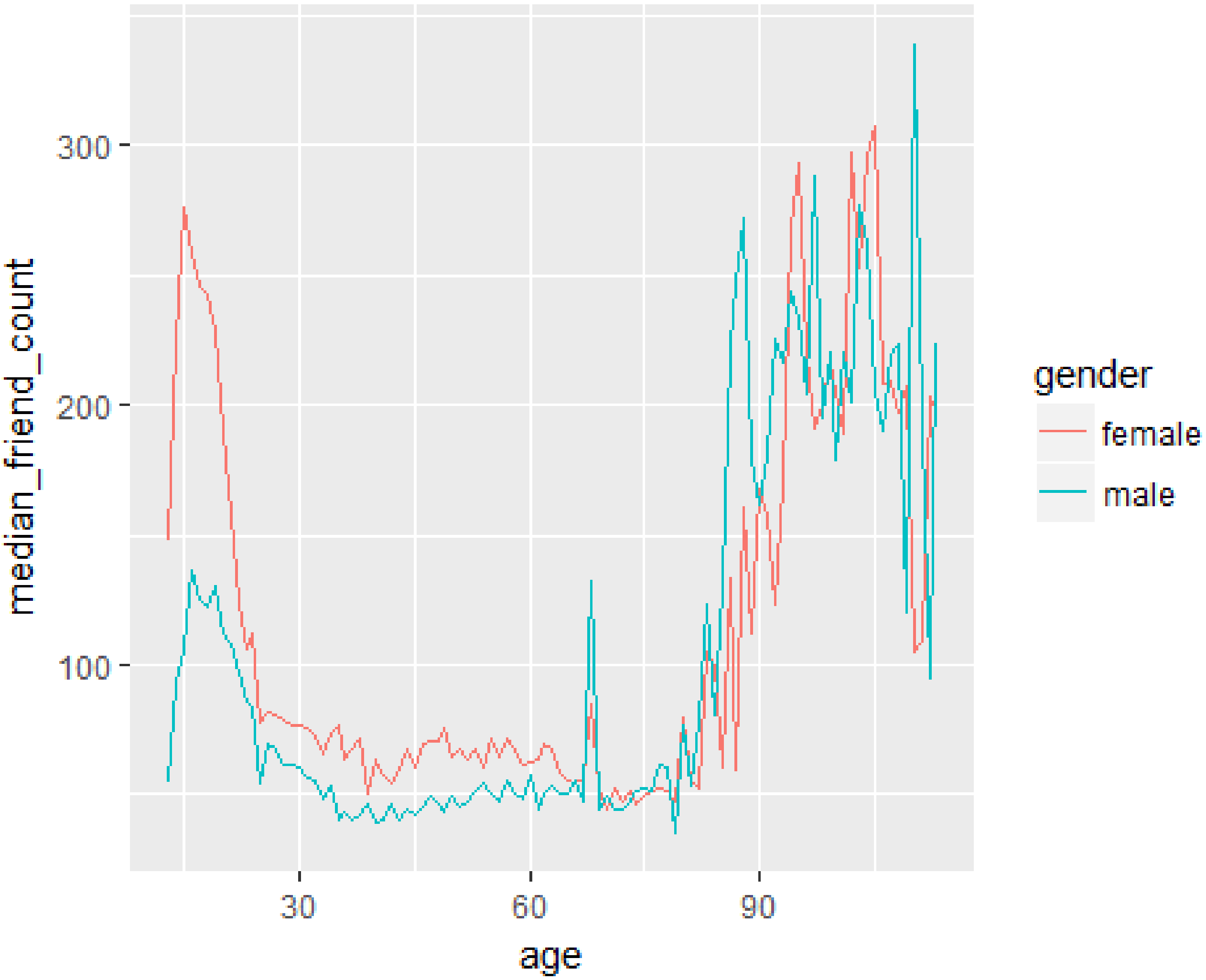
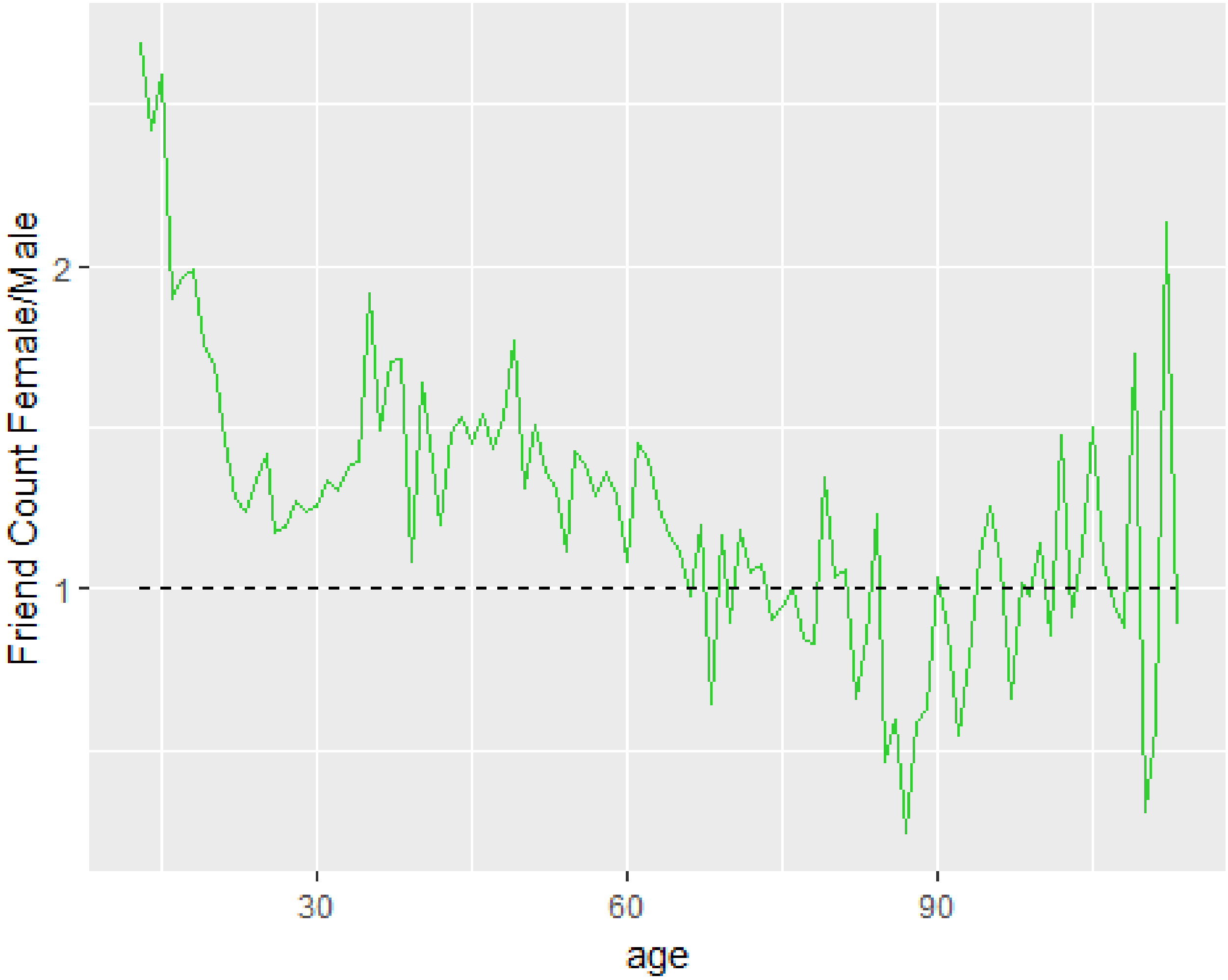
Facebook

```
#Grouping by age and gender
pf.fc_by_age_gender <- pf %>%
  filter(!is.na(gender)) %>%
  group_by(age, gender) %>%
  summarise(mean_friend_count = mean(friend_count),
            median_friend_count = median(friend_count),
            n = n()) %>%
  ungroup() %>%
  arrange(age)

#putting color in an aesthetic wrapper in the line
ggplot(pf.fc_by_age_gender, aes(x=age, y=median_friend_count))
+geom_line(aes(color=gender))
```

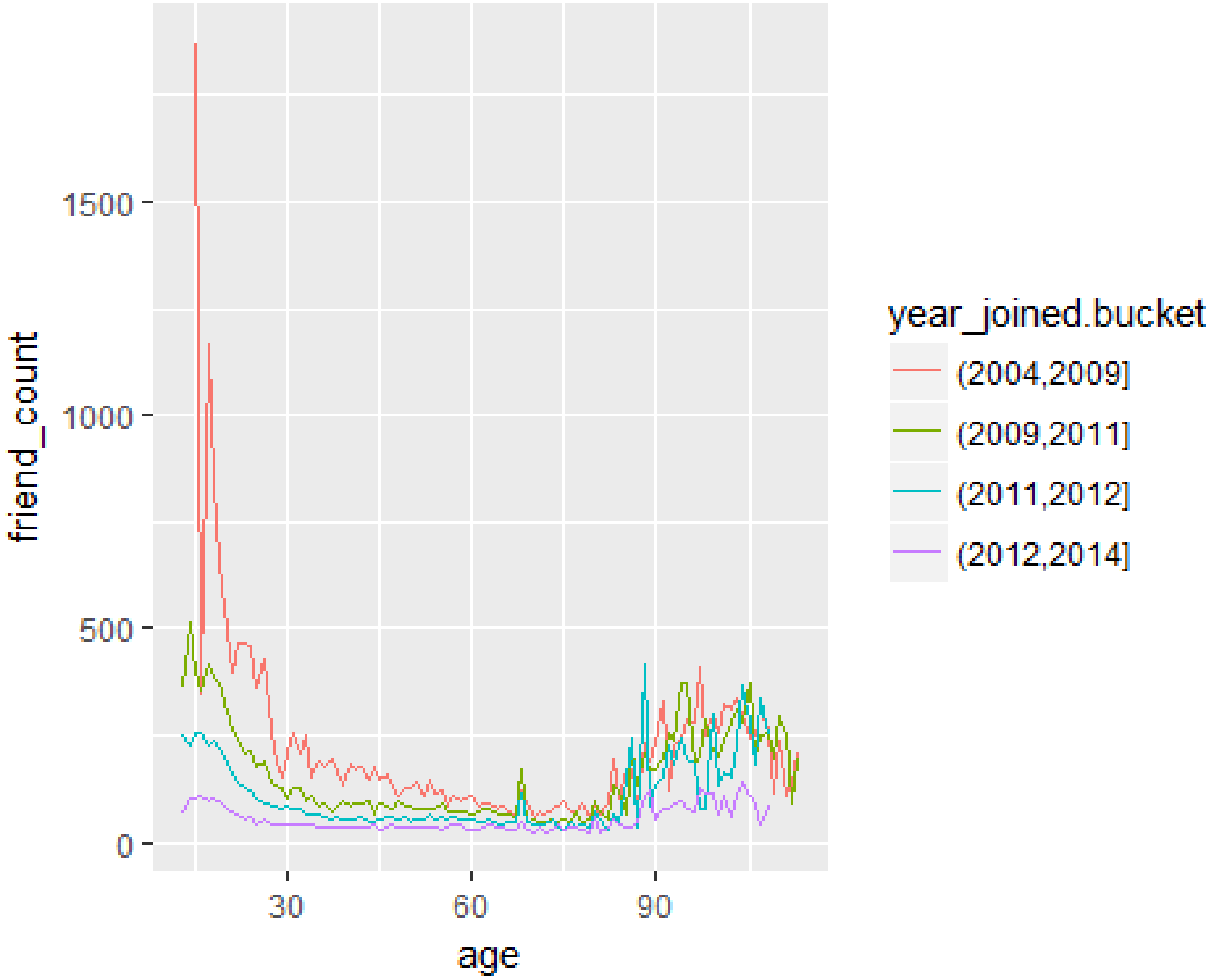


