

Adeel Arshid - Econometrics HW#1

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#2 this is due before class During class on Thursday Sept 2, we'll do experiments on sequences of random numbers. I gave out dice in first class, for you to play with sanding, filing, heating, drilling, gluing, squeezing or whatever to see if you can adjust which numbers come up. Before class, you should have done about 20 experiments where you roll the dice and record whether the result was a 6 or not.

6,1,5,5,3,5,1,1,2,5,5,5,5,6,3,6,2,4,1,6

5,3,6,2,2,1,1,1,5,3,3,2,6,6,4,3,3,1,5,5

R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
x <- 1:50
w <- 1 + sqrt(x)/2
example1 <- data.frame(x=x, y= x + rnorm(x)*w)
attach(example1)
```

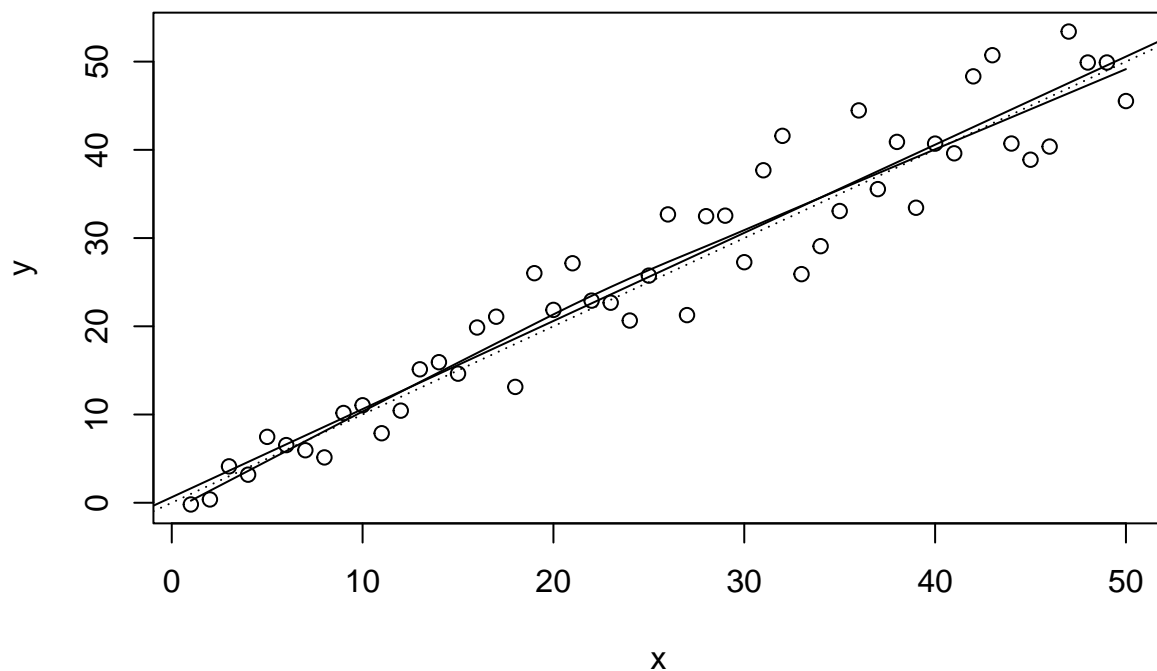
```
## The following object is masked _by_ .GlobalEnv:
##
##      x
```

```
fm <- lm(y ~ x)
summary(fm)
```

```
##
## Call:
## lm(formula = y ~ x)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -7.6777 -3.1263  0.1352  2.7895  8.9970
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
```

```
## (Intercept) 0.62775 1.22837 0.511 0.612
## x          0.99882 0.04192 23.825 <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.278 on 48 degrees of freedom
## Multiple R-squared:  0.922, Adjusted R-squared:  0.9204
## F-statistic: 567.6 on 1 and 48 DF, p-value: < 2.2e-16
```

```
lrf <- lowess(x, y)
plot(x, y)
lines(x, lrf$y)
abline(0, 1, lty=3)
abline(coef(fm))
```



```
detach()
```

#3 Open up R (on laptop or cloud). Replicate the commands given in the lecture notes R Basics for Lecture 1 to do some simple stats on the Household Pulse data. Those notes request that you find average ages for men and women. Tell me something else interesting, that you learned from the data. Are there surprises for you? We will use this same data for a few exercises so it's worth getting deeper into it.

