RP- Childcare

Sonam Motiani

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```
#reading file combinedprcf
Combinedprcf <- fread("//Users/sonammotiani/Downloads/Combinedprcf.csv")
```

```
Q_1_5 <- Combinedprcf %>%
filter (Q == 1) %>%
group_by(YEAR99) %>%
summarise(Q_1_5_PR = weighted.mean(Y3,ICSWT26))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
ROC_1_5 <- Combinedprcf %>%
filter (Q == 0) %>%
group_by(YEAR99) %>%
summarise(ROC_1_5_PR = weighted.mean(Y3,ICSWT26))
```
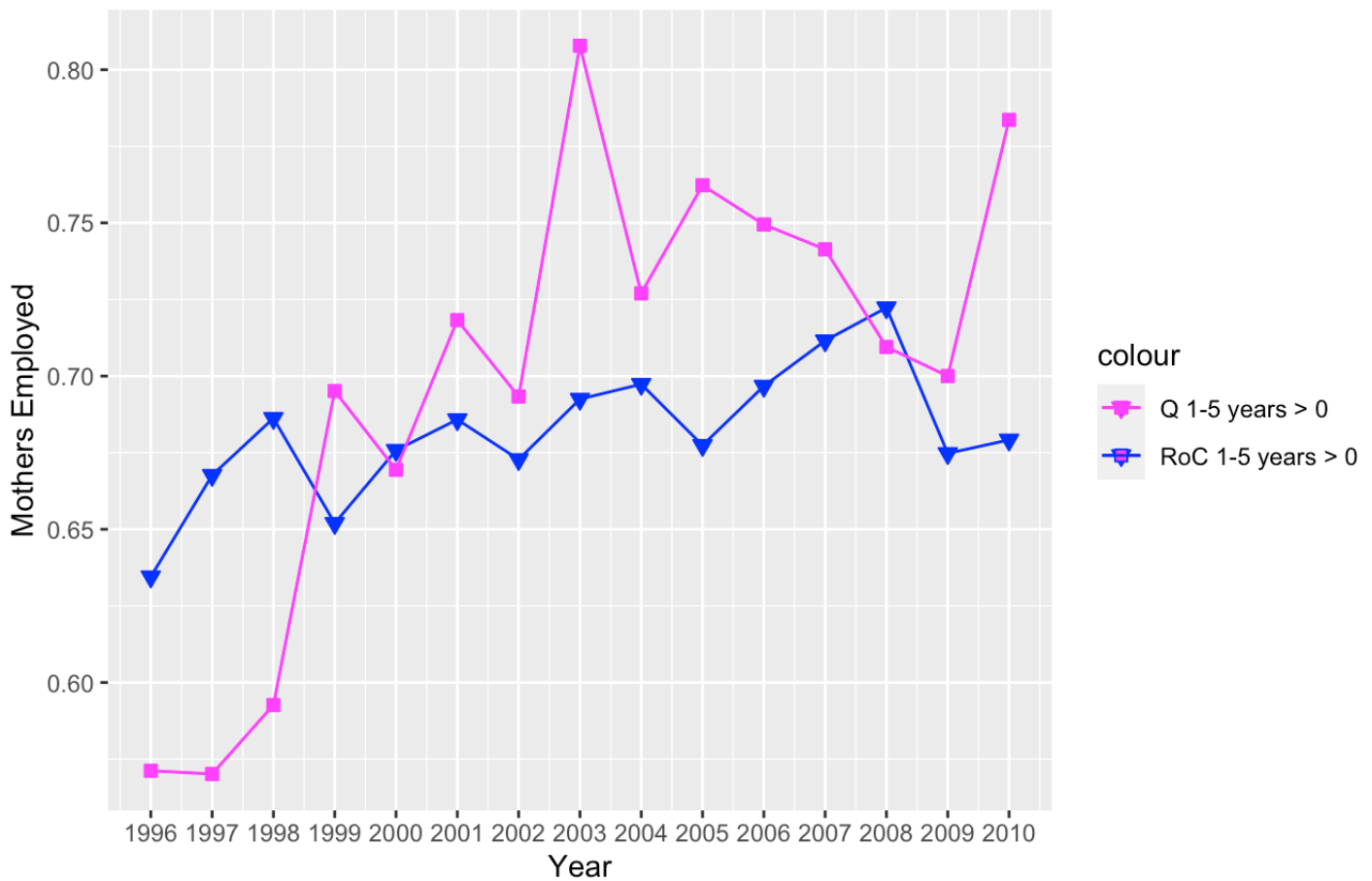
```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
PR <- left_join( Q_1_5, ROC_1_5, by='YEAR99')


PR_Plot <- ggplot(data = PR, aes(x=YEAR99))+ geom_point(aes(y = ROC_1_5_PR,col = "RoC
1-5 years > 0"), fill = "blue", shape = 25, size = 2) +  geom_line(aes(y = ROC_1_5_PR
,col = "RoC 1-5 years > 0")) + geom_point(aes(y = Q_1_5_PR,col = "Q 1-5 years > 0"),
fill = "magenta", shape = 22, size = 2) +  geom_line(aes(y = Q_1_5_PR,col = "Q 1-5 ye
ars > 0"))+ scale_color_manual( values = c( "magenta","blue"))+labs(title = "Mother's
Labor Force Participation", subtitle = "1996 to 2010", x = "Year", y = "Mothers Emplo
yed") +  scale_x_continuous(breaks=seq(1996, 2010, 1))

PR_Plot
```

Mother's Labor Force Participation
1996 to 2010


```
Q_1_5 <- Combinedprcf %>%
filter (Q == 1) %>%
group_by(YEAR99) %>%
summarise(Q_1_5_QO = weighted.mean(Y3,ICSWT26))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
O_1_5 <- Combinedprcf %>%
filter (O == 1) %>%
group_by(YEAR99) %>%
summarise(O_1_5_QO = weighted.mean(Y3,ICSWT26))
```
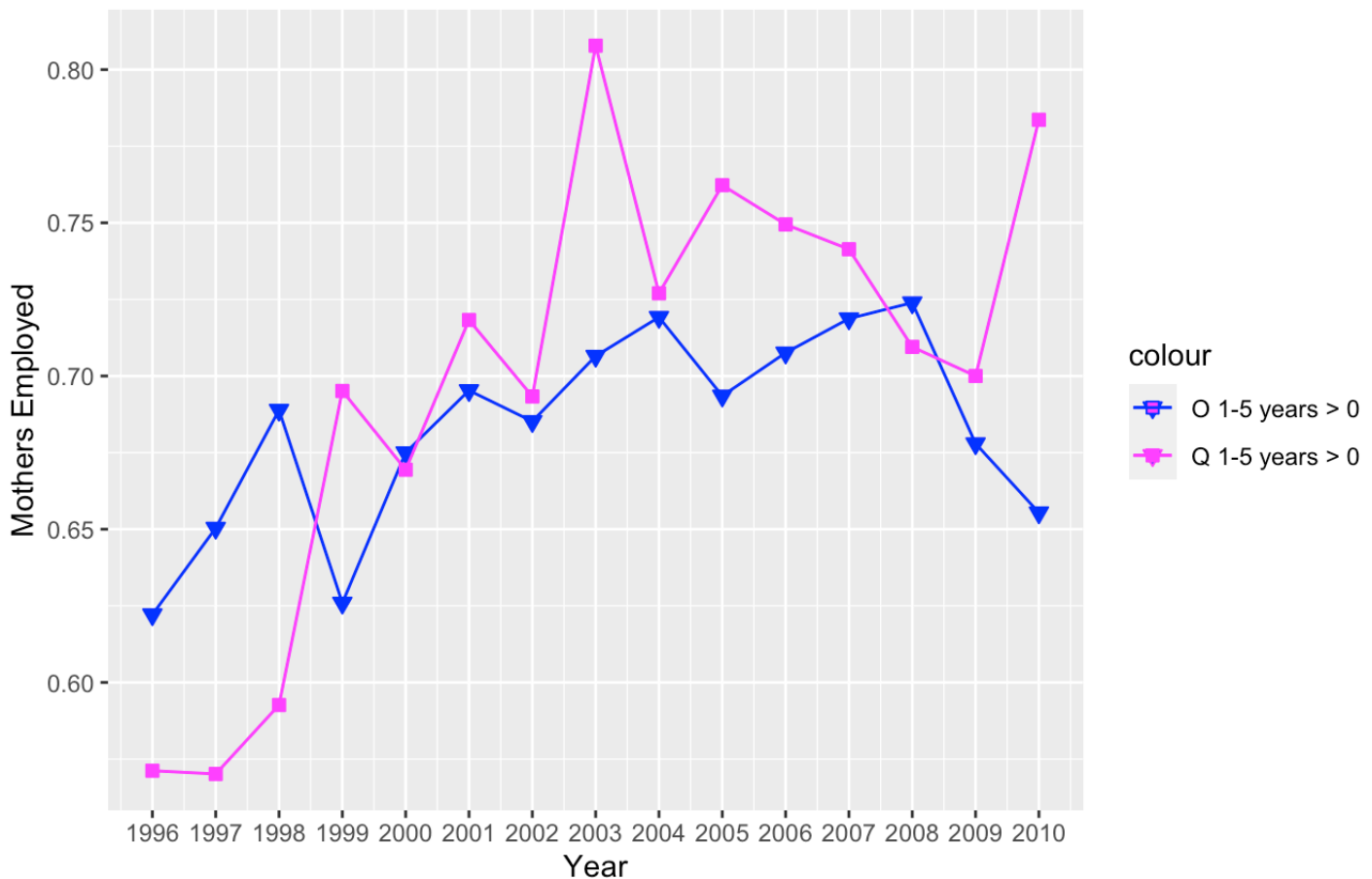
```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
QO <- left_join( Q_1_5, O_1_5, by='YEAR99')
```

```
QO_Plot <- ggplot(data = QO, aes(x=YEAR99))+ geom_point(aes(y = O_1_5_QO,col = "O 1-5
years > 0"), fill = "blue", shape = 25, size = 2) +  geom_line(aes(y = O_1_5_QO,col =
"O 1-5 years > 0")) + geom_point(aes(y = Q_1_5_QO,col = "Q 1-5 years > 0"), fill = "m
agenta", shape = 22, size = 2) +  geom_line(aes(y = Q_1_5_QO,col = "Q 1-5 years > 0")
)+ scale_color_manual( values =c ("blue","magenta"))+labs(title = "Mother's Labor For
ce Participation", subtitle = "1996 to 2010", x = "Year", y = "Mothers Employed") + s
cale_x_continuous(breaks=seq(1996, 2010, 1))

QO_Plot
```


Mother's Labor Force Participation
1996 to 2010

```
Q_1_5_Earn  <- Combinedprcf %>%
  filter (Q == 1) %>%
  group_by(YEAR99) %>%
  summarise(Q_1_5_Earn = weighted.mean(EARNG42,ICSWT26))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
ROC_1_5_Earn  <- Combinedprcf %>%
filter (Q == 0) %>%
group_by(YEAR99) %>%
summarise(ROC_1_5_Earn = weighted.mean(EARNG42,ICSWT26))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```
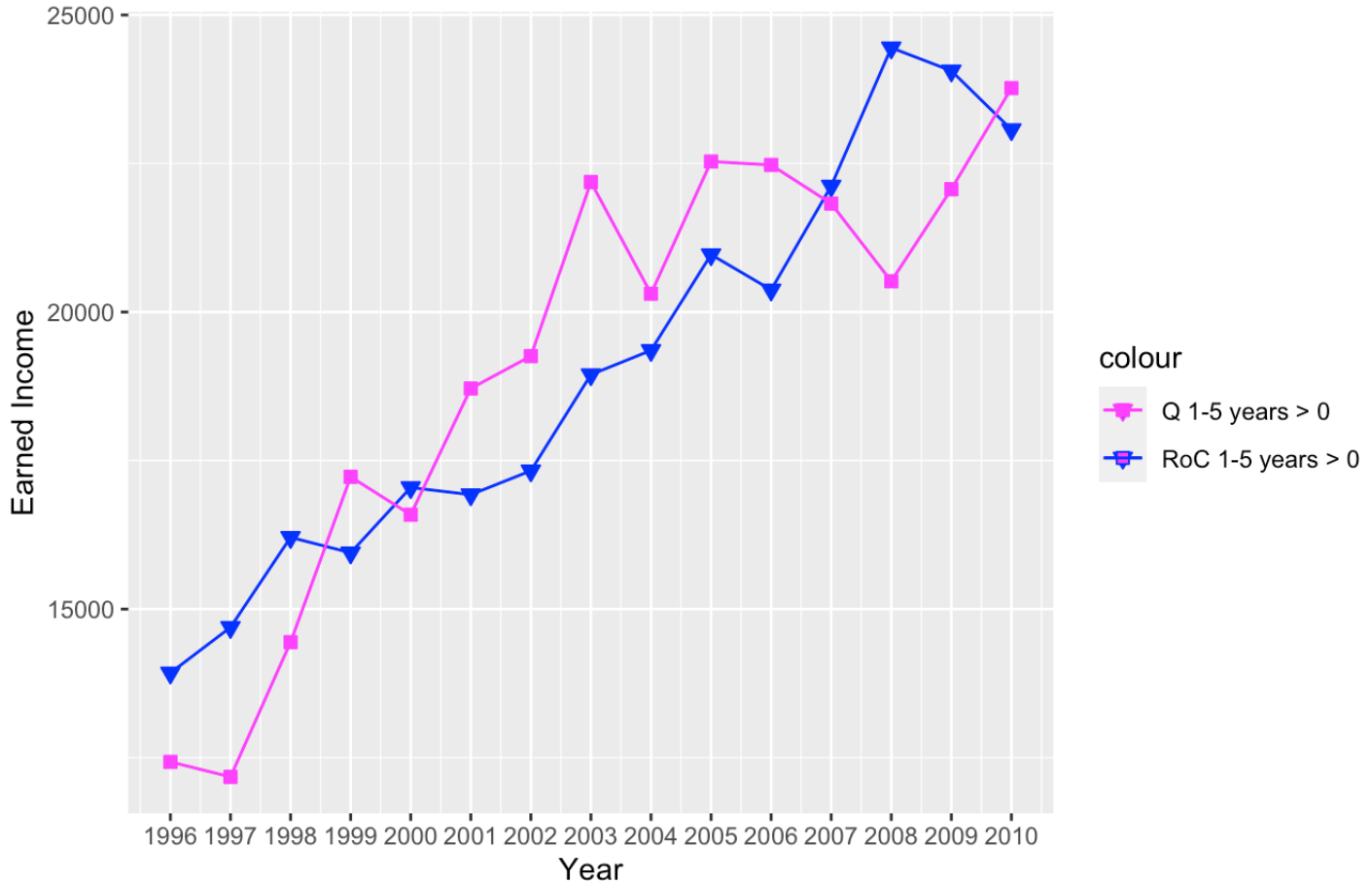
```
Earn <- left_join(Q_1_5_Earn, ROC_1_5_Earn, by='YEAR99')

Earn_Plot <- ggplot(data = Earn, aes(x=YEAR99))+ geom_point(aes(y = ROC_1_5_Earn,co
l = "RoC 1-5 years > 0"), fill = "blue", shape = 25, size = 2) + geom_line(aes(y = RO
C_1_5_Earn,col = "RoC 1-5 years > 0")) + geom_point(aes(y = Q_1_5_Earn,col = "Q 1-5 y
ears > 0"), fill = "magenta", shape = 22, size = 2) + geom_line(aes(y = Q_1_5_Earn,co
l = "Q 1-5 years > 0")) + scale_color_manual( values = c( "magenta","blue")) + labs(t
