

Mental Accounting in College: Students and 'Free Money'

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April 2, 2020

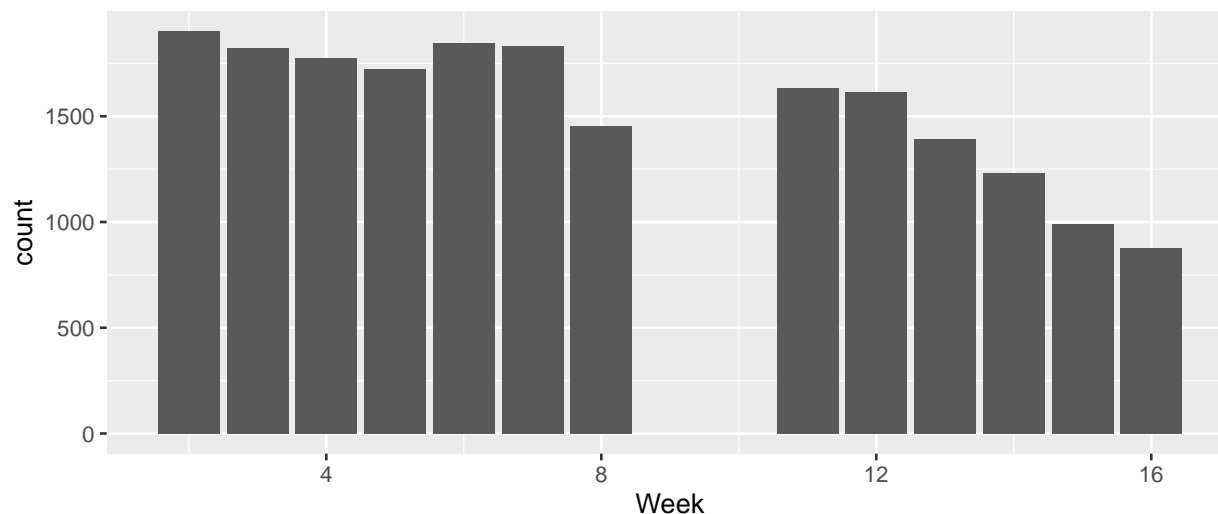
Spring Semester Dates Campus Open: 1/20/19, Start: 1/22/19, End: 5/8/19, Campus Closed: 5/20/19

Fall Semester Dates Campus Open: 8/31/19 Start: 9/3/19, End: 12/11/19, Campus Closed: 12/21/19

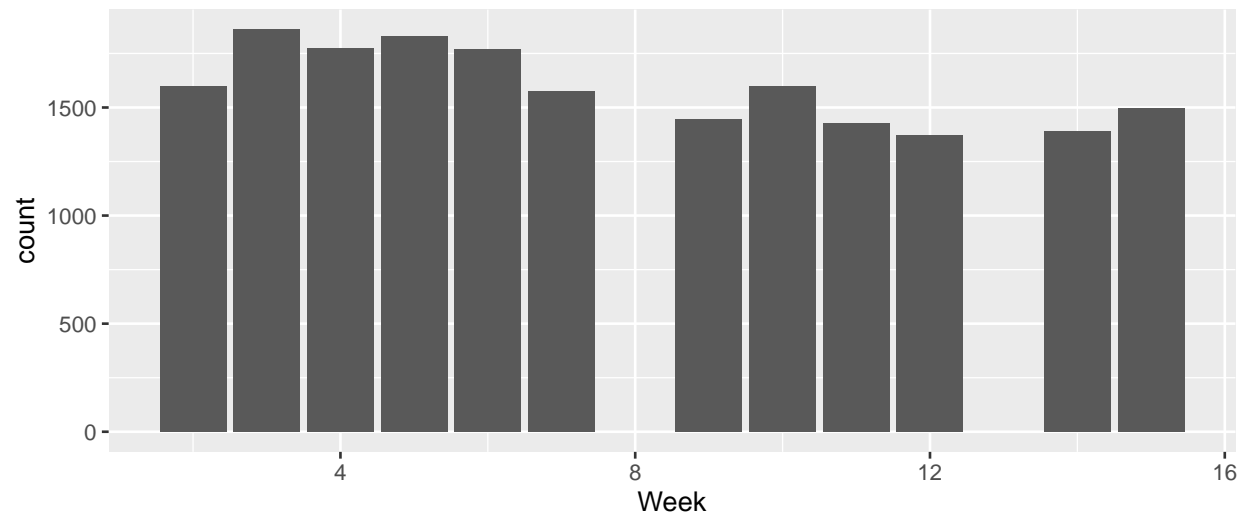
```
flex_data <- read_csv("flex_data.csv")
flex_data <- flex_data %>% mutate(Time = mdy_hm(Time)) %>% mutate(Week = epiweek(Time)) %>% rename(AmountSpent = AmountSpent)
flex_data <- flex_data %>% filter(Time >= '2019-01-20' & Time <= '2019-12-19') %>% filter(AmountSpent > 0)
```

```
#Transactions by week
springtrans <- flex_data %>% filter(Time <= '2019-5-19') %>% mutate(Week = Week-3) %>% filter(Week!=1 & Week!=2)
falltrans <- flex_data %>% filter(Time >= '2019-9-1') %>% mutate(Week = Week-35) %>% filter(Week!=1 & Week!=2)

ggplot(springtrans) + geom_bar(aes(x=Week))
```

