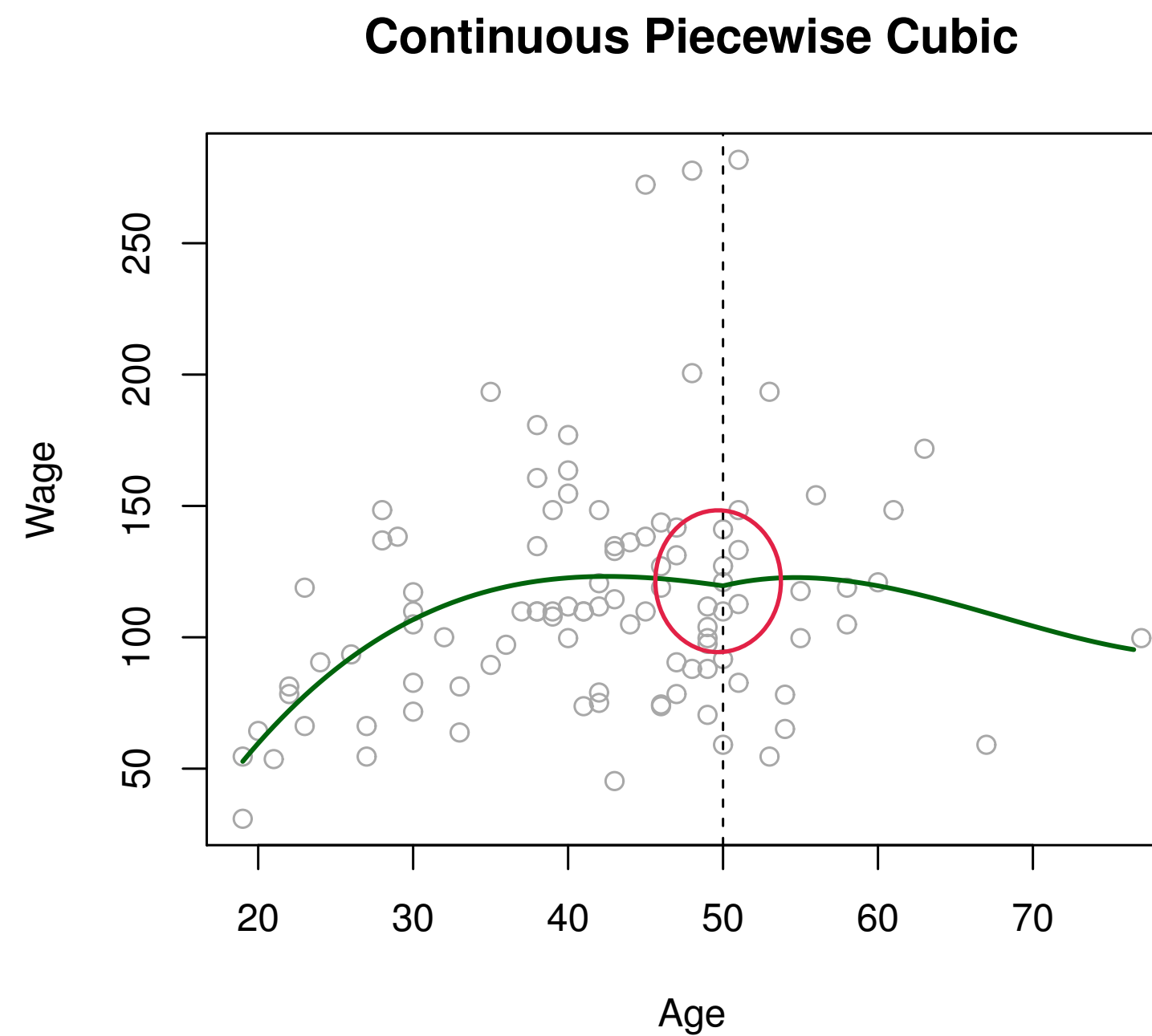