Testing the Test-Only Estimation

Suzanne Dufault

March 2, 2018

```
## Warning:  package 'dplyr' was built under R version 3.3.2
##
## Attaching package:  'dplyr'
## The following objects are masked from 'package:stats':
##
##     filter, lag
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
## Warning:  package 'lme4' was built under R version 3.3.2
## Loading required package:  Matrix
## Warning:  package 'Matrix' was built under R version 3.3.2
```

	Cluster	Cases	OFI	Period	tx	tx.1	tx.2	tx.3	tx.4	tx.5
1	1	52	138	1	1	0	0	1	1	0
2	2	74	212	1	1	0	1	1	1	1
3	3	54	125	1	0	1	1	1	0	0
4	4	72	145	1	0	0	0	0	0	0
5	5	46	165	1	0	1	1	1	1	1
6	6	42	194	1	1	0	1	0	0	1
7	7	70	250	1	1	1	0	0	1	1
8	8	50	131	1	0	0	1	1	0	0
9	9	73	229	1	0	1	0	0	1	1
10	10	69	156	1	1	1	0	0	0	0

Table 1: The first few columns of treatment assignments and corresponding Case and OFI numbers.

1 Power

	Test-Positive Only	Test-Positive Fraction	Odds Ratio Method	GEE	Mixed Effects
RR = 1	0.095	0.048	0.087	0.000	0.119
RR = 0.6	0.960	0.794	0.933	0.000	0.948
RR = 0.5	1.000	1.000	1.000	0.000	1.000
RR = 0.4	1.000	1.000	1.000	0.000	1.000
RR = 0.3	1.000	1.000	1.000	0.000	1.000

Table 2: The proportion of tests (out of the 252 possible permutations) which result in p-values less than 0.05. When controls are used, the ratio of cases to controls is 1. The number of cases sampled each time is 1000.

2 Standard Deviation

```
## Error in sqrt(unlist(rr1$var.lambdas)):  non-numeric argument to mathematical function
## Error in rbind(perm.sd, testpos.sd, otest.sd, ttest.sd, gee.sd, me.sd):  object 'testpos.sd'
not found
## Error in dimnames(sds) <- list(c("Permutation", "Test-Positive Only", :  object 'sds' not
found
## Error in xtable(sds, align = "l|c", digits = 5, caption = "Comparison of our proposed method
(Paper), GEE, and ME standard deviation estimation with the true standard deviation of the
permutation distribution (Permutation).  This is at the null for the setting where nControls
= nCases = 1000."):  object 'sds' not found
```