itle = "Mother's Annual Earned Income", subtitle = "1996 to 2010", x = "Year", y = "E
arned Income") + scale_x_continuous(breaks=seq(1996, 2010, 1))


Earn_Plot
```

Mother's Annual Earned Income
1996 to 2010


```
Q_1_5_Earn  <- Combinedprcf %>%
  filter (Q == 1) %>%
  group_by(YEAR99) %>%
  summarise(Q_1_5_EarnQO = weighted.mean(EARNG42,ICSWT26))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
O_1_5_Earn  <- Combinedprcf %>%
  filter (O == 1) %>%
  group_by(YEAR99) %>%
  summarise(O_1_5_EarnQO = weighted.mean(EARNG42,ICSWT26))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
  EarnQO <- left_join(Q_1_5_Earn, O_1_5_Earn, by='YEAR99')

  EarnQO_Plot <- ggplot(data = EarnQO, aes(x=YEAR99))+ geom_point(aes(y = O_1_5_EarnQ
O,col = "O 1-5 years > 0"), fill = "blue", shape = 25, size = 2) + geom_line(aes(y =
O_1_5_EarnQO,col = "O 1-5 years > 0")) + geom_point(aes(y = Q_1_5_EarnQO,col = "Q 1-5
years > 0"), fill = "magenta", shape = 22, size = 2) + geom_line(aes(y = Q_1_5_EarnQO
,col = "Q 1-5 years > 0")) + scale_color_manual( values = c( "blue","magenta")) + lab
s(title = "Mother's Annual Earned Income", subtitle = "1996 to 2010", x = "Year", y =
"Earned Income") + scale_x_continuous(breaks=seq(1996, 2010, 1))


EarnQO_Plot
```

Mother's Annual Earned Income
1996 to 2010


```
#Regression



summary(lm(Y3~Q+I1+Q*I1,data=Combinedprcf,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = Y3 ~ Q + I1 + Q * I1, data = Combinedprcf, weights = ICSWT26)
##
## Weighted Residuals:
##     Min      1Q  Median      3Q     Max
## -54.737  -6.632   4.037   6.255  25.465
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.662690   0.005606 118.216  < 2e-16 ***
## Q           -0.084801   0.011514  -7.365 1.81e-13 ***
## I1           0.023432   0.006322   3.707  0.00021 ***
## Q:I1         0.128338   0.013044   9.839  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.92 on 41545 degrees of freedom
## Multiple R-squared:  0.004745,    Adjusted R-squared:  0.004673
## F-statistic: 66.02 on 3 and 41545 DF,  p-value: < 2.2e-16
```

```
summary(lm(Y3~Q+I1+Q1999+Q2000+Q2001+Q2002+Q2003+Q2004+Q2005+Q2006+Q2007+Q2008+Q2009+
Q2010,data=Combinedprcf,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = Y3 ~ Q + I1 + Q1999 + Q2000 + Q2001 + Q2002 + Q2003 +
##     Q2004 + Q2005 + Q2006 + Q2007 + Q2008 + Q2009 + Q2010, data = Combinedprcf,
##     weights = ICSWT26)
##
## Weighted Residuals:
##     Min      1Q  Median      3Q     Max
## -54.764  -6.629   4.028   6.274  25.465
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.662690   0.005603 118.276  < 2e-16 ***
## Q           -0.084801   0.011509  -7.369 1.76e-13 ***
## I1           0.023432   0.006318   3.709 0.000209 ***
## Q1999        0.093805   0.021810   4.301 1.70e-05 ***
## Q2000        0.068099   0.021613   3.151 0.001629 **
## Q2001        0.116944   0.022494   5.199 2.02e-07 ***
## Q2002        0.092013   0.022720   4.050 5.13e-05 ***
## Q2003        0.206488   0.022515   9.171  < 2e-16 ***
## Q2004        0.125678   0.022926   5.482 4.23e-08 ***
## Q2005        0.160946   0.022702   7.089 1.37e-12 ***
## Q2006        0.148151   0.022415   6.610 3.90e-11 ***
## Q2007        0.140053   0.021823   6.418 1.40e-10 ***
## Q2008        0.108178   0.021896   4.941 7.82e-07 ***
## Q2009        0.098685   0.021841   4.518 6.25e-06 ***
## Q2010        0.182283   0.020983   8.687  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.915 on 41534 degrees of freedom
## Multiple R-squared:  0.006017,   Adjusted R-squared:  0.005681
## F-statistic: 17.96 on 14 and 41534 DF,  p-value: < 2.2e-16
```

