figures_d1.R

datalab

2023-06-16

```
########################################
######### Balancing Plots #############
####   Appendix D - Figures D1A and D1B  #####
########   October 10, 2018 ######
####  CHecked the rerun: Dec 16, 2022 ####

rm(list=ls())
library(stargazer)
library(ggplot2)
library(foreign)
######GEO DATA####
# setwd("~/Dropbox/Personal Research 2017")


########################################
##### Create  Bandwidths ###############
geo2001=read.csv("~/Dropbox/Personal Research 2017/replications/geocensus2001_nov16.csv")

#Distance to Mysore-Bombay Border
rd10.mb=geo2001[which(geo2001$NEAR_DIST_border1<10000),] #20 km
rd25.mb=geo2001[which(geo2001$NEAR_DIST_border1<25000),] #50 km
rd50.mb=geo2001[which(geo2001$NEAR_DIST_border1<50000),] #100 km
rd100.mb=geo2001[which(geo2001$NEAR_DIST_border1<100000),] #200 km

table(rd10.mb$border1)
```

```
##
##   0   1
## 505 470
```

```
#Distance to Hyderabad-Bombay Border
rd10.hb=geo2001[which(geo2001$NEAR_DIST_border2<10000),] #20 km
rd25.hb=geo2001[which(geo2001$NEAR_DIST_border2<25000),] #50 km
rd50.hb=geo2001[which(geo2001$NEAR_DIST_border2<50000),] #100 km
rd100.hb=geo2001[which(geo2001$NEAR_DIST_border2<100000),] #200 km
table(rd10.hb$border2)
```

```
##
##   0   1
## 404 424
```

```
#Balancing and Different Borders
#Mysore- Bombay
#the whole data
```

```r
t1=t.test(geo2001$TOT_POP[geo2001$border1==1], geo2001$TOT_POP[geo2001$border1==0])
t2=t.test(geo2001$TOT_SC[geo2001$border1==1], geo2001$TOT_SC[geo2001$border1==0])
t3=t.test(geo2001$TOT_ST[geo2001$border1==1], geo2001$TOT_ST[geo2001$border1==0])
t5=t.test(geo2001$Slope[geo2001$border1==1], geo2001$Slope[geo2001$border1==0])
t6=t.test(geo2001$TerrainRug[geo2001$border1==1], geo2001$TerrainRug[geo2001$border1==0])
est=rbind(t1$estimate, t2$estimate, t3$estimate,  t5$estimate, t6$estimate)
pval=rbind(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value)
geo=cbind(est, pval)
rownames(geo)=c("Total Population",
                "Total Scheduled Castes Pop",
                "Total Scheduled Tribes Pop",
                "Slope", "Terrain Rugness")
colnames(geo)=c("Mean Tr", "Mean Cont", "T-Test P.Value")
stargazer(geo, digits = 3)
```

```