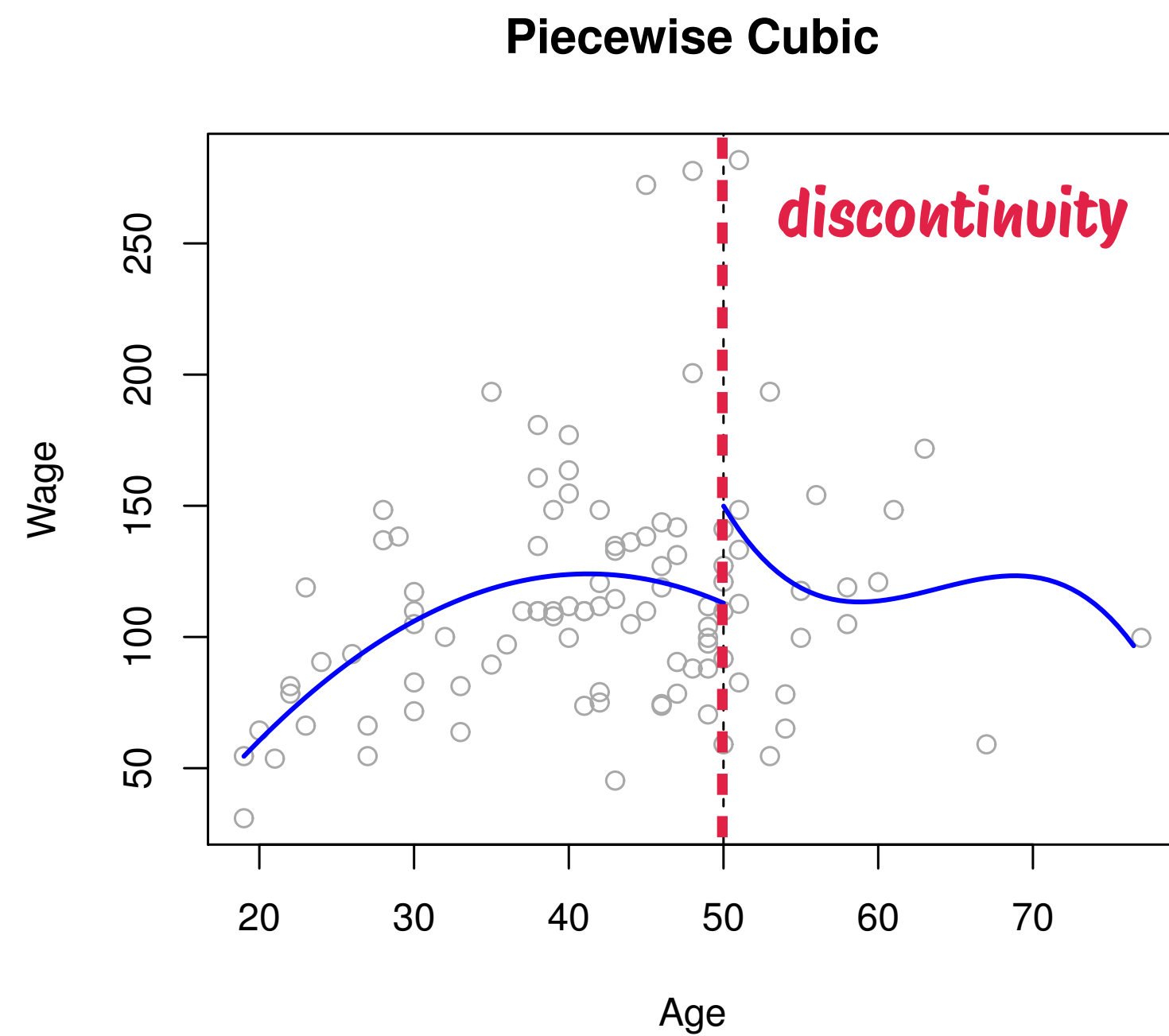# Regression Splines