```
summary(lm(EARNG42~Q+I1+Q*I1,data=Combinedprcf,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ Q + I1 + Q * I1, data = Combinedprcf,
##     weights = ICSWT26)
##
## Weighted Residuals:
##      Min       1Q   Median       3Q      Max
## -1546054  -266077   -96548   146345 16645872
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  14935.3      299.6  49.848  < 2e-16 ***
## Q            -1928.3      615.4  -3.133 0.001730 **
## I1            5087.9      337.9  15.059  < 2e-16 ***
## Q:I1          2539.2      697.2   3.642 0.000271 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 530200 on 41545 degrees of freedom
## Multiple R-squared:  0.009139,   Adjusted R-squared:  0.009068
## F-statistic: 127.7 on 3 and 41545 DF,  p-value: < 2.2e-16
```

```
summary(lm(EARNG42~Q+I1+Q1999+Q2000+Q2001+Q2002+Q2003+Q2004+Q2005+Q2006+Q2007+Q2008+Q
2009+Q2010,data=Combinedprcf,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ Q + I1 + Q1999 + Q2000 + Q2001 + Q2002 +
##     Q2003 + Q2004 + Q2005 + Q2006 + Q2007 + Q2008 + Q2009 + Q2010,
##     data = Combinedprcf, weights = ICSWT26)
##
## Weighted Residuals:
##       Min       1Q    Median       3Q       Max
## -1687269  -263763    -96148   147152  16645872
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)   14935.3      299.4  49.877  < 2e-16 ***
## Q             -1928.3      615.1  -3.135 0.001719 **
## I1             5087.9      337.7  15.068  < 2e-16 ***
## Q1999          -868.9     1165.6  -0.745 0.455999
## Q2000         -1506.5     1155.1  -1.304 0.192156
## Q2001           619.1     1202.2   0.515 0.606590
## Q2002          1163.8     1214.2   0.958 0.337828
## Q2003          4092.5     1203.3   3.401 0.000672 ***
## Q2004          2212.9     1225.2   1.806 0.070907 .
## Q2005          4438.2     1213.3   3.658 0.000255 ***
## Q2006          4380.9     1197.9   3.657 0.000255 ***
## Q2007          3730.5     1166.3   3.199 0.001382 **
## Q2008          2423.6     1170.2   2.071 0.038357 *
## Q2009          3972.9     1167.3   3.404 0.000666 ***
## Q2010          5674.1     1121.4   5.060 4.22e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 529900 on 41534 degrees of freedom
## Multiple R-squared:  0.01055,    Adjusted R-squared:  0.01022
## F-statistic: 31.63 on 14 and 41534 DF,  p-value: < 2.2e-16
```

```
newtable <- Combinedprcf %>% filter(HLEVEG18 <= 6 | HLEVEG18 == 97)
```

```
newtable2 <- Combinedprcf %>% filter(HLEVEG18 > 6 & HLEVEG18 != 97)
```

```r
summary(lm(Y3~Q+I1+Q*I1,data=newtable,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = Y3 ~ Q + I1 + Q * I1, data = newtable, weights = ICSWT26)
##
## Weighted Residuals:
##     Min     1Q  Median     3Q     Max
## -38.604  -8.141   3.706   7.944  33.428
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.56718    0.01024  55.387  < 2e-16 ***