##
## % Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harva
## % Date and time: Fri, Jun 16, 2023 - 14:44:27
## \begin{table}[!htbp] \centering
##   \caption{}
##   \label{}
## \begin{tabular}{@{\extracolsep{5pt}} cccc}
## \\[-1.8ex]\hline
## \hline \\[-1.8ex]
##  & Mean Tr & Mean Cont & T-Test P.Value \\
## \hline \\[-1.8ex]
## Total Population & $892.312$ & $1,574.566$ & $0$ \\
## Total Scheduled Castes Pop & $297.344$ & $318.849$ & $0.005$ \\
## Total Scheduled Tribes Pop & $181.635$ & $196.127$ & $0.015$ \\
## Slope & $88.442$ & $87.778$ & $0.044$ \\
## Terrain Rugness & $2.214$ & $2.548$ & $0.00000$ \\
## \hline \\[-1.8ex]
## \end{tabular}
## \end{table}
```

```r
t0=as.matrix(c(t1$stat, t2$stat, t3$stat, t5$stat, t6$stat))
t0
```

```
##         [,1]
## t -30.681232
## t  -2.789034
## t  -2.431945
## t   2.016448
## t  -5.650268
```

```r
p0=as.matrix(c(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value))
p0
```

```
##               [,1]
## [1,] 2.605025e-186
## [2,]  5.305852e-03
## [3,]  1.505078e-02
## [4,]  4.380272e-02
## [5,]  1.680759e-08
```

```r
#25 km Mysore-Bombay
t1=t.test(rd25.mb$TOT_POP[rd25.mb$border1==1], rd25.mb$TOT_POP[rd25.mb$border1==0])
t2=t.test(rd25.mb$TOT_SC[rd25.mb$border1==1], rd25.mb$TOT_SC[rd25.mb$border1==0])
t3=t.test(rd25.mb$TOT_ST[rd25.mb$border1==1], rd25.mb$TOT_ST[rd25.mb$border1==0])
t5=t.test(rd25.mb$Slope[rd25.mb$border1==1], rd25.mb$Slope[rd25.mb$border1==0])
t6=t.test(rd25.mb$TerrainRug[rd25.mb$border1==1], rd25.mb$TerrainRug[rd25.mb$border1==0])
est=rbind(t1$estimate, t2$estimate, t3$estimate,  t5$estimate, t6$estimate)
pval=rbind(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value)
mb.25=cbind(est, pval)
rownames(mb.25)=c("Total Population",
                  "Total Scheduled Castes Pop",
                  "Total Scheduled Tribes Pop",
                  "Slope", "Terrain Rugness")
colnames(mb.25)=c("Mean Tr", "Mean Cont", "T-Test P.Value")
stargazer(mb.25, digits = 3)
```

```
##
## % Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harva
## % Date and time: Fri, Jun 16, 2023 - 14:44:27
## \begin{table}[!htbp] \centering
##   \caption{}
##   \label{}
## \begin{tabular}{@{\extracolsep{5pt}} cccc}
## \\[-1.8ex]\hline
## \hline \\[-1.8ex]
##  & Mean Tr & Mean Cont & T-Test P.Value \\
## \hline \\[-1.8ex]
## Total Population & $902.708$ & $1,487.265$ & $0$ \\
## Total Scheduled Castes Pop & $289.344$ & $304.326$ & $0.240$ \\
## Total Scheduled Tribes Pop & $163.871$ & $193.009$ & $0.004$ \\
## Slope & $88.802$ & $88.303$ & $0.307$ \\
## Terrain Rugness & $2.301$ & $2.769$ & $0.00000$ \\
## \hline \\[-1.8ex]
## \end{tabular}
## \end{table}
```