```
load("/Users/adeelarshid/Desktop/Household_Pulse_data.RData")
Household_Pulse_data[1:10,1:7]
```

```

##      RHISPANIC RRACE      EEDUC      MS EGENID_BIRTH GENID_DESCRIBE
## 1 Not Hispanic White  bach deg      NA      female      female
## 2 Not Hispanic White HS diploma married      female      female
## 3 Not Hispanic White  bach deg widowed      female      female
## 4 Not Hispanic White  adv deg  never      female      female
## 5 Not Hispanic Black  some coll never      female      female
## 6 Hispanic White  bach deg  never      female      female
## 7 Not Hispanic White  adv deg widowed      female      female
## 8 Not Hispanic White  some coll widowed      female      female
## 9 Not Hispanic White  assoc deg married      female      female
## 10 Not Hispanic White  adv deg married      female      female
##      SEXUAL_ORIENTATION
## 1      straight
## 2      straight
## 3      straight
## 4      straight
## 5      straight
## 6      straight
## 7      straight
## 8      straight
## 9      straight
## 10     straight

```

```
summary(Household_Pulse_data)
```

```

##      RHISPANIC      RRACE      EEDUC      MS
## Not Hispanic:62660 White:56938 less than hs: 411 NA : 881
## Hispanic : 6454 Black: 5412 some hs : 936 married :40036
## Asian: 3561 HS diploma : 7857 widowed : 3872
## Other: 3203 some coll :14596 divorced:10310
## assoc deg : 7508 separated: 1214
## bach deg :20075 never :12801
## adv deg :17731
## EGENID_BIRTH GENID_DESCRIBE SEXUAL_ORIENTATION
## male :27592 NA : 1131 NA : 1506
## female:41522 male :26796 gay or lesbian: 2343
## female :40263 straight :61238
## transgender: 202 bisexual : 2288
## other : 722 something else: 871
## dont know : 868
##
##      KIDS_LT5Y      KIDS_5_11Y
## NA :62342 NA :58467
## Yes children under 5 in HH: 6772 Yes children 5 - 11 in HH:10647
##
##
##
##      KIDS_12_17Y      ENROLLNONE
## NA :58046 NA :64285
## Yes children 12 - 17 in HH:11068 children not in any type of school: 4829
##
##

```

```

##
##
##
##          RECVDVACC                      DOSESRV
## NA              : 851    NA              : 9105
## yes got vaxx    :60326  yes got all doses :57762
## no did not get vaxx: 7937  yes plan to get all doses: 1993
##                  no will not get all doses: 254
##
##
##
##          GETVACRV                      KIDDOSES
## NA              :61159  NA              :58318
## definitely will get vaxx: 609  Yes kids got or will get all doses: 7135
## probably will get vaxx : 731  no kids did not or will not : 3661
## unsure about vaxx      : 1584
## probably not           : 1599
## definitely not         : 3432
##
##          KIDGETVAC                      HADCOVID
## NA              :65384  NA              : 1363
## definitely will get vaxx: 487  yes doctor told had covid: 9122
## probably will get vaxx : 439  no did not :58221
## unsure about vaxx      : 736  not sure : 408
## probably not           : 593
## definitely not         : 1036
## dont know yet         : 439
##
##          WRKLOSSRV                      ANYWORK
## NA              : 1961  NA              : 2135
## yes recent HH job loss: 8058  yes employment in last 7 days:39237
## no recent HH job loss :59095  no employment in last 7 days :27742
##
##
##
##          KINDWORK                      RSNNOWRKRV
## NA              :30540  NA              :42659
## work for govt    : 6378  retired      :15024
## work for private co:21370  other        : 4027
## work for nonprofit : 5055  sick or disabled: 1451
## self employed    : 4966  caring for kids : 1329
## work in family biz : 805  laid off    : 1164
##                  (Other)   : 3460
##
##          CHLDCARE
## NA              :58419
## yes impacts to childcare because pandemic: 2566
## no              : 8129
##
##
##
##          CURFOODSUF
## NA              : 6770
## had enough food :49234

```