## Q           -0.20711    0.02040 -10.154  < 2e-16 ***
## I1          -0.03001    0.01192  -2.517   0.0118 *
## Q:I1         0.16524    0.02451   6.742 1.64e-11 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.44 on 11454 degrees of freedom
## Multiple R-squared:  0.009884,   Adjusted R-squared:  0.009625
## F-statistic: 38.11 on 3 and 11454 DF,  p-value: < 2.2e-16
```

```
summary(lm(Y3~Q+I1+Q1999+Q2000+Q2001+Q2002+Q2003+Q2004+Q2005+Q2006+Q2007+Q2008+Q2009+
Q2010,data=newtable,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = Y3 ~ Q + I1 + Q1999 + Q2000 + Q2001 + Q2002 + Q2003 +
##     Q2004 + Q2005 + Q2006 + Q2007 + Q2008 + Q2009 + Q2010, data = newtable,
##     weights = ICSWT26)
##
## Weighted Residuals:
##     Min      1Q  Median      3Q     Max
## -38.604  -8.144   3.703   7.937  31.183
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.56718    0.01024  55.410  < 2e-16 ***
## Q           -0.20711    0.02039 -10.158  < 2e-16 ***
## I1          -0.03001    0.01192  -2.518 0.011807 *
## Q1999        0.19365    0.03986   4.859 1.20e-06 ***
## Q2000        0.08532    0.04012   2.127 0.033468 *
## Q2001        0.17118    0.04479   3.822 0.000133 ***
## Q2002        0.08890    0.04423   2.010 0.044446 *
## Q2003        0.25798    0.04817   5.356 8.67e-08 ***
## Q2004        0.16258    0.04799   3.388 0.000706 ***
## Q2005        0.20615    0.05312   3.881 0.000105 ***
## Q2006        0.22417    0.05473   4.096 4.23e-05 ***
## Q2007        0.20228    0.05194   3.894 9.90e-05 ***
## Q2008        0.11630    0.05438   2.139 0.032475 *
## Q2009        0.12626    0.04934   2.559 0.010511 *
## Q2010        0.21654    0.04998   4.332 1.49e-05 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.44 on 11443 degrees of freedom
## Multiple R-squared:  0.01165,     Adjusted R-squared:  0.01044
## F-statistic: 9.634 on 14 and 11443 DF,  p-value: < 2.2e-16
```

```
summary(lm(EARNG42~Q+I1+Q*I1,data=newtable,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ Q + I1 + Q * I1, data = newtable, weights = ICSWT26)
##
## Weighted Residuals:
##      Min      1Q  Median      3Q     Max
## -753550 -154033  -70179   63860 6940747
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)     9436.6      290.5  32.480  < 2e-16 ***
## Q              -3832.2      578.7  -6.622  3.7e-11 ***
## I1               905.6      338.2   2.678  0.00742 **
## Q:I1            2166.4      695.4   3.115  0.00184 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 296200 on 11454 degrees of freedom
## Multiple R-squared:  0.007762,   Adjusted R-squared:  0.007502
## F-statistic: 29.87 on 3 and 11454 DF,  p-value: < 2.2e-16
```

```
summary(lm(EARNG42~Q+I1+Q1999+Q2000+Q2001+Q2002+Q2003+Q2004+Q2005+Q2006+Q2007+Q2008+Q
2009+Q2010,data=newtable,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ Q + I1 + Q1999 + Q2000 + Q2001 + Q2002 +
##     Q2003 + Q2004 + Q2005 + Q2006 + Q2007 + Q2008 + Q2009 + Q2010,
##     data = newtable, weights = ICSWT26)
##
## Weighted Residuals:
##     Min      1Q  Median      3Q     Max
## -898805 -153587  -69859   64369 6940747
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  9436.64     290.37  32.499  < 2e-16 ***