```r
t25=as.matrix(c(t1$stat, t2$stat, t3$stat, t5$stat, t6$stat))
t25
```

```
##         [,1]
## t -16.823873
## t  -1.176084
## t  -2.883734
## t   1.022340
## t  -4.939683
```

```r
p25=as.matrix(c(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value))
p25
```

```
##              [,1]
## [1,] 6.092252e-59
## [2,] 2.396964e-01
## [3,] 3.971270e-03
## [4,] 3.067394e-01
## [5,] 8.465486e-07
```

```r
#50 km Mysore-Bombay
t1=t.test(rd50.mb$TOT_POP[rd50.mb$border1==1], rd50.mb$TOT_POP[rd50.mb$border1==0])
t2=t.test(rd50.mb$TOT_SC[rd50.mb$border1==1], rd50.mb$TOT_SC[rd50.mb$border1==0])
t3=t.test(rd50.mb$TOT_ST[rd50.mb$border1==1], rd50.mb$TOT_ST[rd50.mb$border1==0])
t5=t.test(rd50.mb$Slope[rd50.mb$border1==1], rd50.mb$Slope[rd50.mb$border1==0])
t6=t.test(rd50.mb$TerrainRug[rd50.mb$border1==1], rd50.mb$TerrainRug[rd50.mb$border1==0])
est=rbind(t1$estimate, t2$estimate, t3$estimate,  t5$estimate, t6$estimate)
pval=rbind(t1$p.value, t2$p.value, t3$p.value,  t5$p.value, t6$p.value)
mb.50=cbind(est, pval)
rownames(mb.50)=c("Total Population",
                  "Total Scheduled Castes Pop",
                  "Total Scheduled Tribes Pop",
                  "Slope", "Terrain Rugness")
colnames(mb.50)=c("Mean Tr", "Mean Cont", "T-Test P.Value")
stargazer(mb.50, digits = 3)
```

```
##
## % Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harva
## % Date and time: Fri, Jun 16, 2023 - 14:44:27
## \begin{table}[!htbp] \centering
##   \caption{}
##   \label{}
## \begin{tabular}{@{\extracolsep{5pt}} cccc}
## \\[-1.8ex]\hline
## \hline \\[-1.8ex]
##  & Mean Tr & Mean Cont & T-Test P.Value \\
## \hline \\[-1.8ex]
## Total Population & $911.219$ & $1,506.238$ & $0$ \\
## Total Scheduled Castes Pop & $293.867$ & $314.123$ & $0.042$ \\
## Total Scheduled Tribes Pop & $167.875$ & $186.219$ & $0.018$ \\
## Slope & $88.631$ & $87.991$ & $0.114$ \\
## Terrain Rugness & $2.232$ & $2.687$ & $0$ \\
## \hline \\[-1.8ex]
## \end{tabular}
## \end{table}
```

```r
t50=as.matrix(c(t1$stat, t2$stat, t3$stat, t5$stat, t6$stat))
t50
```

```
##         [,1]
## t -21.557187
## t  -2.037026
## t  -2.373341
## t   1.582657
## t  -6.086250
```

```r
p50=as.matrix(c(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value))