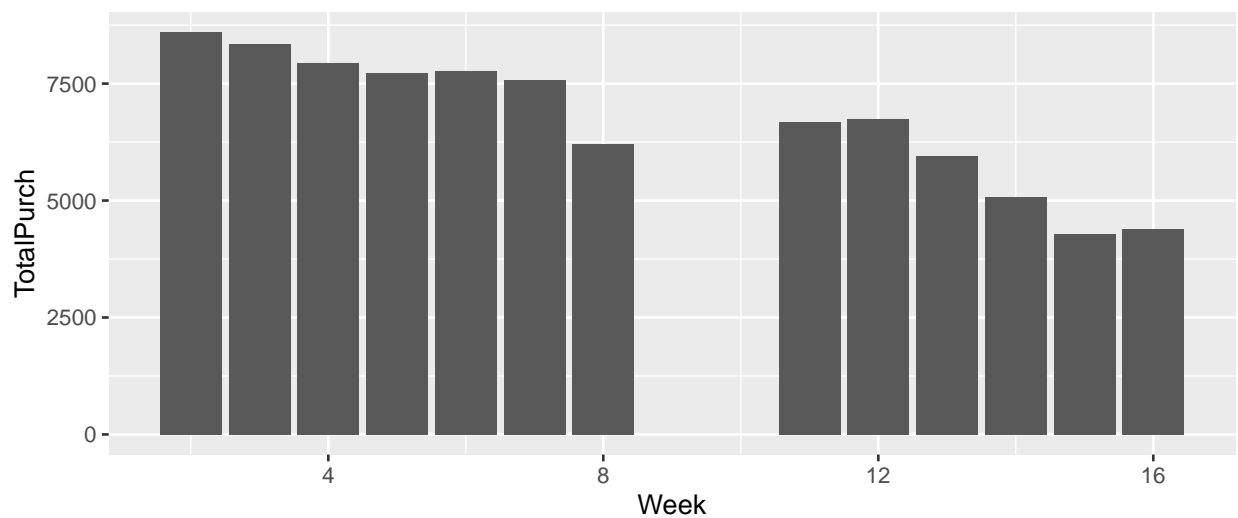


```
ggplot(falltrans) + geom_bar(aes(x=Week))
```