## Q           -3832.17     578.36  -6.626 3.61e-11 ***
## I1            905.61     338.01   2.679  0.00739 **
## Q1999        2793.49    1130.64   2.471  0.01350 *
## Q2000         353.13    1138.05   0.310  0.75634
## Q2001        1151.42    1270.52   0.906  0.36482
## Q2002        2034.20    1254.59   1.621  0.10496
## Q2003        1812.51    1366.35   1.327  0.18469
## Q2004        2836.47    1361.21   2.084  0.03720 *
## Q2005        3801.77    1506.96   2.523  0.01166 *
## Q2006        3115.85    1552.51   2.007  0.04478 *
## Q2007        1548.78    1473.48   1.051  0.29323
## Q2008         -52.51    1542.52  -0.034  0.97285
## Q2009         893.62    1399.66   0.638  0.52319
## Q2010        6919.91    1417.83   4.881 1.07e-06 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 296000 on 11443 degrees of freedom
## Multiple R-squared:  0.009876,   Adjusted R-squared:  0.008665
## F-statistic: 8.153 on 14 and 11443 DF,  p-value: < 2.2e-16
```

```
summary(lm(Y3~Q+I1+Q*I1,data=newtable2,weights=ICSWT26))
```

```
## 
## Call:
## lm(formula = Y3 ~ Q + I1 + Q * I1, data = newtable2, weights = ICSWT26)
## 
## Weighted Residuals:
##     Min      1Q  Median      3Q     Max 
## -59.637   1.685   3.596   5.401  20.606 
## 
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)    
## (Intercept)  0.710143   0.006502 109.226  < 2e-16 ***
## Q           -0.009688   0.013577  -0.714 0.475511    
## I1           0.026693   0.007249   3.682 0.000232 ***
## Q:I1         0.067825   0.015099   4.492 7.08e-06 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 9.404 on 30087 degrees of freedom
## Multiple R-squared:  0.004067,   Adjusted R-squared:  0.003968 
## F-statistic: 40.95 on 3 and 30087 DF,  p-value: < 2.2e-16
```

```
summary(lm(Y3~Q+I1+Q1999+Q2000+Q2001+Q2002+Q2003+Q2004+Q2005+Q2006+Q2007+Q2008+Q2009+
Q2010,data=newtable2,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = Y3 ~ Q + I1 + Q1999 + Q2000 + Q2001 + Q2002 + Q2003 +
##     Q2004 + Q2005 + Q2006 + Q2007 + Q2008 + Q2009 + Q2010, data = newtable2,
##     weights = ICSWT26)
##
## Weighted Residuals:
##     Min      1Q  Median      3Q     Max
## -57.969   1.666   3.593   5.401  20.606
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.710143   0.006500 109.255  < 2e-16 ***
## Q           -0.009688   0.013573  -0.714 0.475393
## I1           0.026693   0.007248   3.683 0.000231 ***
## Q1999        0.051061   0.025323   2.016 0.043774 *
## Q2000        0.057679   0.024919   2.315 0.020637 *
## Q2001        0.067515   0.025263   2.672 0.007534 **
## Q2002        0.071067   0.025707   2.765 0.005704 **
## Q2003        0.141609   0.024795   5.711 1.13e-08 ***
## Q2004        0.069993   0.025374   2.759 0.005810 **
## Q2005        0.083095   0.024548   3.385 0.000713 ***
## Q2006        0.058819   0.024088   2.442 0.014617 *
## Q2007        0.055657   0.023573   2.361 0.018229 *
## Q2008        0.028693   0.023503   1.221 0.222165
## Q2009        0.029228   0.023802   1.228 0.219478
## Q2010        0.102316   0.022709   4.506 6.65e-06 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.401 on 30076 degrees of freedom
## Multiple R-squared:  0.004962,   Adjusted R-squared:  0.004498
## F-statistic: 10.71 on 14 and 30076 DF,  p-value: < 2.2e-16
```

```
summary(lm(EARNG42~Q+I1+Q*I1,data=newtable2,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ Q + I1 + Q * I1, data = newtable2, weights = ICSWT26)
##
## Weighted Residuals:
##       Min      1Q   Median       3Q      Max
## -1796056  -290670   -91908   171222 16542891
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  17667.1      400.5  44.118   <2e-16 ***