```r
#Creating a wide dataframe
library(reshape2)
pf.fc_by_age_gender.wide <- dcast(pf.fc_by_age_gender,
                                  age ~ gender,
                                  value.var = 'median_friend_count')
```

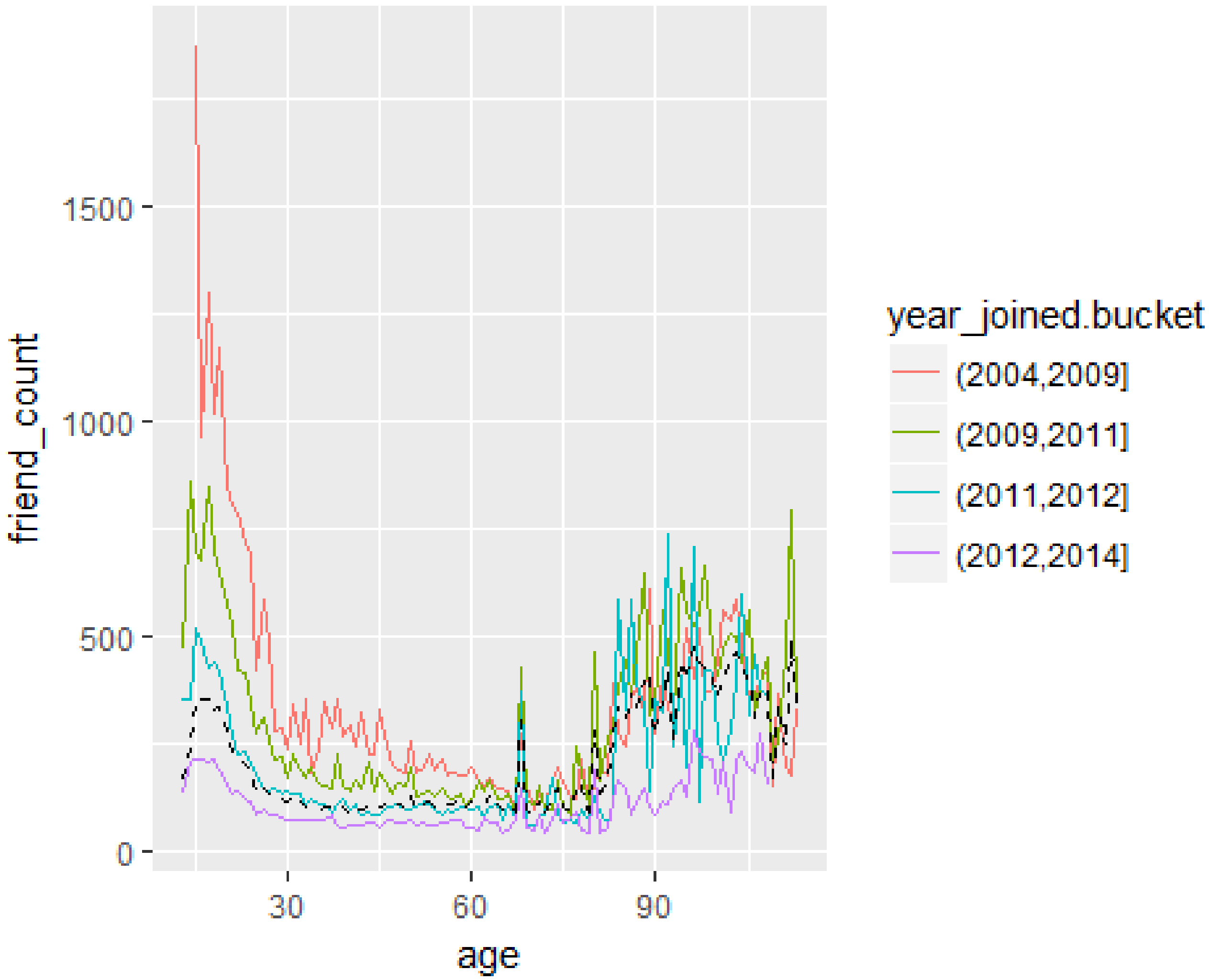
```r
#Plotting the multiple of friends that females have compared to men
ggplot(pf.fc_by_age_gender.wide, aes(x=age, y=female/male)) +
  geom_line(color='lime green')+
  geom_line(y=1, linetype=2)+
  ylab('Friend Count Female/Male')
```



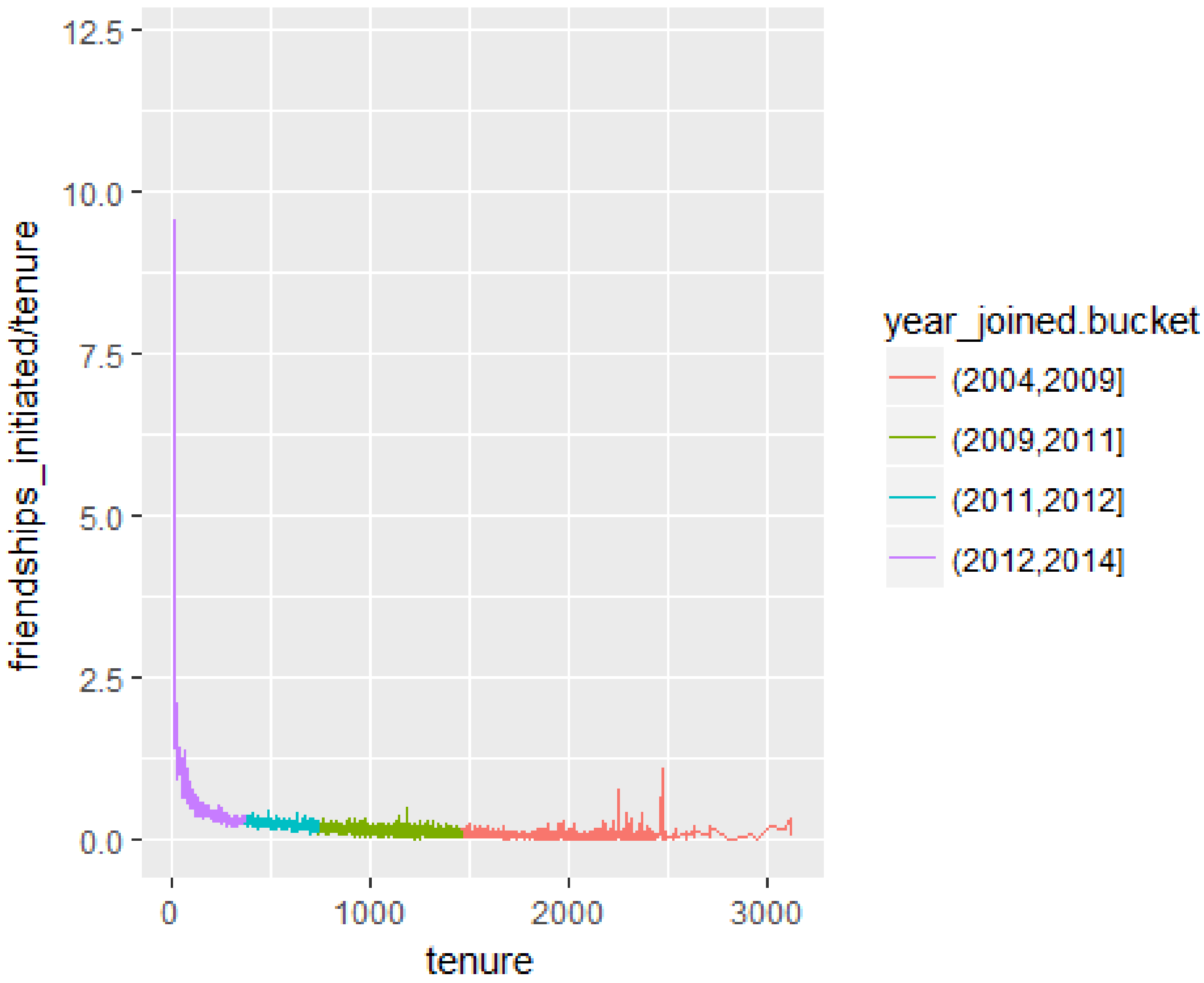
