1.35)	(-2.89)
N	213055	148776	66370

t statistics in parentheses

$^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.010$

1.6 g)

The results seem to be sensitive to the choice of the bandwidth and the error term. In particular, the coefficient of interest (1.dummy) is not significant using cluster robust standard errors.

Table 3: Paramater estimates from OLS, cluter se

	(1) OLS, band = 90	(2) OLS, band = 60	(3) OLS, band = 30
bwtcent	-0.00000328	0.000110	0.000869
	(-0.03)	(0.46)	(1.56)
1.dummy	-0.00399	−0.00632	−0.0181
	(-0.54)	(−0.62)	(−1.30)
1.dummyc.bwtcent	-0.0000878	−0.000239	−0.00138**
	(-0.66)	(−0.98)	(−2.40)
N	233887	163422	72941

t statistics in parentheses

$^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.010$

Table 4: Paramater estimates from OLS, robust se

	(1) OLS, band = 90	(2) OLS, band = 60	(3) OLS, band = 30
bwtcent	-0.00000328	0.000110**	0.000869***
	(-0.11)	(1.99)	(5.69)
1.dummy	-0.00399*	−0.00632**	−0.0181***
	(-1.95)	(−2.47)	(−4.58)
1.dummyc.bwtcent	-0.0000878**	−0.000239***	−0.00138***
	(-2.39)	(−3.67)	(−6.94)
N	233887	163422	72941

t statistics in parentheses

$^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.010$

1.7 h)

Dropping the observation at zero the results become significant. However, our estimates should not be sensitive to the observation at the cutoff.

Table 5: Paramater estimates from OLS, with drop, cluter se

	(1) OLS, band = 90	(2) OLS, band = 60	(3) OLS, band = 30
bwtcent	-0.000128**	-0.000184^{**}	-0.000464^{**}
	(-2.16)	(-2.56)	(-2.43)
1.dummy	0.00376	0.00648^{*}	0.0151^{***}
	(1.14)	(1.94)	(2.85)
1.dummyc.bwtcent	0.0000365	0.0000544	-0.0000515
	(0.50)	(0.66)	(-0.21)
N	230343	159878	69397

t statistics in parentheses

$^{*}p < 0.10,^{**} p < 0.05,^{***} p < 0.010$

1.8 i)

I am more inclined to believe the results of section g) in which we proved that we cannot significantly exclude the possibility that actually there is not effect.

The following graph further support the lack of an effect.

2 7.2: Cultural background and fertility

2.1 a)

The treatment considered by the authors is the financial incentive given to have children. The other treatment in this framework is the cultural background of the mothers.

The outcome evaluated by the authors is the role played by the country of origin in fertility choices.

2.2 b)

The authors probably refer to the fact that there is selection into immigration: some unobserved characteristics by the researchers are likely to influence the choice to immigrate. Moreover, the same unobserved characteristics may be positive correlated with fertility choice. Therefore, the positive correlation found between cultural traits and fertility choice may be driven by this endogeneity problem.

2.3 c)

Their approach allows to tacke the problem of the unmeasured immigrant characterstics since both the immigrants and Swedish native experience the same socio-economic condition as well as they benefit from the same nation-wide reform. Therefore, any difference in the fertility rate evolution between the two groups can be explained only by the difference in cultural traits.

The underlying assumption of the Diff-in-Diff approach is that the treated group (immigrated mothers) and control group (Swedish mothers) would experience the same trend evolution in fertility without the treatment.

2.4 d)

Since the pre-policy fertility rates between the two groups are similar the common trend assumption seems to be satisfied. This obviouly increase the internal validity strenght of the study.

However, the external validity may not be as strong as the internal one. Indeed, the results found by the authors are relative to a specific setting: Sweden. The unmeasured immigrant characterstics that lead a person to immigrate to Sweden may be different from the unobserved characterstics that lead a person to immigrate to another country.

2.5 e)

One concerns with this approach is that, althought the two fertility rates behaved similarly in the pre-policy period, the rate for immigrants would have changed anyway in the time-span 1980-1988 even without the treatment making our estimates biased.

One idea could be to compare as well the change rate between the immigrant mothers in Sweden and the mothers in the country of origin. If the two observed trends are similar both in the pre and

post treatment period than maybe what we measured is not the effect induced by the reform but by a change in the unobserved cultural traits.