## Q             -494.7      836.2  -0.592    0.554
## I1            5652.2      446.5  12.658   <2e-16 ***
## Q:I1          1142.2      930.0   1.228    0.219
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 579200 on 30087 degrees of freedom
## Multiple R-squared:  0.007626,   Adjusted R-squared:  0.007527
## F-statistic: 77.07 on 3 and 30087 DF,  p-value: < 2.2e-16
```

```
summary(lm(EARNG42~Q+I1+Q1999+Q2000+Q2001+Q2002+Q2003+Q2004+Q2005+Q2006+Q2007+Q2008+Q
2009+Q2010,data=newtable2,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ Q + I1 + Q1999 + Q2000 + Q2001 + Q2002 +
##     Q2003 + Q2004 + Q2005 + Q2006 + Q2007 + Q2008 + Q2009 + Q2010,
##     data = newtable2, weights = ICSWT26)
##
## Weighted Residuals:
##       Min       1Q   Median       3Q      Max
## -1800981  -290145   -91069   172350 16542891
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  17667.1      400.4  44.125   <2e-16 ***
## Q             -494.7      836.1  -0.592   0.5541
## I1            5652.2      446.4  12.661   <2e-16 ***
## Q1999        -1758.5     1559.9  -1.127   0.2596
## Q2000        -1818.0     1535.0  -1.184   0.2363
## Q2001         -219.7     1556.2  -0.141   0.8877
## Q2002          529.8     1583.5   0.335   0.7379
## Q2003         3208.1     1527.3   2.100   0.0357 *
## Q2004          764.0     1563.0   0.489   0.6250
## Q2005         2302.4     1512.1   1.523   0.1279
## Q2006         2053.3     1483.8   1.384   0.1664
## Q2007         1729.6     1452.1   1.191   0.2336
## Q2008          170.2     1447.8   0.118   0.9064
## Q2009         2635.4     1466.2   1.797   0.0723 .
## Q2010         2945.0     1398.8   2.105   0.0353 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 579100 on 30076 degrees of freedom
## Multiple R-squared:  0.008321,   Adjusted R-squared:  0.007859
## F-statistic: 18.03 on 14 and 30076 DF,  p-value: < 2.2e-16
```

```
summary(lm(Y3~O+I1+O*I1,data=Combinedprcf,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = Y3 ~ O + I1 + O * I1, data = Combinedprcf, weights = ICSWT26)
##
## Weighted Residuals:
##     Min      1Q  Median      3Q     Max
## -52.572  -6.677   4.017   6.271  24.286
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.635455   0.006309 100.717   <2e-16 ***
## O            0.018007   0.010023   1.797   0.0724 .
## I1           0.064649   0.007127   9.071   <2e-16 ***
## O:I1        -0.028279   0.011316  -2.499   0.0125 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.932 on 41545 degrees of freedom
## Multiple R-squared:  0.002406,   Adjusted R-squared:  0.002334
## F-statistic:  33.4 on 3 and 41545 DF,  p-value: < 2.2e-16
```

```
summary(lm(Y3~O+I1+O1999+O2000+O2001+O2002+O2003+O2004+O2005+O2006+O2007+O2008+O2009+
O2010,data=Combinedprcf,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = Y3 ~ O + I1 + O1999 + O2000 + O2001 + O2002 + O2003 +
##     O2004 + O2005 + O2006 + O2007 + O2008 + O2009 + O2010, data = Combinedprcf,
##     weights = ICSWT26)
##
## Weighted Residuals:
##     Min      1Q  Median      3Q     Max
## -52.520  -6.671   4.015   6.279  26.982
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.6354548  0.0063067 100.759  < 2e-16 ***