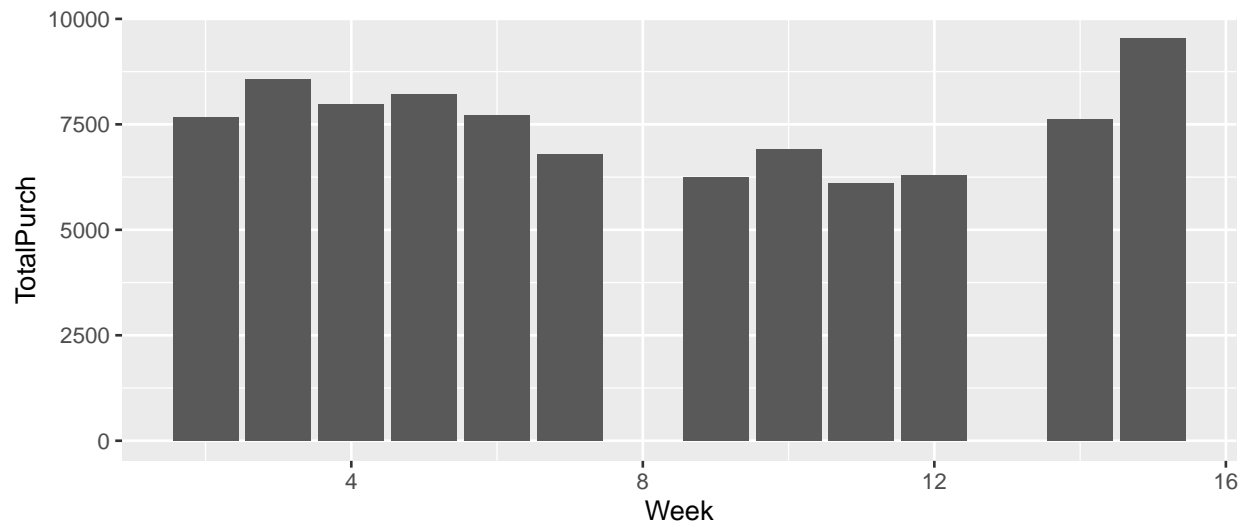


```
#Purchases by week
springpurch <- springtrans %>% group_by(Week) %>% summarize(TotalPurch = sum(AmountSpent))
fallpurch <- falltrans %>% group_by(Week) %>% summarize(TotalPurch = sum(AmountSpent))

ggplot(springpurch) + geom_bar(aes(x=Week, y=TotalPurch), stat='identity')
```



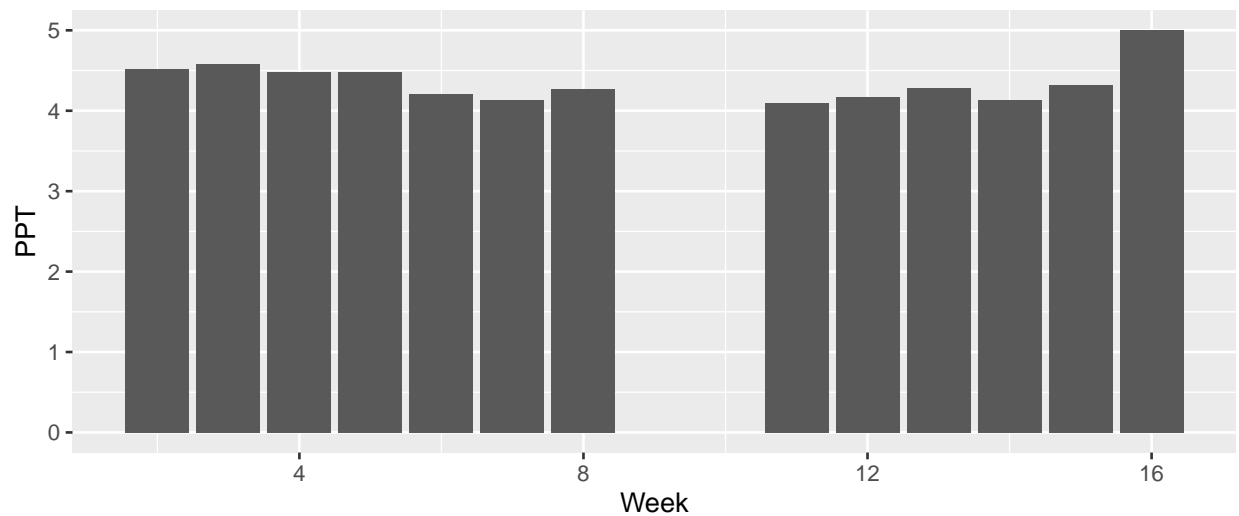
```
ggplot(fallpurch) + geom_bar(aes(x=Week, y=TotalPurch), stat='identity')
```