p50
```

```
##              [,1]
## [1,] 7.291611e-95
## [2,] 4.172991e-02
## [3,] 1.768720e-02
## [4,] 1.135978e-01
## [5,] 1.295110e-09
```

```r
#10 km Mysore-Bombay
t1=t.test(rd10.mb$TOT_POP[rd10.mb$border1==1], rd10.mb$TOT_POP[rd10.mb$border1==0])
t2=t.test(rd10.mb$TOT_SC[rd10.mb$border1==1], rd10.mb$TOT_SC[rd10.mb$border1==0])
t3=t.test(rd10.mb$TOT_ST[rd10.mb$border1==1], rd10.mb$TOT_ST[rd10.mb$border1==0])
t5=t.test(rd10.mb$Slope[rd10.mb$border1==1], rd10.mb$Slope[rd10.mb$border1==0])
t6=t.test(rd10.mb$TerrainRug[rd10.mb$border1==1], rd10.mb$TerrainRug[rd10.mb$border1==0])
est=rbind(t1$estimate, t2$estimate, t3$estimate, t5$estimate, t6$estimate)
pval=rbind(t1$p.value, t2$p.value, t3$p.value,  t5$p.value, t6$p.value)
mb.10=cbind(est, pval)
rownames(mb.10)=c("Total Population",
                  "Total Scheduled Castes Pop",
                  "Total Scheduled Tribes Pop",
                  "Slope", "Terrain Rugness")
colnames(mb.10)=c("Mean Tr", "Mean Cont", "T-Test P.Value")
stargazer(mb.10, digits = 3)
```

```
##
## % Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harva
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## \begin{table}[!htbp] \centering
##   \caption{}
##   \label{}
## \begin{tabular}{@{\extracolsep{5pt}} cccc}
## \\[-1.8ex]\hline
## \hline \\[-1.8ex]
##  & Mean Tr & Mean Cont & T-Test P.Value \\
## \hline \\[-1.8ex]
## Total Population & $844.766$ & $1,445.905$ & $0$ \\
## Total Scheduled Castes Pop & $278.085$ & $282.091$ & $0.827$ \\
## Total Scheduled Tribes Pop & $160.096$ & $206.048$ & $0.002$ \\
## Slope & $88.837$ & $88.740$ & $0.883$ \\
## Terrain Rugness & $2.312$ & $2.755$ & $0.002$ \\
## \hline \\[-1.8ex]
## \end{tabular}
## \end{table}
```

```r
t10=as.matrix(c(t1$stat, t2$stat, t3$stat, t5$stat, t6$stat))
t10
```

```
##          [,1]
## t -11.6734648
## t  -0.2191335
## t  -3.1114270
## t   0.1472893
## t  -3.1536067
```

```r
p10=as.matrix(c(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value))
p10
```

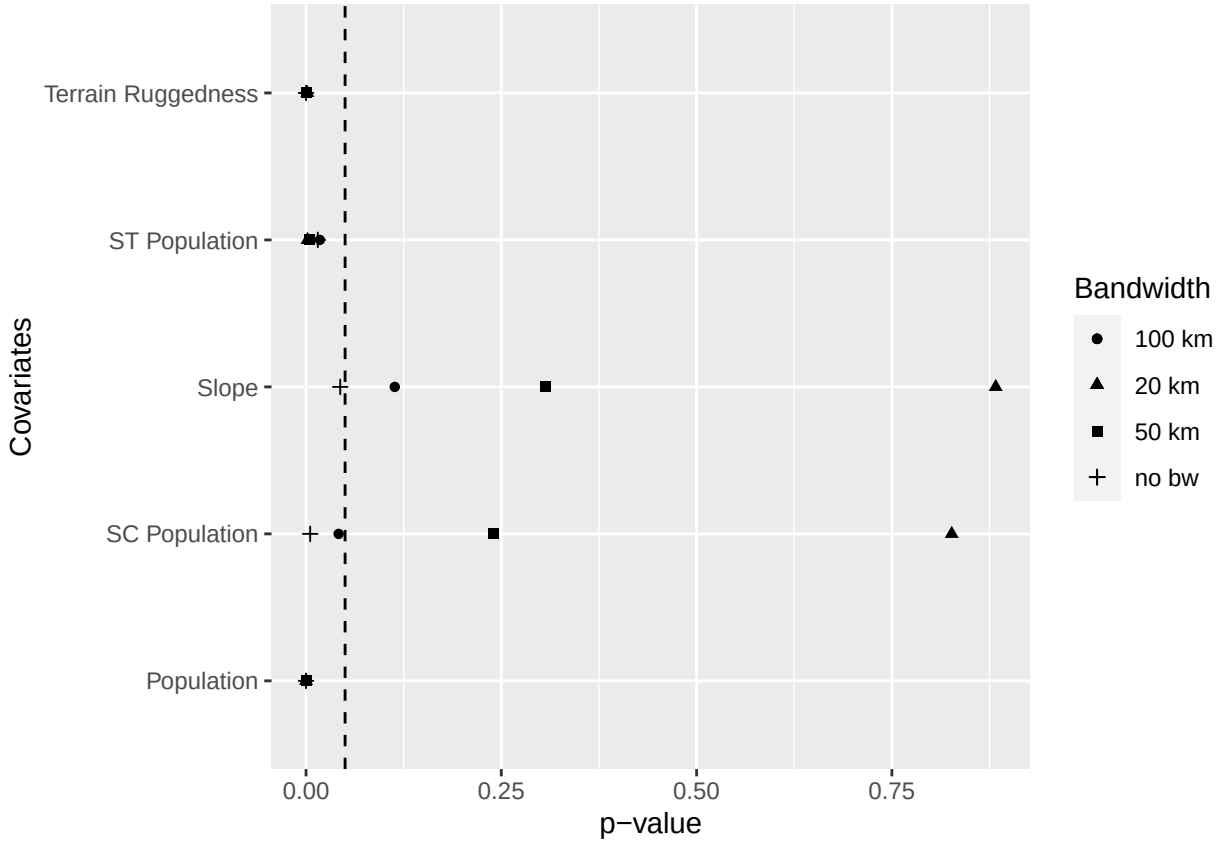
```
##              [,1]
## [1,] 2.808213e-29
## [2,] 8.265922e-01
## [3,] 1.917489e-03
## [4,] 8.829343e-01
## [5,] 1.663160e-03
```

```
tmys=cbind(p0, p10, p25, p50)
rownames(tmys)=c("Population", "SC Population", "ST Population",
                 "Slope", "Terrain Ruggedness")