## O            0.0180071  0.0100183   1.797 0.072277 .
## I1           0.0646494  0.0071238   9.075  < 2e-16 ***
## O1999       -0.0921682  0.0173735  -5.305 1.13e-07 ***
## O2000       -0.0431042  0.0173333  -2.487 0.012894 *
## O2001       -0.0228212  0.0175922  -1.297 0.194557
## O2002       -0.0329078  0.0173187  -1.900 0.057423 .
## O2003       -0.0116073  0.0174319  -0.666 0.505501
## O2004        0.0010831  0.0178497   0.061 0.951617
## O2005       -0.0245924  0.0175804  -1.399 0.161865
## O2006       -0.0105320  0.0179571  -0.587 0.557536
## O2007        0.0006167  0.0177429   0.035 0.972272
## O2008        0.0058267  0.0177774   0.328 0.743094
## O2009       -0.0401601  0.0179899  -2.232 0.025596 *
## O2010       -0.0627104  0.0176229  -3.558 0.000373 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.927 on 41534 degrees of freedom
## Multiple R-squared:  0.00352,    Adjusted R-squared:  0.003184
## F-statistic: 10.48 on 14 and 41534 DF,  p-value: < 2.2e-16
```

```
summary(lm(EARNG42~O+I1+O*I1,data=Combinedprcf,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ O + I1 + O * I1, data = Combinedprcf,
##     weights = ICSWT26)
##
## Weighted Residuals:
##      Min       1Q   Median       3Q      Max
## -1628240  -261681   -91505   149948 16666382
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  13030.6      336.5  38.726  < 2e-16 ***
## O             3653.0      534.5   6.834 8.36e-12 ***
## I1            6336.2      380.1  16.671  < 2e-16 ***
## O:I1         -1654.5      603.5  -2.742  0.00612 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 529700 on 41545 degrees of freedom
## Multiple R-squared:  0.01114,    Adjusted R-squared:  0.01107
## F-statistic: 156.1 on 3 and 41545 DF,  p-value: < 2.2e-16
```

```
summary(lm(EARNG42~O+I1+O1999+O2000+O2001+O2002+O2003+O2004+O2005+O2006+O2007+O2008+O
2009+O2010,data=Combinedprcf,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ O + I1 + O1999 + O2000 + O2001 + O2002 +
##     O2003 + O2004 + O2005 + O2006 + O2007 + O2008 + O2009 + O2010,
##     data = Combinedprcf, weights = ICSWT26)
##
## Weighted Residuals:
##       Min       1Q   Median       3Q      Max
## -1959300  -259018   -90139   152043 16666382
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  13030.6       335.8  38.807  < 2e-16 ***
## O             3653.0       533.4   6.849 7.56e-12 ***
## I1            6336.2       379.3  16.706  < 2e-16 ***
## O1999        -5918.2       925.0  -6.398 1.59e-10 ***
## O2000        -4395.0       922.9  -4.762 1.92e-06 ***
## O2001        -4972.9       936.6  -5.309 1.11e-07 ***
## O2002        -3924.1       922.1  -4.256 2.09e-05 ***
## O2003        -2890.3       928.1  -3.114 0.001846 **
## O2004        -1666.3       950.4  -1.753 0.079549 .
## O2005        -1006.1       936.0  -1.075 0.282419
## O2006        -1726.5       956.1  -1.806 0.070950 .
## O2007         -848.7       944.7  -0.898 0.368994
## O2008         2572.5       946.5   2.718 0.006572 **
## O2009         3435.4       957.8   3.587 0.000335 ***
## O2010         2451.1       938.3   2.612 0.008995 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 528600 on 41534 degrees of freedom
## Multiple R-squared:  0.01554,    Adjusted R-squared:  0.0152
## F-statistic: 46.82 on 14 and 41534 DF,  p-value: < 2.2e-16
```

```
summary(lm(Y3~O+I1+O*I1,data=newtable,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = Y3 ~ O + I1 + O * I1, data = newtable, weights = ICSWT26)
##
## Weighted Residuals:
##     Min     1Q  Median      3Q     Max
## -38.385  -8.074   3.962   8.164  31.479
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.49371    0.01139  43.334  < 2e-16 ***
## O            0.05449    0.01824   2.988  0.00281 **
## I1           0.03102    0.01350   2.298  0.02156 *
## O:I1        -0.04509    0.02133  -2.114  0.03457 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.49 on 11454 degrees of freedom
## Multiple R-squared:  0.0009928,  Adjusted R-squared:  0.0007311
## F-statistic: 3.794 on 3 and 11454 DF,  p-value: 0.009849
```

```
summary(lm(Y3~O+I1+O1999+O2000+O2001+O2002+O2003+O2004+O2005+O2006+O2007+O2008+O2009+
O2010,data=newtable,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = Y3 ~ O + I1 + O1999 + O2000 + O2001 + O2002 + O2003 +
##     O2004 + O2005 + O2006 + O2007 + O2008 + O2009 + O2010, data = newtable,
##     weights = ICSWT26)
##
## Weighted Residuals:
##     Min      1Q  Median      3Q     Max
## -39.666  -8.068   3.953   8.160  37.805
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.493705   0.011384  43.367  < 2e-16 ***
## O            0.054487   0.018222   2.990 0.002794 **
## I1           0.031019   0.013485   2.300 0.021458 *
## O1999       -0.095100   0.031791  -2.991 0.002783 **
## O2000       -0.040262   0.032096  -1.254 0.209725
## O2001       -0.002578   0.033011  -0.078 0.937753
## O2002       -0.052980   0.034333  -1.543 0.122829
## O2003       -0.011442   0.035102  -0.326 0.744459
## O2004       -0.070796   0.036469  -1.941 0.052250 .
## O2005       -0.015929   0.034198  -0.466 0.641384
## O2006        0.030424   0.035804   0.850 0.395488
## O2007       -0.013886   0.035868  -0.387 0.698654
## O2008       -0.075176   0.040150  -1.872 0.061181 .
## O2009       -0.149269   0.038382  -3.889 0.000101 ***
## O2010       -0.072128   0.037643  -1.916 0.055374 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.48 on 11443 degrees of freedom
## Multiple R-squared:  0.003486,   Adjusted R-squared:  0.002267
## F-statistic: 2.859 on 14 and 11443 DF,  p-value: 0.0002568
```

```
summary(lm(EARNG42~O+I1+O*I1,data=newtable,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ O + I1 + O * I1, data = newtable, weights = ICSWT26)
##
## Weighted Residuals:
##      Min      1Q  Median      3Q     Max
## -822735 -145935  -62651   71375 6867399
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)   7496.32     321.44  23.321  < 2e-16 ***
## O             2496.28     514.51   4.852 1.24e-06 ***
## I1            1436.31     380.77   3.772 0.000163 ***
## O:I1            19.33     601.92   0.032 0.974375
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 295900 on 11454 degrees of freedom
## Multiple R-squared:  0.009986,   Adjusted R-squared:  0.009727
## F-statistic: 38.51 on 3 and 11454 DF,  p-value: < 2.2e-16
```

```
summary(lm(EARNG42~O+I1+O1999+O2000+O2001+O2002+O2003+O2004+O2005+O2006+O2007+O2008+O
2009+O2010,data=newtable,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ O + I1 + O1999 + O2000 + O2001 + O2002 +
##     O2003 + O2004 + O2005 + O2006 + O2007 + O2008 + O2009 + O2010,
##     data = newtable, weights = ICSWT26)
##
## Weighted Residuals:
##      Min       1Q   Median       3Q      Max
## -1004409  -146069   -62596    71952  6712860
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  7496.321     321.228  23.336  < 2e-16 ***