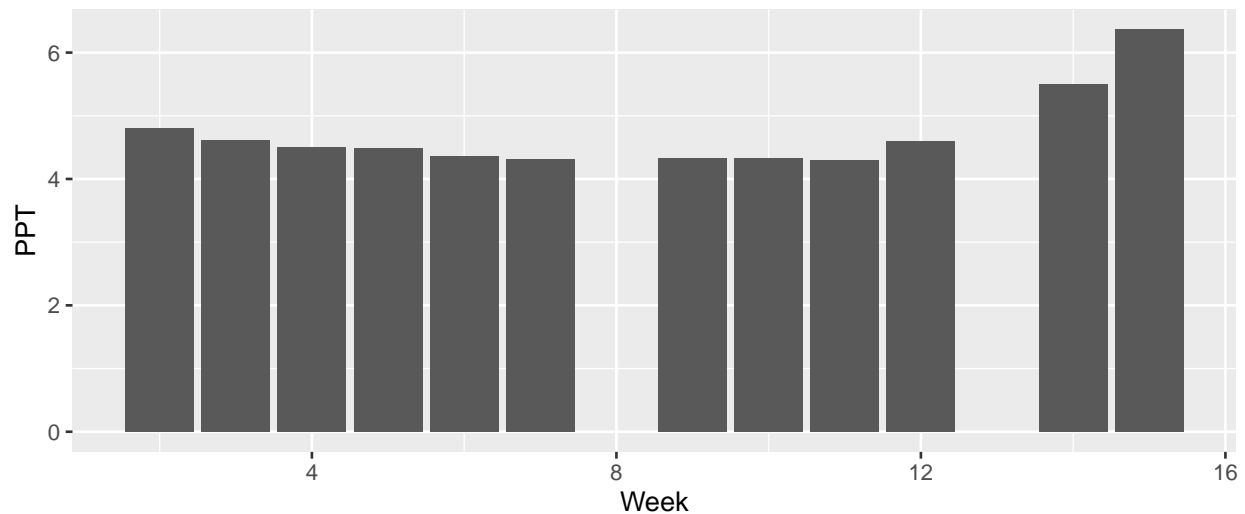
#Amount Spent Per Transaction

```
springppt <- springtrans %>% group_by(Week) %>% summarize(TotalTrans = n(), TotalPurch = sum(AmountSpent))
fallppt <- falltrans %>% group_by(Week) %>% summarize(TotalTrans = n(), TotalPurch = sum(AmountSpent))
```

```
ggplot(springppt) + geom_bar(aes(x=Week, y=PPT), stat='identity')
```



```
ggplot(fallppt) + geom_bar(aes(x=Week, y=PPT), stat='identity')
```



```
#Creation of consistent null dataframes
#Tested - Sums of spring/fall consistent nulls add up to sum of purchases and transactions from spring/fall
sprnullconsistent <- data.frame("Week"=1:17, "Transactions"= c(0,sum(springppt$TotalTrans)/13,sum(springppt$TotalTrans)/13))
fallnullconsistent <- data.frame("Week"=1:16, "Transactions"= c(0,sum(fallppt$TotalTrans)/12,sum(fallppt$TotalTrans)/12))
```

```
#285/518=55.02% of students believe they spend consistently (1/3 beginning, 1/3 middle, 1/3 end)
#86/518=16.60% of students believe they spend most in beginning (1/2 beginning, 1/3 middle, 1/6 end)
#147/518=28.38% of students believe they spend most at end (1/6 beginning, 1/3 middle, 1/2 end)
```

```
#Tested - Sums of spring/fall weighted expectation nulls add up to sum of purchases/transactions from spring/fall
#Note - each period represents total spending expected during that period, then divided by number of weeks
```

```
p1springtrans <- (.5502*sum(springppt$TotalTrans)*(1/3) + .1660*sum(springppt$TotalTrans)*(1/2) + .2838*sum(springppt$TotalTrans)*(1/6))
p2springtrans <- (.5502*sum(springppt$TotalTrans)*(1/3) + .1660*sum(springppt$TotalTrans)*(1/3) + .2838*sum(springppt$TotalTrans)*(1/6))
p3springtrans <- (.5502*sum(springppt$TotalTrans)*(1/3) + .1660*sum(springppt$TotalTrans)*(1/6) + .2838*sum(springppt$TotalTrans)*(1/6))

p1springtrans+p2springtrans+p3springtrans
```

```
## [1] 20091
```