colnames(tmys)=c("no bw", "20 km", "50 km", "100 km")
tmys=as.data.frame(tmys)



#plots of balancing
plot_mys=ggplot(tmys, aes(y=rownames(tmys), x=value, shape=Bandwidth))+
  geom_point(aes(x=tmys$`no bw`, shape="no bw"))+
  geom_point(aes(x=tmys$`20 km`, shape="20 km"))+
  geom_point(aes(x=tmys$`50 km`, shape="50 km"))+
  geom_point(aes(x=tmys$`100 km`, shape="100 km"))+
  geom_vline(xintercept=(0.05), linetype="dashed")+
  xlab("p-value")+ylab("Covariates")

plot_mys
```

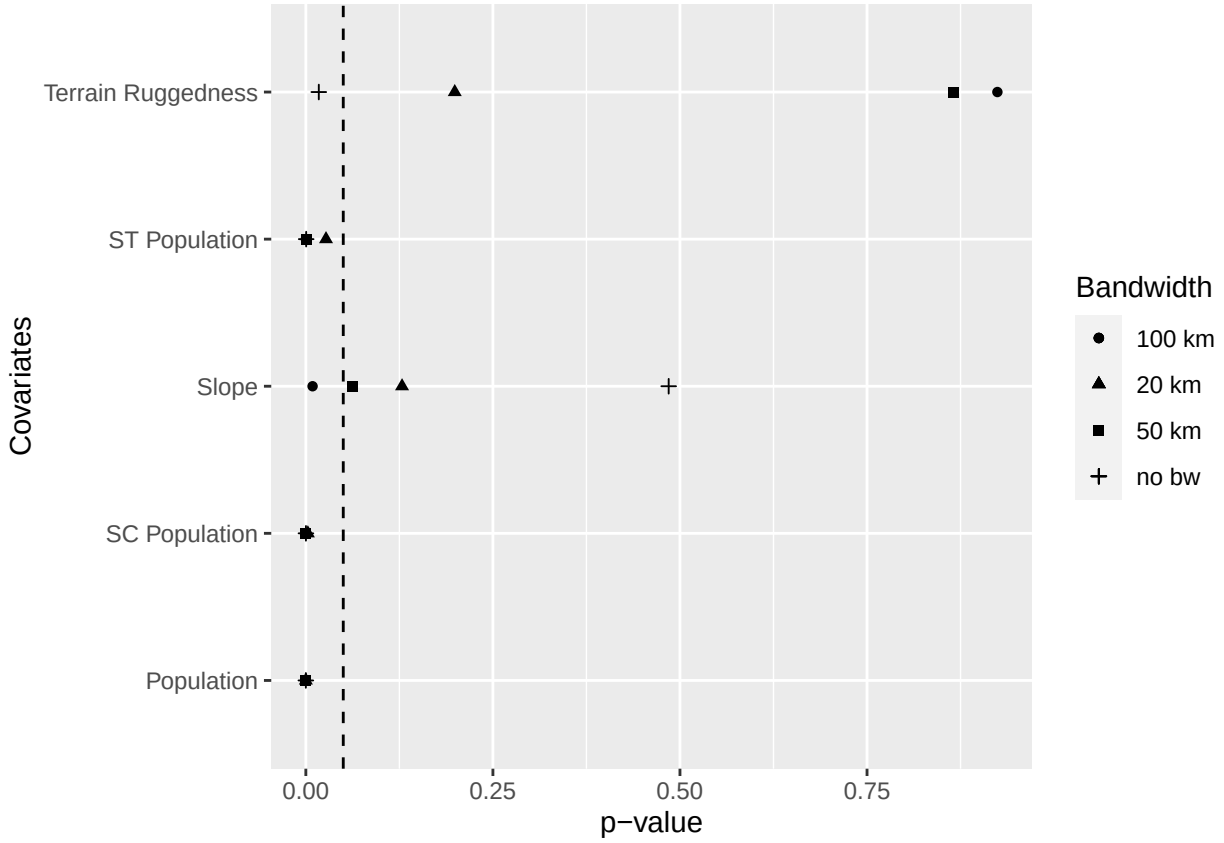



```
pdf("mys_balance_vol2.pdf",width=7,height=5)
par(mfrow=c(3,2), mai=c(.85,.85,.2,.2))
plot_mys
dev.off()
```

```
## RStudioGD
##         2
```

```
##############################################
######Hyderabad-Bombay Border

#the whole data
t1=t.test(geo2001$TOT_POP[geo2001$border2==1], geo2001$TOT_POP[geo2001$border2==0])
```




```
t2=t.test(geo2001$TOT_SC[geo2001$border2==1], geo2001$TOT_SC[geo2001$border2==0])
t3=t.test(geo2001$TOT_ST[geo2001$border2==1], geo2001$TOT_ST[geo2001$border2==0])
t5=t.test(geo2001$Slope[geo2001$border2==1], geo2001$Slope[geo2001$border2==0])
t6=t.test(geo2001$TerrainRug[geo2001$border2==1], geo2001$TerrainRug[geo2001$border2==0])
est=rbind(t1$estimate, t2$estimate, t3$estimate,t5$estimate, t6$estimate)
pval=rbind(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value)
geoh=cbind(est, pval)
rownames(geoh)=c("Total Population",
                 "Total Scheduled Castes Pop",
                 "Total Scheduled Tribes Pop",
                 "Slope", "Terrain Rugness")
colnames(geoh)=c("Mean Tr", "Mean Cont", "T-Test P.Value")
stargazer(geoh, digits = 3)
```

```
##
## % Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harva
## % Date and time: Fri, Jun 16, 2023 - 14:44:28
## \begin{table}[!htbp] \centering
##   \caption{}
##   \label{}
## \begin{tabular}{@{\extracolsep{5pt}} cccc}
```

```
## \\[-1.8ex]\hline
## \hline \\[-1.8ex]
##  & Mean Tr & Mean Cont & T-Test P.Value \\
## \hline \\[-1.8ex]
## Total Population & $1,440.315$ & $1,762.706$ & $0$ \\
## Total Scheduled Castes Pop & $419.529$ & $456.783$ & $0.0001$ \\
## Total Scheduled Tribes Pop & $269.057$ & $242.894$ & $0.0004$ \\
## Slope & $87.426$ & $87.132$ & $0.485$ \\
## Terrain Rugness & $1.203$ & $1.274$ & $0.017$ \\
## \hline \\[-1.8ex]
## \end{tabular}
## \end{table}
```

```
