Second Pre-Analysis Plan for June 2015 Miami Transgender Experiment - T2 Survey

David Broockman and Joshua Kalla

July 10, 2015

Contents

Background **1**

Scope of This PAP **2**

Outcomes **2**

Additions to the t2 Survey 2

Main Outcome: General Trans Acceptance 3

Secondary Outcome: Gender Non-Conformity 3

Secondary Outcome: Laws 3

Secondary Outcome: Successful Innoculation Against the Opposition Message 4

Other 4

Estimation Procedures and Assumptions **4**

Factor Analysis on Outcome to Increase Power 5

Note: Fake treatment indicator in this PAP 7

Code for ATE Estimation **7**

Direct Effect 7

Indirect Effect 8

Other **8**

Not in This PAP **8**

Follow-Up Surveys 8

Note: the data analyzed below is the real data but does not contain the real treatment vector, only a simulated treatment vector for the purpose of preparing the analysis. One cannot draw any conclusions about the effect of the experiment from this document.

Background

This is an update to the pre-analysis plan we filed on July 7, 2015 with EGAP. This pre-analysis plan covers our second post-treatment survey, conducted three weeks after treatment.

The table below gives each of the 6 canvass dates and the dates when voters were solicited to take each survey. Note that there were two 'starting universes' as described in the original document. Voters who were not contacted on June 6 from the June 6 universe were again attempted on June 10, and then again on June 17. Then, the June 20th canvass started with an entirely new universe.

Canvass Contact Date	t0 Survey Closed	"Universe"	t1 Survey Opened	t2 Survey Opened
June 6	June 4	June 6	June 9	June 28
June 10	June 4	June 6	June 13	July 1
June 17	June 4	June 6	June 20	July 8
June 20	June 17	June 20	June 24	July 11
June 24	June 17	June 20	June 27	July 15
June 27	June 17	June 20	June 30	July 18

We will pool the data from all six canvasses.

Scope of This PAP

As of this writing, 174 voters have responded to the t2 survey. We have already examined the t1 data, but to write this PAP for the t2 survey, we have been analyzing a version of the merged t2 outcome data without access to the real treatment indicator. Our analysis follows that laid out in our original pre-analysis plan for the t1 survey.

Outcomes

Having already analyzed the t1 data with the treatment indicator we know there is a clear effect on indicators of trans acceptance beyond the legal variables. The main goals of the analysis we will conduct on subsequent survey waves will be: 1. Assessing the persistence of this shift, and 2. Using the opportunity afforded by the respondents we have already treated to introduce new questions that allow us to probe just how far-reaching the effects are that we already know existed; for example, asking whether the treatment not only built acceptance towards transgender people that lasted (point 1 above), but also built resistance against transphobic messages (not in the t1 items but discussed adding in the t1 PAP).

Additions to the t2 Survey

We have made a few additions to the wave 2 survey. The wave 2 survey contains the following two items that will be added to the list of main dependent variables in that survey to be factor analyzed as part of the rest.

- Transgender women (people who identify as women but were designated male at birth) should not be allowed to serve as public school teachers.
- It would be wrong to allow a transgender woman (a person who identifies as a woman but was designated male at birth) to use the woman's restroom.

We also plan to pool these two items and analyze them as a measure of 'successful innoculation against the opposition message'.

The following item will also be added to the list of secondary dependent variables capturing gender non-conformity.

- Men should dress like men and women should dress like women.

Main Outcome: General Trans Acceptance

Having already analyzed the t1 data we know there is a very clear immediate effect on almost all the items except for support for the laws. After seeing the data from t1 we decided to pursue heterogeneity analyses at t1 with a revised factor that did not include the laws.

```
acceptance.scale.dv.names <- c('therm_trans_t2', 'gender_norm_sexchange_t2',
'gender_norm_moral_t2', 'gender_norm_abnormal_t2',
'gender_norm_trans_moral_wrong_t2', 'trans_teacher_t2', 'trans_bathroom_t2')
```

These items are as follows:

- Feeling thermometer towards trans people (0-100)
- I would support a friend choosing to have a sex change.
- It is morally wrong for a man to present himself as a woman in public.
- A man who identifies as a woman is psychologically abnormal.
- Saying you are a gender that is different than the one you were born with is morally wrong.
- Transgender women (people who identify as women but were born men) should not be allowed to serve as public school teachers. (New item.)
- It would be wrong to allow a transgender woman (a person who identifies as a woman but was born as a man) to use the woman's restroom. (New item.)