```
#Creating a variable year joined by subtracting tenure(days) from date of
sample (2014)
pf$year_joined <- floor(2014 - (pf$tenure/365))
summary(pf$year_joined)

##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
##    2005    2012    2012    2012    2013    2014       2

pf$year_joined.bucket <- cut(pf$year_joined, breaks = c(2004,2009,2011,2012,
2014))
table(pf$year_joined.bucket)

##
## (2004,2009] (2009,2011] (2011,2012] (2012,2014]
##        6669       15308       33366       43658

#Plotting the different lines for each year joined bucket
ggplot(subset(pf, !is.na(pf$year_joined.bucket)), aes(x=age,
y=friend_count))+
  geom_line(aes(color=year_joined.bucket), stat='summary', fun.y=median)
```



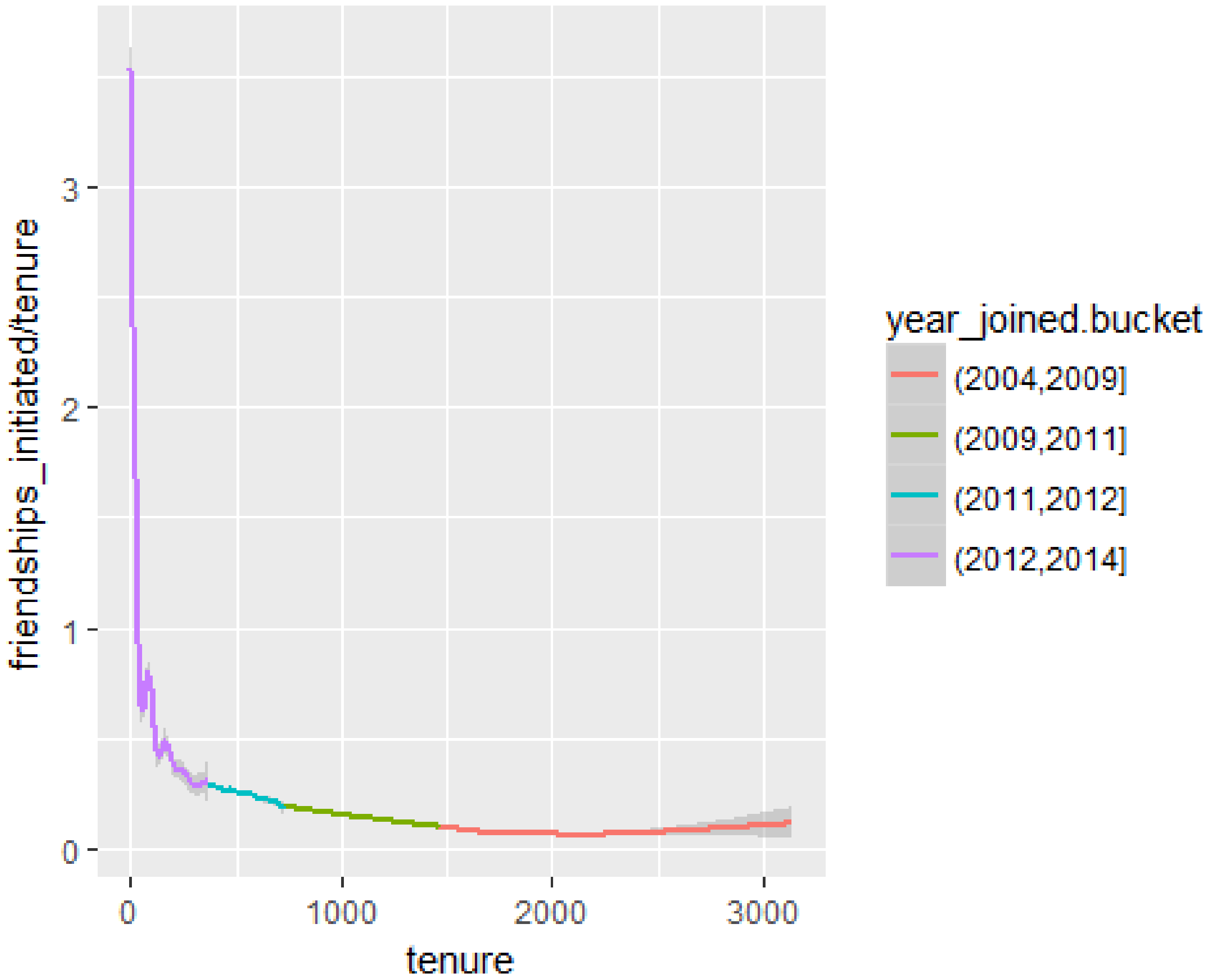
```r
#Plotting the mean but also adding the grandmean
ggplot(subset(pf, !is.na(pf$year_joined.bucket)), aes(x=age,
y=friend_count))+
  geom_line(aes(color=year_joined.bucket), stat='summary', fun.y=mean)+
  geom_line(stat='summary', fun.y=mean, linetype=2)
```



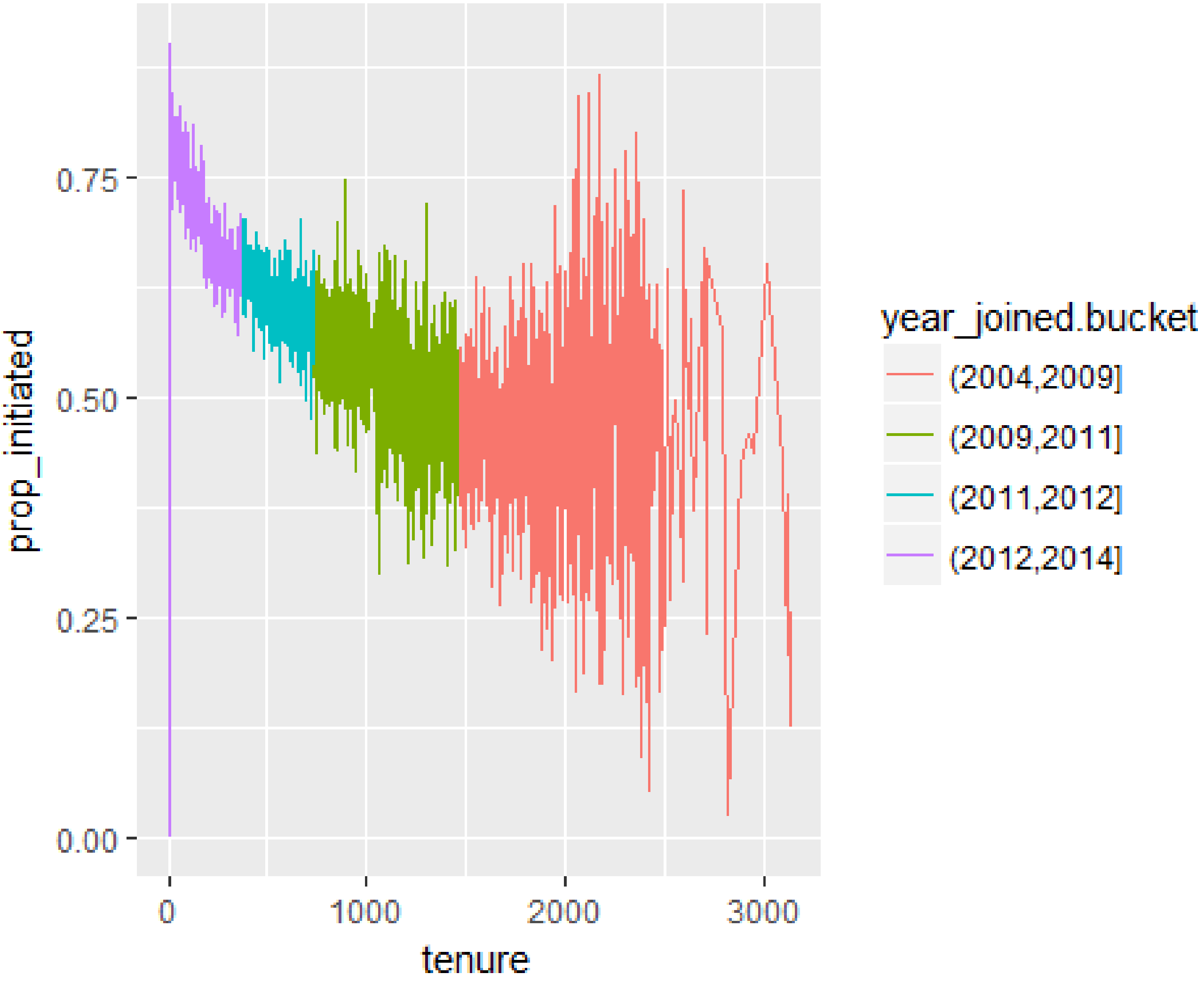
```
#If we were to look at the fc by day as a rate: (fc/tenure)
