# Comparing CART and CTREE: A simulation study

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|  | MSE | | Terminal Node | | |
|---|---|---|---|---|---|
|  | Mean | SD | Mean | 20th | 80th |
| CART | 4.12 | 0.413 | 15 | 14 | 16 |
| Pruned CART | 4.19 | 0.442 | 14 | 13 | 16 |
| Pruned CART (1-SE) | 4.55 | 0.509 | 9 | 6 | 11 |
| CTREE | 4.14 | 0.409 | 14 | 13 | 15 |
| Linear Regression | 1.03 | 0.093 |  |  |  |

Table 1: Regression model

|  | MSE | | Terminal Node | | |
|---|---|---|---|---|---|
|  | Mean | SD | Mean | 20th | 80th |
| CART | 1.26 | 0.151 | 7 | 6 | 8 |
| Pruned CART | 1.22 | 0.137 | 4 | 3 | 5 |
| Pruned CART (1-SE) | 1.25 | 0.139 | 3 | 3 | 4 |
| CTREE | 1.27 | 0.154 | 4 | 3 | 4 |
| Linear Regression | 2.04 | 0.179 |  |  |  |

Table 2: Tree model

|  | MSE | | Terminal Node | | |
|---|---|---|---|---|---|
|  | Mean | SD | Mean | 20th | 80th |
| CART | 1.39 | 0.138 | 13 | 11 | 15 |
| Pruned CART | 1.37 | 0.131 | 6 | 3 | 9 |
| Pruned CART (1-SE) | 1.37 | 0.133 | 3 | 2 | 3 |
| CTREE | 1.34 | 0.126 | 5 | 4 | 6 |
| Linear Regression | 1.17 | 0.106 |  |  |  |

Table 3: Hybrid model

|  | Mean (MSE) | Mean (SD) | Type I Error (Mean) |
|---|---|---|---|
| CART | 0.65 | 0.07 | 1 |
| Pruned CART | 0.99 | 0.091 | 0.0559 |
| Pruned CART (1-SE) | 1 | 0.089 | 3e-04 |
| CTREE | 0.99 | 0.089 | 0.0513 |
| Linear Regression | 0.97 | 0.088 | |

Table 4: Type I error model

# Figure 5