## O            2496.277     514.161   4.855 1.22e-06 ***
## I1           1436.315     380.520   3.775 0.000161 ***
## O1999          -7.469     897.057  -0.008 0.993357
## O2000          32.031     905.665   0.035 0.971787
## O2001       -1139.835     931.476  -1.224 0.221095
## O2002        -801.999     968.766  -0.828 0.407769
## O2003          24.957     990.484   0.025 0.979899
## O2004       -1959.170    1029.038  -1.904 0.056950 .
## O2005        -570.428     964.960  -0.591 0.554437
## O2006        -101.728    1010.270  -0.101 0.919795
## O2007        -252.259    1012.098  -0.249 0.803177
## O2008        1719.425    1132.921   1.518 0.129120
## O2009        2349.588    1083.030   2.169 0.030068 *
## O2010        2547.299    1062.166   2.398 0.016491 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 295700 on 11443 degrees of freedom
## Multiple R-squared:  0.01226,    Adjusted R-squared:  0.01105
## F-statistic: 10.14 on 14 and 11443 DF,  p-value: < 2.2e-16
```

```
summary(lm(Y3~O+I1+O*I1,data=newtable2,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = Y3 ~ O + I1 + O * I1, data = newtable2, weights = ICSWT26)
##
## Weighted Residuals:
##      Min      1Q  Median      3Q     Max
## -56.822   1.660   3.572   5.388  19.920
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.709108   0.007374  96.167  < 2e-16 ***
## O           -0.002971   0.011669  -0.255    0.799
## I1           0.044565   0.008201   5.434 5.55e-08 ***
## O:I1        -0.005102   0.013013  -0.392    0.695
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.416 on 30087 degrees of freedom
## Multiple R-squared:  0.001554,   Adjusted R-squared:  0.001454
## F-statistic: 15.61 on 3 and 30087 DF,  p-value: 3.853e-10
```

```
summary(lm(Y3~O+I1+O1999+O2000+O2001+O2002+O2003+O2004+O2005+O2006+O2007+O2008+O2009+
O2010,data=newtable2,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = Y3 ~ O + I1 + O1999 + O2000 + O2001 + O2002 + O2003 +
##     O2004 + O2005 + O2006 + O2007 + O2008 + O2009 + O2010, data = newtable2,
##     weights = ICSWT26)
##
## Weighted Residuals:
##     Min      1Q  Median      3Q     Max
## -56.539   1.660   3.562   5.384  23.803
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.709108   0.007371  96.202  < 2e-16 ***
## O           -0.002971   0.011664  -0.255  0.79895
## I1           0.044565   0.008198   5.436 5.49e-08 ***
## O1999       -0.052074   0.020197  -2.578  0.00993 **
## O2000       -0.009827   0.020030  -0.491  0.62372
## O2001       -0.001366   0.020204  -0.068  0.94610
## O2002       -0.008330   0.019479  -0.428  0.66892
## O2003        0.002788   0.019510   0.143  0.88637
## O2004        0.036595   0.019886   1.840  0.06575 .
## O2005       -0.006393   0.019900  -0.321  0.74803
## O2006       -0.008342   0.020152  -0.414  0.67892
## O2007        0.019504   0.019830   0.984  0.32533
## O2008        0.023403   0.019363   1.209  0.22680
## O2009       -0.003928   0.019818  -0.198  0.84288
## O2010       -0.054692   0.019418  -2.817  0.00486 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.412 on 30076 degrees of freedom
## Multiple R-squared:  0.002646,   Adjusted R-squared:  0.002182
## F-statistic:   5.7 on 14 and 30076 DF,  p-value: 3.21e-11
```

```
summary(lm(EARNG42~O+I1+O*I1,data=newtable2,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ O + I1 + O * I1, data = newtable2, weights = ICSWT26)
##
## Weighted Residuals:
##       Min       1Q    Median       3Q       Max
## -1898909  -286917   -84928   174607 16566808
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  15906.2       453.0  35.111  < 2e-16 ***
## O             4125.4       716.9   5.755 8.77e-09 ***
## I1            6647.6       503.9  13.193  < 2e-16 ***
## O:I1         -1762.3       799.5  -2.204   0.0275 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 578500 on 30087 degrees of freedom
## Multiple R-squared:  0.01009,    Adjusted R-squared:  0.009989
## F-statistic: 102.2 on 3 and 30087 DF,  p-value: < 2.2e-16
```

```
summary(lm(EARNG42~O+I1+O1999+O2000+O2001+O2002+O2003+O2004+O2005+O2006+O2007+O2008+O
2009+O2010,data=newtable,weights=ICSWT26))
```

```
##
## Call:
## lm(formula = EARNG42 ~ O + I1 + O1999 + O2000 + O2001 + O2002 +
##      O2003 + O2004 + O2005 + O2006 + O2007 + O2008 + O2009 + O2010,
##      data = newtable, weights = ICSWT26)
##
## Weighted Residuals:
##       Min        1Q    Median        3Q       Max
## -1004409   -146069    -62596     71952   6712860
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)  7496.321    321.228  23.336  < 2e-16 ***
## O            2496.277    514.161   4.855 1.22e-06 ***
## I1           1436.315    380.520   3.775 0.000161 ***
## O1999          -7.469    897.057  -0.008 0.993357
## O2000          32.031    905.665   0.035 0.971787
## O2001       -1139.835    931.476  -1.224 0.221095
## O2002        -801.999    968.766  -0.828 0.407769
## O2003          24.957    990.484   0.025 0.979899
## O2004       -1959.170   1029.038  -1.904 0.056950 .
## O2005        -570.428    964.960  -0.591 0.554437
## O2006        -101.728   1010.270  -0.101 0.919795
## O2007        -252.259   1012.098  -0.249 0.803177
## O2008        1719.425   1132.921   1.518 0.129120
## O2009        2349.588   1083.030   2.169 0.030068 *
## O2010        2547.299   1062.166   2.398 0.016491 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 295700 on 11443 degrees of freedom
## Multiple R-squared:  0.01226,    Adjusted R-squared:  0.01105
## F-statistic: 10.14 on 14 and 11443 DF,  p-value: < 2.2e-16
```