

## Figure 7-2

September 11, 2020

```
[ ]: # install the following package and library
```

```
install.packages("ggplot2")
```

```
library("ggplot2")
```

```
[4]: ##-----Block 1-----
```

```
#### Figure 7-2 ####
```

```
hatpi <-function(x, sr = 1){
```

```
  k <- (1-x)^2/(1-x^2)
```

```
  (x-1) * k / (sr^2 + k)
```

```
}
```

```
xs <- seq(0, 1, 0.01)
```

```
dd <- data.frame(x = rep(xs, 2), y = c(hatpi(xs), xs- 1),
```

```
                var = rep(c("bm1", "pi"), each = length(xs)))
```

```
ggplot(dd, aes(x, y)) + geom_line(aes(lty = var)) +
```

```
  scale_y_continuous(limits = c(-1, 0)) +
```

```
  xlab(expression(rho)) + ylab("") +
```

```
  scale_linetype_manual(values = 1:2, breaks = c("bm1", "pi"),
```

```
                      labels = list(expression(pi),
```

```
                      expression(rho-1)))+
```

```
  theme(legend.text = element_text(size = 6),
```

```
        legend.title= element_blank(),
```

```
        axis.title = element_text(size = 8),
```

```
        axis.text = element_text(size = 6))
```