Secondary Outcome: Gender Non-Conformity

We will also analyze the below secondary DVs as a different scale capturing effects on gender norms.

```
gnc.dv.names <- c('gender_norm_rights_t2', 'gender_norm_looks_t2', 'gender_norm_dress_t2')
```

These items are as follows:

- To keep children from being confused, it's better when men look and act like men, and women look and act like women.
- Men and women should have equal rights, but men and women are not the same; it's normal for men to act like men, and women to act like women.
- Men should dress like men and women should dress like women.

Secondary Outcome: Laws

We will also analyze the below DVs, from the main DVs, as capturing the effect on support for an anti-discriminational law only.

```
legal.dv.names <- c('miami_trans_law_t2', 'miami_trans_law2_t2')
```

As a reminder, these items were:

- Miami-Dade county recently passed a law that prohibits discrimination in housing, employment and public accommodations based on gender identity and expression, a category that includes transgender men and women. Do you favor or oppose this new law?
- Some people say it's important to protect transgender people from discrimination in housing and employment. Other people have concerns about society becoming too accepting of transgender people, and do not want transgender people included in our non-discrimination law. What do you think? Do you agree or disagree that Miami law should protect transgender people from discrimination?

Secondary Outcome: Successful Innoculation Against the Opposition Message

```
innoculation.dv.names <- c('trans_teacher_t2','trans_bathroom_t2')
```

Other

This question was included in the 'gender norm battery' but we do not consider it an outcome.

```
not.dv.names <- c('gender_norm_daugher_t2')
```

This item was:

- Parents usually maintain stricter control over their daughters than their sons, and they should.

Estimation Procedures and Assumptions

See "Estimation Procedures and Assumptions," "Covariates to use in Regression Adjustment," "OLS with Clustered Robust Standard Errors," and "One-tailed p-values" in the original PAP, which will be in effect for this analysis as well, in addition to the below.