```

## had enough but not what wanted: 9947
## sometimes not enough food      : 2486
## often not enough food          : 677
##
##
## CHILDFOOD
## NA                             :64258
## often kids not eating enough because couldnt afford: 271
## sometimes kids not eating enough      : 1191
## kids got enough food                  : 3394
##
##
## ANXIOUS
## NA                             : 7946
## no anxiety over past 2 wks         :26611
## several days anxiety over past 2 wks :19794
## more than half the days anxiety over past 2 wks: 6140
## nearly every day anxiety           : 8623
##
##
## WORRY
## NA                             : 8016
## no worry over past 2 wks          :31876
## several days worried over past 2 wks :17936
## more than half the days worried over past 2 wks: 4979
## nearly every day worry             : 6307
##
##
## TENURE
## NA                             :11103
## housing owned free and clear :16738
## housing owned with mortgage :28016
## housing rented                :12579
## housing occupied without rent: 678
##
##
## LIVQTRRV          RENTCUR
## live in detached 1 family      :41348 NA          :56572
## NA                             :11336 current on rent:11239
## live in bldg w 5+ apts         : 6731 behind on rent : 1303
## live in 1 family attached to others: 4628
## live in mobile home            : 1781
## live in building with 3-4 apts  : 1737
## (Other)                       : 1553
##
## MORTCUR          EVICT
## NA               :41200 NA               :67859
## current on mortgage:26462 very likely evicted in next 2 months : 207
## behind on mortgage : 1452 somewhat likely evicted in next 2 months : 377
## not very likely evicted in next 2 months : 345
## not at all likely evicted in next 2 months: 326
##
##
## FORCLOSE          EST_ST

```

```

## NA :67695 California : 5359
## very likely foreclosed in next 2 months : 65 Texas : 3766
## somewhat likely foreclosed in next 2 months: 218 Florida : 2728
## not very likely foreclosed in next 2 months: 474 Washington : 2634
## not at all foreclosed in next 2 months : 662 Massachusetts: 1965
## Oregon : 1934
## (Other) :50728
## PRIVHLTH PUBHLTH REGION
## has private health ins:46869 has public health ins:23346 Northeast:10478
## no private health ins :11275 no public health ins :33381 South :22680
## NA :10970 NA :12387 Midwest :13651
## West :22305
##
##
## INCOME TBIRTH_YEAR Num_kids_Pub_School
## NA :14637 Min. :1933 Min. :0.00
## HH income $100k - 149:10117 1st Qu.:1955 1st Qu.:1.00
## HH income $50k - 74.9: 9330 Median :1967 Median :2.00
## HH income $75 - 99.9 : 7830 Mean :1968 Mean :1.71
## HH income $200k + : 6117 3rd Qu.:1981 3rd Qu.:2.00
## HH income $35k - 49.9: 5805 Max. :2003 Max. :4.00
## (Other) :15278 NA's :55108
## Num_kids_Priv_School Num_kids_homeschool Works_onsite
## Min. :0.00 Min. :0.00 NA : 6350
## 1st Qu.:0.00 1st Qu.:0.00 worked onsite:34918
## Median :1.00 Median :1.00 no :27846
## Mean :1.03 Mean :0.87
## 3rd Qu.:2.00 3rd Qu.:2.00
## Max. :2.00 Max. :2.00
## NA's :66430 NA's :67421
## works_remote Shop_in_store
## NA : 8022 NA : 6873
## worked remotely:22863 shopped in store:53576
## no :38229 no : 8665
##
##
## eat_in_restaurant
## NA : 7217
## eat at restaurant indoors:32405
## no :29492
##
##
##

```

```
attach(Household_Pulse_data)
```

```
summary(TBIRTH_YEAR[GENID_DESCRIBE == "female"])
```

```

## Min. 1st Qu. Median Mean 3rd Qu. Max.
## 1933 1956 1968 1969 1981 2003

```

```
summary(TBIRTH_YEAR[GENID_DESCRIBE == "male"])
```

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##    1933    1953    1965    1967    1980    2003
```

```
summary(TBIRTH_YEAR[GENID_DESCRIBE == "transgender"])
```

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##    1933    1975    1988    1983    1995    2003
```

```
summary(TBIRTH_YEAR[GENID_DESCRIBE == "other"])
```

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##    1933    1959    1973    1973    1988    2003
```

```
summary(TBIRTH_YEAR[GENID_DESCRIBE == "NA"])
```

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
##    1933    1952    1962    1964    1977    2003
```