t0=as.matrix(c(t1$stat, t2$stat, t3$stat, t5$stat, t6$stat))
t0
```

```
##          [,1]
## t -12.0976725
## t  -3.8628893
## t   3.5231421
## t   0.6984598
## t  -2.3807736
```

```
p0=as.matrix(c(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value))
p0
```

```
##              [,1]
## [1,] 3.419638e-33
## [2,] 1.134947e-04
## [3,] 4.300837e-04
## [4,] 4.849220e-01
## [5,] 1.731211e-02
```

```
#25 km Hyderabad-Bombay
t1=t.test(rd25.hb$TOT_POP[rd25.hb$border2==1], rd25.hb$TOT_POP[rd25.hb$border2==0])
t2=t.test(rd25.hb$TOT_SC[rd25.hb$border2==1], rd25.hb$TOT_SC[rd25.hb$border2==0])
t3=t.test(rd25.hb$TOT_ST[rd25.hb$border2==1], rd25.hb$TOT_ST[rd25.hb$border2==0])
t5=t.test(rd25.hb$Slope[rd25.hb$border2==1], rd25.hb$Slope[rd25.hb$border2==0])
t6=t.test(rd25.hb$TerrainRug[rd25.hb$border2==1], rd25.hb$TerrainRug[rd25.hb$border2==0])
est=rbind(t1$estimate, t2$estimate, t3$estimate, t5$estimate, t6$estimate)
pval=rbind(t1$p.value, t2$p.value, t3$p.value,  t5$p.value, t6$p.value)
hb.25=cbind(est, pval)
rownames(hb.25)=c("Total Population",
                  "Total Scheduled Castes Pop",
                  "Total Scheduled Tribes Pop",
                  "Slope", "Terrain Rugness")
colnames(hb.25)=c("Mean Tr", "Mean Cont", "T-Test P.Value")
stargazer(hb.25, digits = 3)
```

```
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## \begin{table}[!htbp] \centering
##   \caption{}
##   \label{}
## \begin{tabular}{@{\extracolsep{5pt}} cccc}
```

```
## \\[-1.8ex]\hline
## \hline \\[-1.8ex]
##  & Mean Tr & Mean Cont & T-Test P.Value \\
## \hline \\[-1.8ex]
## Total Population & $1,432.899$ & $1,675.111$ & $0.00000$ \\
## Total Scheduled Castes Pop & $370.657$ & $449.209$ & $0.00000$ \\
## Total Scheduled Tribes Pop & $268.628$ & $222.276$ & $0.0003$ \\
## Slope & $88.165$ & $86.802$ & $0.063$ \\
## Terrain Rugness & $1.146$ & $1.153$ & $0.866$ \\
## \hline \\[-1.8ex]
## \end{tabular}
## \end{table}
```

```
t25=as.matrix(c(t1$stat, t2$stat, t3$stat, t5$stat, t6$stat))
t25
```

```
##         [,1]
## t -5.1676738
## t -4.7603653
## t  3.6373861
## t  1.8614547
## t -0.1685749
```

```
p25=as.matrix(c(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value))
p25
```

```
##              [,1]
## [1,] 2.683510e-07
## [2,] 2.110650e-06
## [3,] 2.839549e-04
## [4,] 6.287819e-02
## [5,] 8.661518e-01
```

```
#50 km Hyderabad-Bombay