These are all the variables in the dataset that we do not plan to use as dependent variables or to perform regression adjustment.

```
used.variable.names <- c(acceptance.scale.dv.names, gnc.dv.names, legal.dv.names,
                         innoculation.dv.names, t0.covariate.names)
names(data)[which(!names(data) %in% used.variable.names)]
```

```
##   [1] "gender_norms_moral2_t0"           "therm_rubio_t0"
##   [3] "therm_marijuana_t0"               "therm_immigrant_t0"
##   [5] "therm_muslims_t0"                 "respondent_t0"
##   [7] "scale_for_blocking_t0"            "survey_language_t0"
##   [9] "survey_language_t1"               "miami_trans_law_t1"
##  [11] "miami_trans_law2_t1"              "therm_obama_t1"
##  [13] "therm_rubio_t1"                   "therm_gay_t1"
##  [15] "therm_trans_t1"                   "therm_marijuana_t1"
##  [17] "therm_afams_t1"                   "therm_immigrant_t1"
##  [19] "gender_norm_daugher_t1"           "gender_norm_looks_t1"
##  [21] "gender_norm_rights_t1"            "gender_norm_sexchange_t1"
##  [23] "gender_norm_moral_t1"             "gender_norm_abnormal_t1"
##  [25] "gender_norm_trans_moral_wrong_t1" "comments_t1"
##  [27] "payment_cash_t1"                  "payment_amazon_t1"
##  [29] "payment_acs_charity_t1"           "payment_bro_charity_t1"
##  [31] "payment_redcross_charity_t1"      "payment_unitedway_charity_t1"
##  [33] "respondent_t1"                    "language_t2"
##  [35] "therm_obama_t2"                   "therm_bush_t2"
##  [37] "therm_gay_t2"                     "therm_police_t2"
##  [39] "therm_muslim_t2"                  "therm_jews_t2"
##  [41] "therm_firefighters_t2"            "comments_t2"
##  [43] "payment_cash_t2"                  "payment_amazon_t2"
```

```
##  [45] "payment_acs_charity_t2"           "payment_bro_charity_t2"
##  [47] "payment_redcross_charity_t2"      "payment_unitedway_charity_t2"
##  [49] "respondent_t2"                    "vf_vanid"
##  [51] "useragent"                        "somepeoplelikefollowingnationala"
##  [53] "v51"                              "v52"
##  [55] "v53"                              "contacted"
##  [57] "contacted_date"                   "enteredemail"
##  [59] "yob"                              "respondent_entered_maddress"
##  [61] "respondent_entered_city"          "respondent_entered_state"
##  [63] "respondent_entered_zip5"          "phone"
##  [65] "howwouldyouliketobepaidforyourpa" "vf_dwid"
##  [67] "vf_maddress"                      "vf_mcity"
##  [69] "vf_mstate"                        "vf_mzip5"
##  [71] "vf_mzip4"                         "vf_sex"
##  [73] "vf_vaddress"                      "vf_city"
##  [75] "vf_state"                         "vf_zip5"
##  [77] "vf_zip4"                          "vf_lastname"
##  [79] "vf_firstname"                     "vf_middlename"
##  [81] "vf_suffix"                        "vf_cd"
##  [83] "vf_sd"                            "vf_hd"
##  [85] "vf_phone"                         "vf_cellphone"
##  [87] "vf_dob"                           "vf_homephone"
##  [89] "vf_datereg"                       "vf_party"
##  [91] "vf_precinctname"                  "vf_racename"
##  [93] "vf_deadwood"                      "vf_catalistgenact"
##  [95] "vf_ideolgy12"                     "_partisanshipscr"
##  [97] "vf_relattend12"                   "vf_jobcrea"
##  [99] "vf_obama"                         "vf_lathost"
## [101] "vf_socprog"                       "vf_aca_subsidy"
## [103] "vf_fiscalpolicy"                  "vf_catideology"
## [105] "vf_catpartisan"                   "vf_uninsured"
## [107] "vf_catvotepropv2"                 "vf_vvnmunicount"
## [109] "vf_aflcristsup"                   "vf_catid"
## [111] "vf_catpar"                        "vf_cattcksplt"
## [113] "vf_clalgbtact1"                   "vf_clalgbtmov1"
## [115] "vf_clalgbtopp1"                   "_4catcnhh"
## [117] "_4catincome"                      "vf_white"
## [119] "vf_vg_14"                         "vf_vg_12"
## [121] "vf_vg_10"                         "vf_republican"
## [123] "hh_size"                          "pre_incentive"
## [125] "post_incentive"                   "mailing_version"
## [127] "login"                            "speaks_spanish_only"
## [129] "tranche"                          "june20"
## [131] "contacted_hh"                     "contacted_indirect"
## [133] "hh_id"
```

Factor Analysis on Outcome to Increase Power

As described in the t1 pap we will create the dependent variables using factor analysis as follows. The factors will be rescaled to mean 0 and standard deviation 1 to allow for a natural interpretation of the size of the effects in standard deviations.

```r
#Same as t1 PAP
compute.factor.dv <- function(dv.names, print.loadings = TRUE){
  responders <- subset(data, respondent_t2 == 1)

  factor.obj <- princomp(responders[, dv.names], cor=TRUE)
  if(print.loadings) print(loadings(factor.obj))
  dv <- factor.obj$scores[,1]
  if(cor(dv, responders$miami_trans_law_t2) < 0) dv <- -1 * dv # Make sure it points the right way.
  dv <- scale(dv) #rescale to mean 0 sd 1
  return(dv[match(data$vf_vanid, responders$vf_vanid)])
}

# New factors
trans.acceptance.dv.MAINDV <- compute.factor.dv(acceptance.scale.dv.names)
```

```
##
## Loadings:
##                                  Comp.1 Comp.2 Comp.3 Comp.4 Comp.5 Comp.6
## therm_trans_t2                   -0.363 -0.196  0.354  0.806  0.109 -0.157
## gender_norm_sexchange_t2         -0.359 -0.575        -0.407  0.345 -0.495
## gender_norm_moral_t2              0.415 -0.246 -0.111  0.251  0.362
## gender_norm_abnormal_t2           0.388 -0.278 -0.190  0.168 -0.660 -0.518
## gender_norm_trans_moral_wrong_t2  0.399 -0.269 -0.392  0.183  0.377  0.245
## trans_teacher_t2                 -0.373 -0.494 -0.300        -0.392  0.586
## trans_bathroom_t2                 0.342 -0.421  0.757 -0.239         0.242
##                                  Comp.7
## therm_trans_t2                   -0.131
## gender_norm_sexchange_t2
## gender_norm_moral_t2              0.749
## gender_norm_abnormal_t2
## gender_norm_trans_moral_wrong_t2 -0.615
## trans_teacher_t2                  0.169
## trans_bathroom_t2                -0.100
##
##                Comp.1 Comp.2 Comp.3 Comp.4 Comp.5 Comp.6 Comp.7
## SS loadings     1.000  1.000  1.000  1.000  1.000  1.000  1.000
## Proportion Var  0.143  0.143  0.143  0.143  0.143  0.143  0.143
## Cumulative Var  0.143  0.286  0.429  0.571  0.714  0.857  1.000
```

```r
gnc.dv <- compute.factor.dv(gnc.dv.names)
```

```
##
## Loadings:
##                       Comp.1 Comp.2 Comp.3
## gender_norm_rights_t2 -0.539  0.835 -0.107
## gender_norm_looks_t2  -0.589 -0.465 -0.661
## gender_norm_dress_t2  -0.602 -0.294  0.743
##
##                Comp.1 Comp.2 Comp.3
## SS loadings     1.000  1.000  1.000
## Proportion Var  0.333  0.333  0.333
## Cumulative Var  0.333  0.667  1.000
```

```
legal.dv <- compute.factor.dv(legal.dv.names)
```

```
##
## Loadings:
##                      Comp.1 Comp.2
## miami_trans_law_t2   -0.707  0.707
## miami_trans_law2_t2 -0.707 -0.707
##
##                Comp.1 Comp.2
## SS loadings       1.0    1.0
## Proportion Var    0.5    0.5
## Cumulative Var    0.5    1.0
```

```
innoculation.dv <- compute.factor.dv(innoculation.dv.names)
```

```
##
## Loadings:
##                     Comp.1 Comp.2
## trans_teacher_t2   -0.707 -0.707
## trans_bathroom_t2   0.707 -0.707
##
##                Comp.1 Comp.2
## SS loadings       1.0    1.0
## Proportion Var    0.5    0.5
## Cumulative Var    0.5    1.0
```