with(subset(pf, tenure>0), summary(friend_count/tenure))

##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
##   0.0000   0.0775   0.2205   0.6096   0.5658 417.0000

#looking at how many friendships someone initiates based on tenure, colored
by year joined
ggplot(subset(pf, tenure>0), aes(x=tenure, y=friendships_initiated/tenure)) +
  geom_line(aes(color=year_joined.bucket), stat='summary')

## No summary function supplied, defaulting to `mean_se()
```



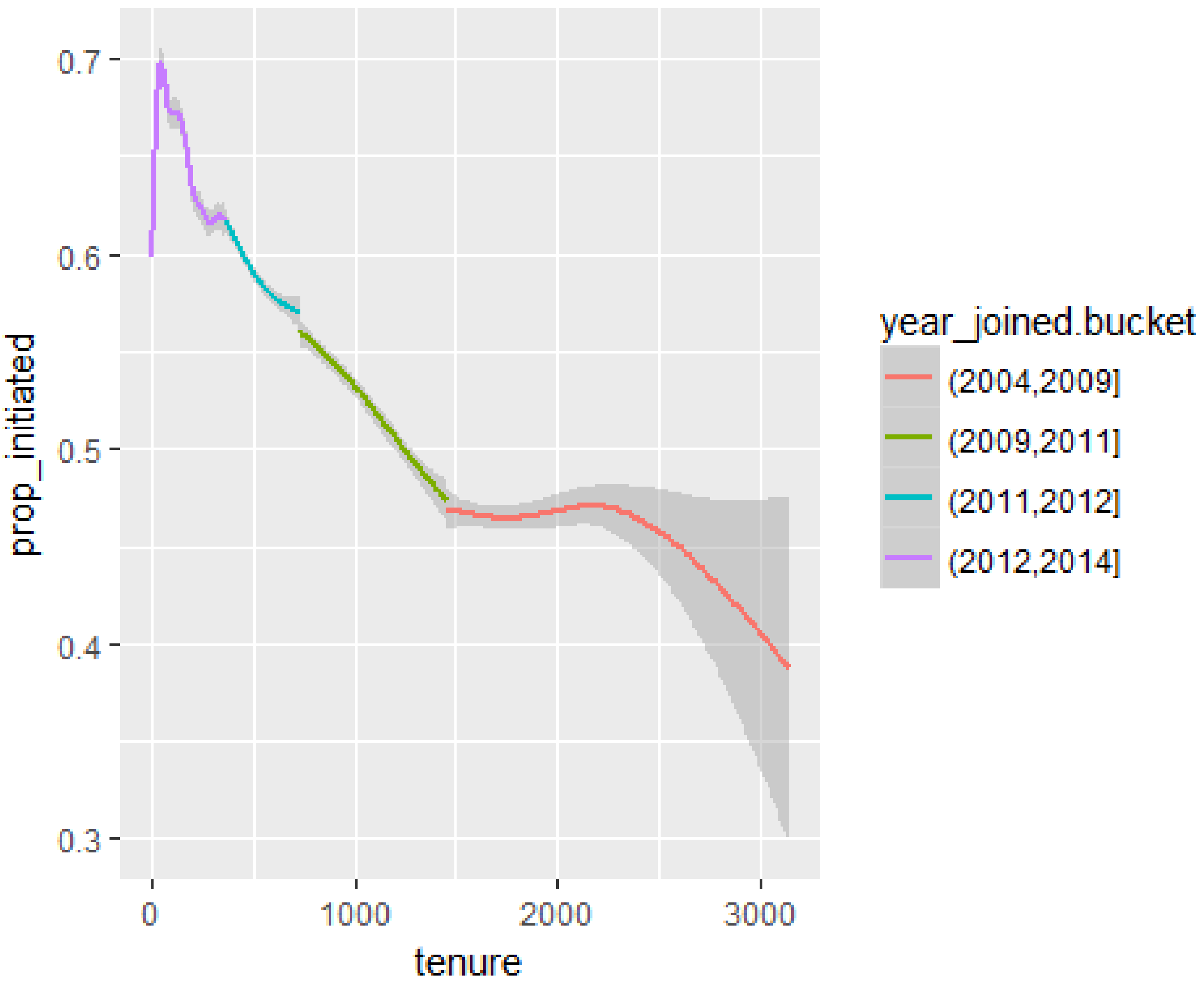
```
#With smooth line (using loess)