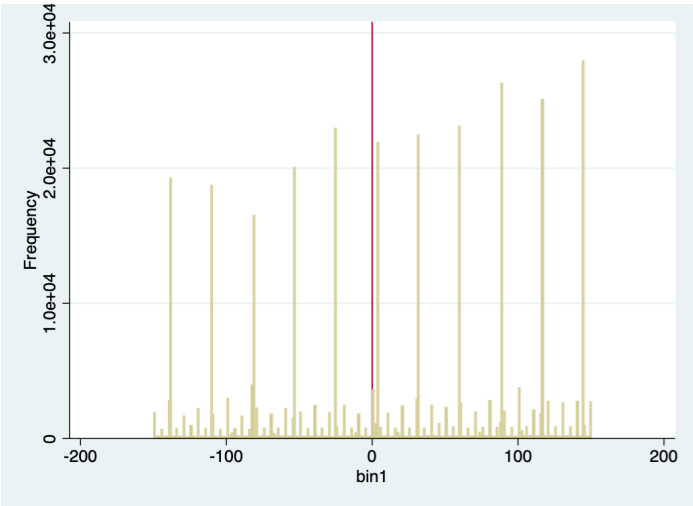

Figure 1: Histogram, bin 1 grams

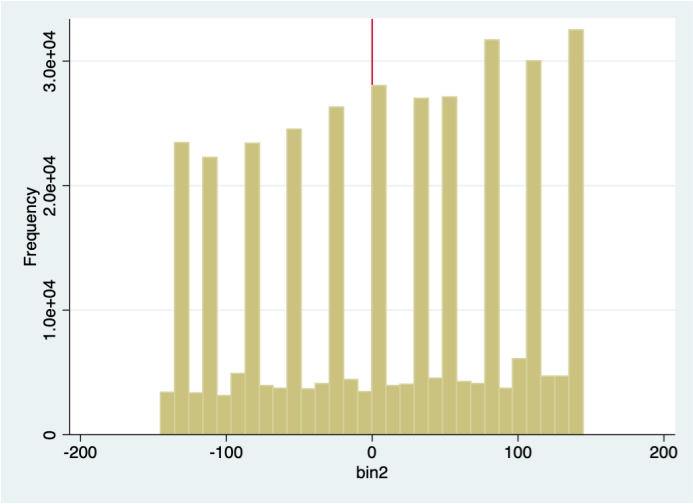

Figure 2: Histogram, bin 10 grams

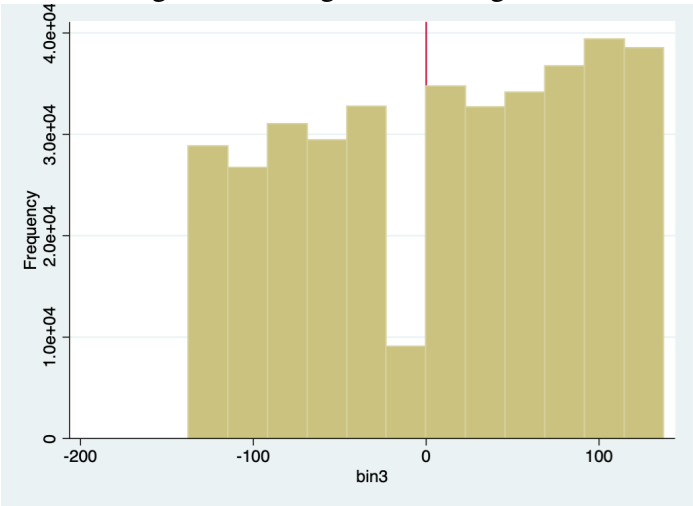

Figure 3: Histogram, bin 25 grams

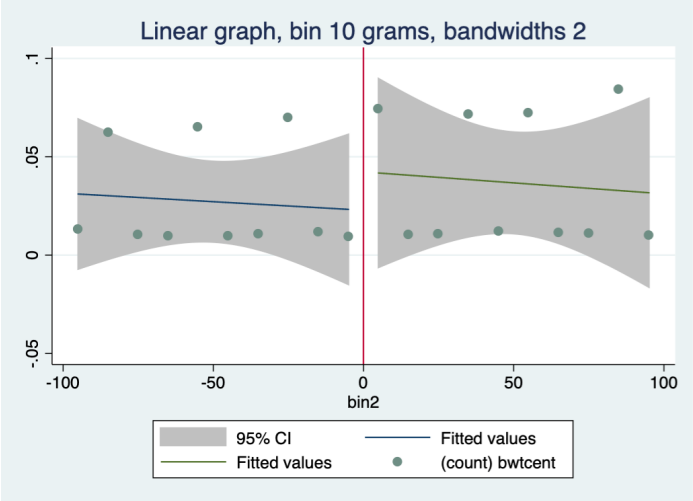