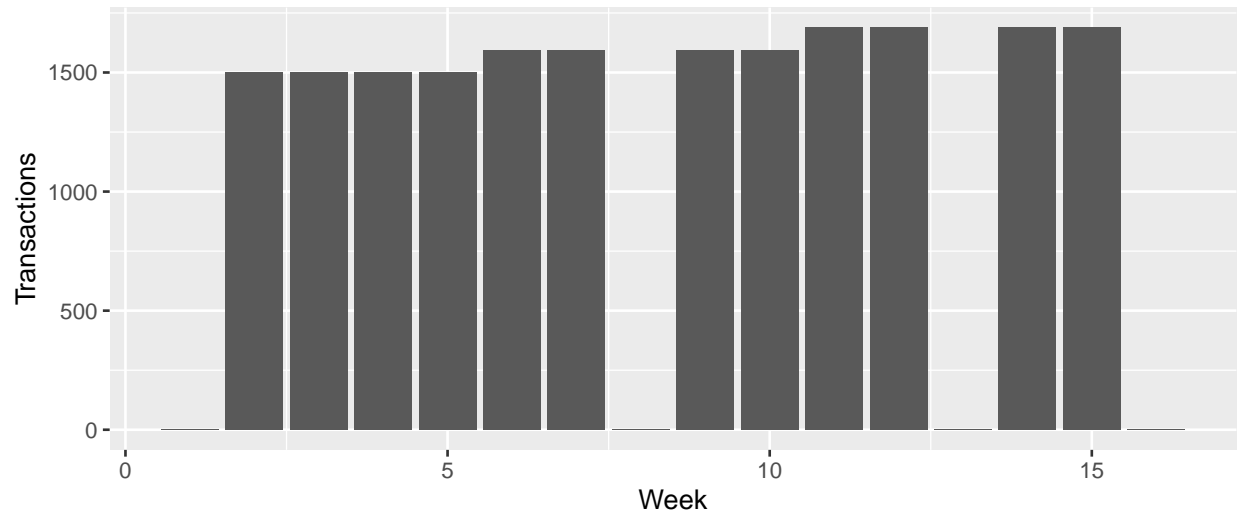
```
sum(springppt$TotalTrans)
```

```
## [1] 20091
```

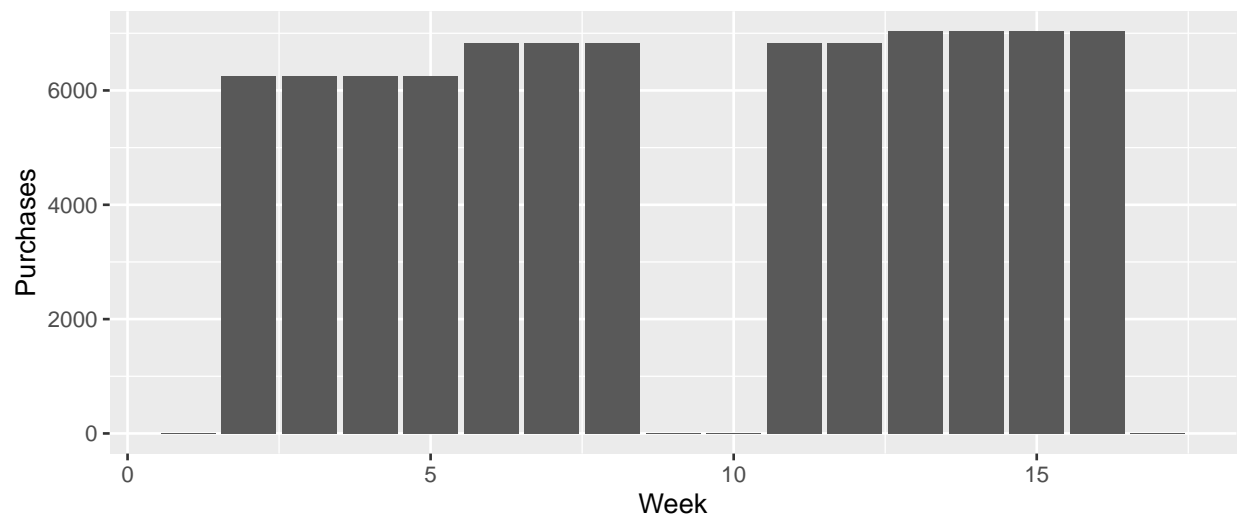
```
p1springpurch <- (.5502*sum(springppt$TotalPurch)*(1/3) + .1660*sum(springppt$TotalPurch)*(1/2) + .2838*sum(springppt$TotalPurch)*(1/6))
p2springpurch <- (.5502*sum(springppt$TotalPurch)*(1/3) + .1660*sum(springppt$TotalPurch)*(1/3) + .2838*sum(springppt$TotalPurch)*(1/6))
p3springpurch <- (.5502*sum(springppt$TotalPurch)*(1/3) + .1660*sum(springppt$TotalPurch)*(1/6) + .2838*sum(springppt$TotalPurch)*(1/6))

p1springpurch+p2springpurch+p3springpurch
```

```
## [1] 87299.94
```

```
ggplot(sprnullweighted) + geom_bar(aes(x=Week, y=Purchases), stat='identity')
```



```
ggplot(fallnullweighted) + geom_bar(aes(x=Week, y=Purchases), stat='identity')
```