Note: Fake treatment indicator in this PAP

For the analysis below in the pre-analysis plan we are using a fake treatment indicator, not the real treatment indicator for the study.

Note that we do not include treatment-by-covariate interactions in the regression model because the design is balanced (see Lin, "Agnostic Notes").

Code for ATE Estimation

Direct Effect

These are the main analyses. The most important among them is the test on the factor analysis we called "main.dv" above.

To examine the direct effect we will examine only compliers. Recall that due to the placebo design we are able to observe compliance in both the treatment and control groups. 133 individuals who were contacted have taken the t2 survey as of this writing.

```
est.ate(trans.acceptance.dv.MAINDV, data$contacted == 1) # MAIN TEST FOR PERSISTENCE
```

```
##   Estimate Std. Error    t value   Pr(>|t|)
##  0.1018060  0.1092045  0.9322505  0.3533663
```

```r
est.ate(gnc.dv, data$contacted == 1)
```

```
##   Estimate Std. Error    t value   Pr(>|t|)
##  0.1744835  0.1175744  1.4840269  0.1408263
```

```r
est.ate(legal.dv, data$contacted == 1)
```

```
##   Estimate Std. Error    t value   Pr(>|t|)
## -0.1043532  0.1295188 -0.8056993  0.4222546
```

```r
est.ate(innoculation.dv, data$contacted == 1)
```

```
##   Estimate Std. Error    t value   Pr(>|t|)
##  0.1416357  0.1408880  1.0053073  0.3170822
```

Indirect Effect

We do not plan to continue estimating indirect effects because we did not find these effects initially.

Other

See "Exclusions and Non-Compliance With Protocol", "Missing Values", "Ceiling Effects", "Unadjusted Point Estimates", and "Tests for Differential Attrition" in the t1 pap. We will use the same procedures here.

Not in This PAP

See "Canvasser Heterogeneity" and "Treatment Effect Heterogeneity by Subject Attributes" in the t1 PAP. We will use the same procedures here.

Follow-Up Surveys

We will file additional pre-analysis plans for each additional survey wave.

Wave 3 Survey

In addition to assessing persistence, we currently plan to test the below two additional hypotheses on the Wave 3 survey:

1. Does a need for cognition battery predict the size of the treatment effect?
2. Will canvassed voters be less persuaded by the opposition message? We plan to operationalize this with some kind of exposure to the opposition message in the survey, such as by asking voters to watch a short video or showing them pictures of a piece of mail.