Figure 4: Linear, bandwidth 100, bin 10 grams

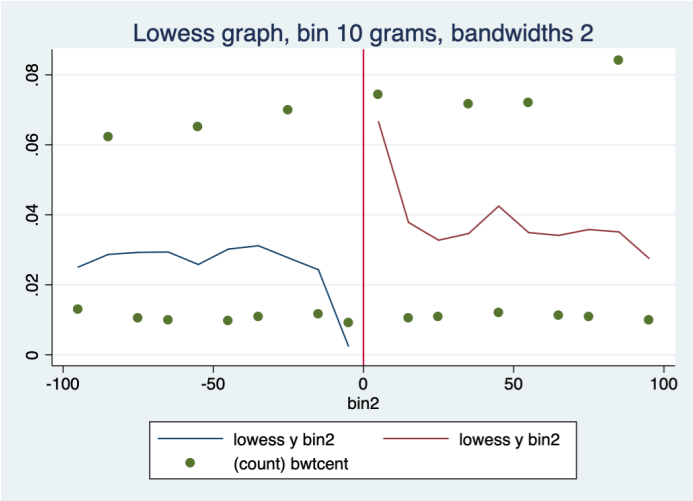

Figure 5: Lowess, bandwidth 100, bin 10 grams

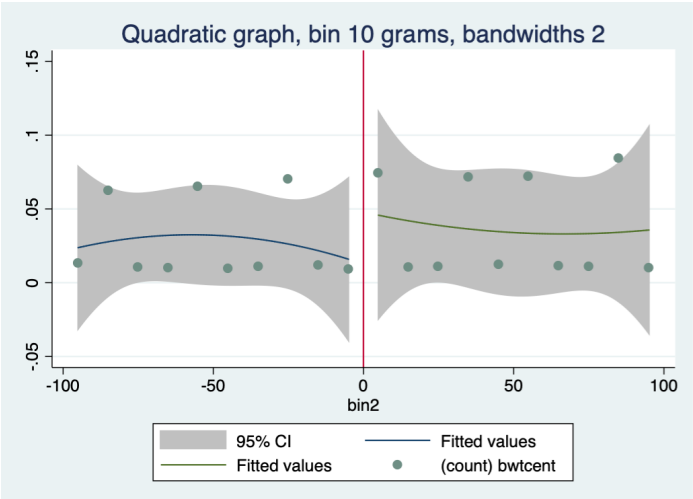

Figure 6: Polinomial, bandwidth 100, bin 10 grams

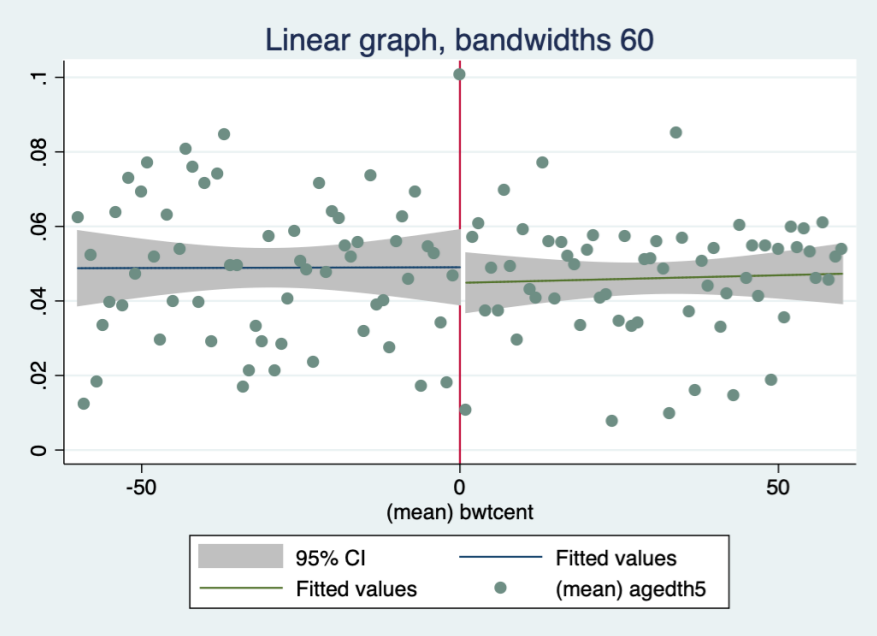

Figure 7: Linear fit and scatter, bandwidth 60