t1=t.test(rd50.hb$TOT_POP[rd50.hb$border2==1], rd50.hb$TOT_POP[rd50.hb$border2==0])
t2=t.test(rd50.hb$TOT_SC[rd50.hb$border2==1], rd50.hb$TOT_SC[rd50.hb$border2==0])
t3=t.test(rd50.hb$TOT_ST[rd50.hb$border2==1], rd50.hb$TOT_ST[rd50.hb$border2==0])
t5=t.test(rd50.hb$Slope[rd50.hb$border2==1], rd50.hb$Slope[rd50.hb$border2==0])
t6=t.test(rd50.hb$TerrainRug[rd50.hb$border2==1], rd50.hb$TerrainRug[rd25.hb$border2==0])
est=rbind(t1$estimate, t2$estimate, t3$estimate,  t5$estimate, t6$estimate)
pval=rbind(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value)
hb.50=cbind(est, pval)
rownames(hb.50)=c("Total Population",
                  "Total Scheduled Castes Pop",
                  "Total Scheduled Tribes Pop",
                  "Slope", "Terrain Rugness")
colnames(hb.50)=c("Mean Tr", "Mean Cont", "T-Test P.Value")
stargazer(hb.50, digits = 3)
```

```
##
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## % Date and time: Fri, Jun 16, 2023 - 14:44:28
## \begin{table}[!htbp] \centering
##   \caption{}
##   \label{}
## \begin{tabular}{@{\extracolsep{5pt}} cccc}
```

```
## \\[-1.8ex]\hline
## \hline \\[-1.8ex]
##  & Mean Tr & Mean Cont & T-Test P.Value \\
## \hline \\[-1.8ex]
## Total Population & $1,422.171$ & $1,716.590$ & $0$ \\
## Total Scheduled Castes Pop & $384.462$ & $462.081$ & $0$ \\
## Total Scheduled Tribes Pop & $285.130$ & $225.433$ & $0$ \\
## Slope & $88.023$ & $86.543$ & $0.009$ \\
## Terrain Rugness & $1.193$ & $1.189$ & $0.924$ \\
## \hline \\[-1.8ex]
## \end{tabular}
## \end{table}
```

```
t50=as.matrix(c(t1$stat, t2$stat, t3$stat, t5$stat, t6$stat))
t50
```

```
##          [,1]
## t -8.39145940
## t -6.12671589
## t  6.15672104
## t  2.61428440
## t  0.09510862
```

```
p50=as.matrix(c(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value))
p50
```

```
##              [,1]
## [1,] 7.619795e-17
## [2,] 1.025469e-09
## [3,] 8.420914e-10
## [4,] 8.993736e-03
## [5,] 9.242354e-01
```

```
#10 km Hyderabad-Bombay
t1=t.test(rd10.hb$TOT_POP[rd10.hb$border2==1], rd10.hb$TOT_POP[rd10.hb$border2==0])
t2=t.test(rd10.hb$TOT_SC[rd10.hb$border2==1], rd10.hb$TOT_SC[rd10.hb$border2==0])
t3=t.test(rd10.hb$TOT_ST[rd10.hb$border2==1], rd10.hb$TOT_ST[rd10.hb$border2==0])
t5=t.test(rd10.hb$Slope[rd10.hb$border2==1], rd10.hb$Slope[rd10.hb$border2==0])
t6=t.test(rd10.hb$TerrainRug[rd10.hb$border2==1], rd10.hb$TerrainRug[rd10.hb$border2==0])