ggplot(subset(pf, tenure>0), aes(x=tenure, y=friendships_initiated/tenure)) +
  geom_smooth(aes(color=year_joined.bucket))

## `geom_smooth()` using method = 'gam'
```



```
pf <- transform(pf, prop_initiated = ifelse(friend_count>0,
friendships_initiated/friend_count, 0))

summary(pf$prop_initiated)

##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.0000  0.4400  0.6184  0.5958  0.7795  1.0000

#plotting the proportion of friendships initiated over tenure
ggplot(pf, aes(x=tenure, y=prop_initiated)) +
  geom_line(aes(color=year_joined.bucket), stat='summary', fun.y=median)

## Warning: Removed 2 rows containing non-finite values (stat_summary).
```



```
#Looking at it wiht a smooth line
ggplot(pf, aes(x=tenure, y=prop_initiated)) +
  geom_smooth(aes(color=year_joined.bucket))

## `geom_smooth()` using method = 'gam'

## Warning: Removed 2 rows containing non-finite values (stat_smooth).
```



```
#calculating the average proportion of friends inidiated for 2012> group
mean(subset(pf, year_joined > 2012)$prop_initiated)
```

```
## [1] 0.6430155
```

```
library(GGally)
```

```
theme_set(theme_minimal(20))
```

```
#Using a random seed and generating a scatterplot matrix
set.seed(1836)
pf_subset <- pf[, c(2:15)]
names(pf_subset)
```

```
##  [1] "age"                   "dob_day"
##  [3] "dob_year"              "dob_month"
##  [5] "gender"                "tenure"
##  [7] "friend_count"          "friendships_initiated"
##  [9] "likes"                 "likes_received"
## [11] "mobile_likes"          "mobile_likes_received"
## [13] "www_likes"             "www_likes_received"
```

```
ggpairs(pf_subset[sample.int(nrow(pf_subset), 1000),])
```