est=rbind(t1$estimate, t2$estimate, t3$estimate, t5$estimate, t6$estimate)
pval=rbind(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value)
hb.10=cbind(est, pval)
rownames(hb.10)=c("Total Population",
                  "Total Scheduled Castes Pop",
                  "Total Scheduled Tribes Pop",
                  "Slope", "Terrain Rugness")
colnames(hb.10)=c("Mean Tr", "Mean Cont", "T-Test P.Value")
stargazer(hb.10, digits = 3)
```

```
##
## % Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harva
## % Date and time: Fri, Jun 16, 2023 - 14:44:28
## \begin{table}[!htbp] \centering
##   \caption{}
##   \label{}
## \begin{tabular}{@{\extracolsep{5pt}} cccc}
```

```
## \\[-1.8ex]\hline
## \hline \\[-1.8ex]
##  & Mean Tr & Mean Cont & T-Test P.Value \\
## \hline \\[-1.8ex]
## Total Population & $1,385.179$ & $1,669.790$ & $0.00002$ \\
## Total Scheduled Castes Pop & $354.623$ & $423.661$ & $0.003$ \\
## Total Scheduled Tribes Pop & $248.146$ & $210.045$ & $0.027$ \\
## Slope & $88.702$ & $87.302$ & $0.129$ \\
## Terrain Rugness & $1.130$ & $1.206$ & $0.199$ \\
## \hline \\[-1.8ex]
## \end{tabular}
## \end{table}
```

```
t10=as.matrix(c(t1$stat, t2$stat, t3$stat, t5$stat, t6$stat))
t10
```

```
##        [,1]
## t -4.321557
## t -3.009855
## t  2.216166
## t  1.521536
## t -1.285468
```

```
p10=as.matrix(c(t1$p.value, t2$p.value, t3$p.value, t5$p.value, t6$p.value))
p10
```

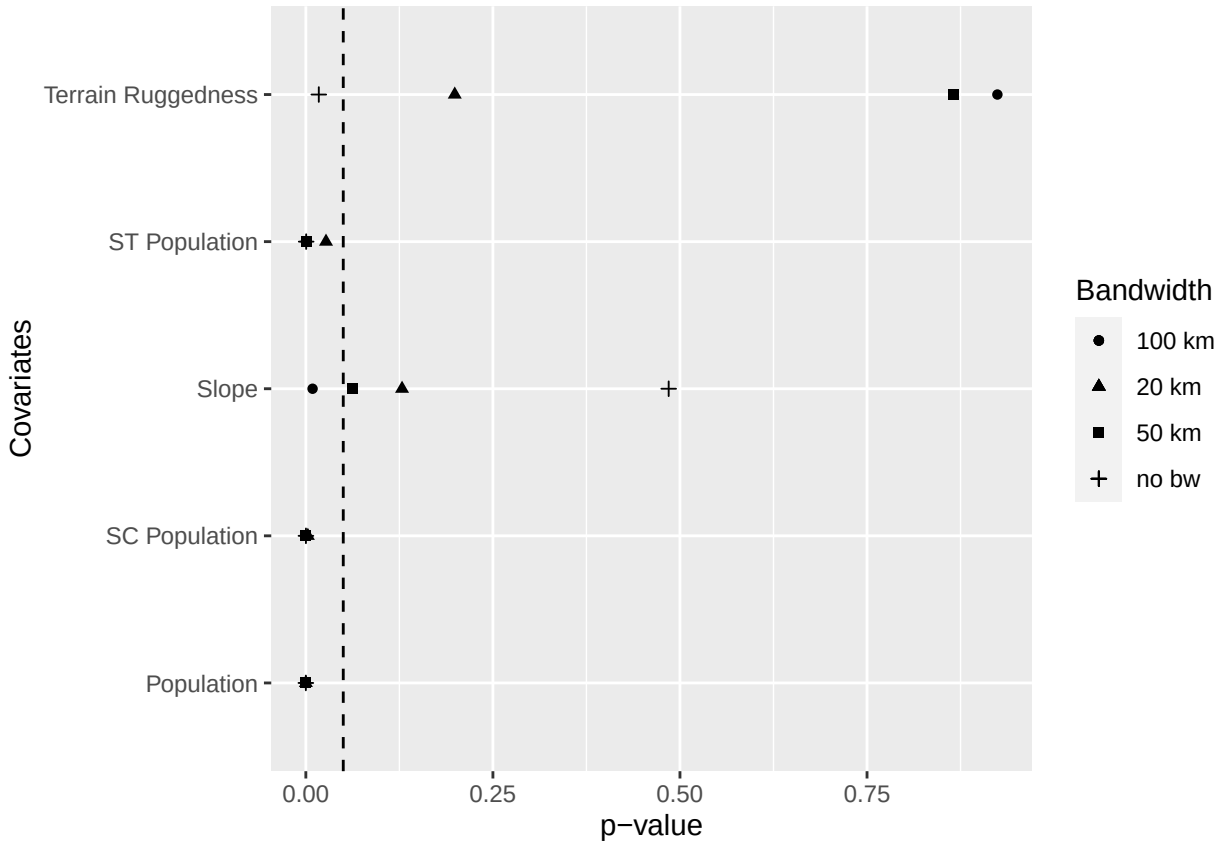
```
##              [,1]
## [1,] 1.748366e-05
## [2,] 2.695965e-03
## [3,] 2.695243e-02
## [4,] 1.285673e-01
## [5,] 1.990046e-01
```

```
thyd=cbind(p0, p10, p25, p50)
rownames(thyd)=c("Population", "SC Population", "ST Population",
                 "Slope", "Terrain Ruggedness")
colnames(thyd)=c("no bw", "20 km", "50 km", "100 km")
thyd=as.data.frame(thyd)



plot_hyd=ggplot(thyd, aes(y=rownames(thyd), x=value, shape=Bandwidth))+
  geom_point(aes(x=thyd$`no bw`, shape="no bw"))+
  geom_point(aes(x=thyd$`20 km`, shape="20 km"))+
  geom_point(aes(x=thyd$`50 km`, shape="50 km"))+
  geom_point(aes(x=thyd$`100 km`, shape="100 km"))+
  geom_vline(xintercept=(0.05), linetype="dashed")+
  xlab("p-value")+ylab("Covariates")

plot_hyd
```




```
pdf("hyd_balance_vol2.pdf",width=7,height=5)
par(mfrow=c(3,2), mai=c(.85,.85,.2,.2))
plot_hyd
dev.off()
```

```
## RStudioGD
##         2
```