Example: Wage (ISLR2)

Piecewise cubic polynomial with a single knot placed a age = 50. Constraints:

1. $f_1(\text{age} = 50) = f_2(\text{age} = 50)$

Piecewise Cubic

discontinuity

Continuous Piecewise Cubic

Regression Splines

Example: Wage (ISLR2)

Piecewise cubic polynomial with a single knot placed a age = 50. Constraints:

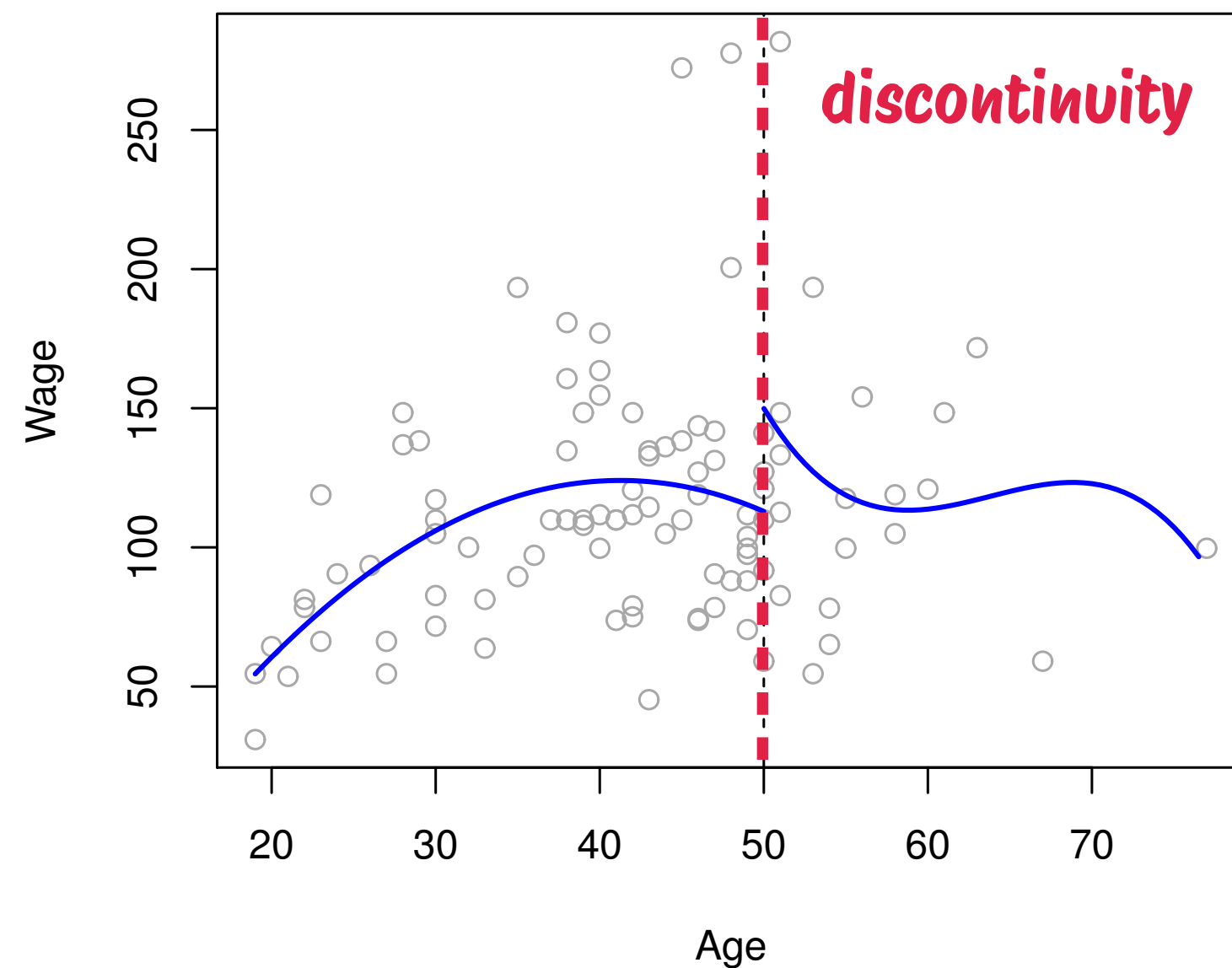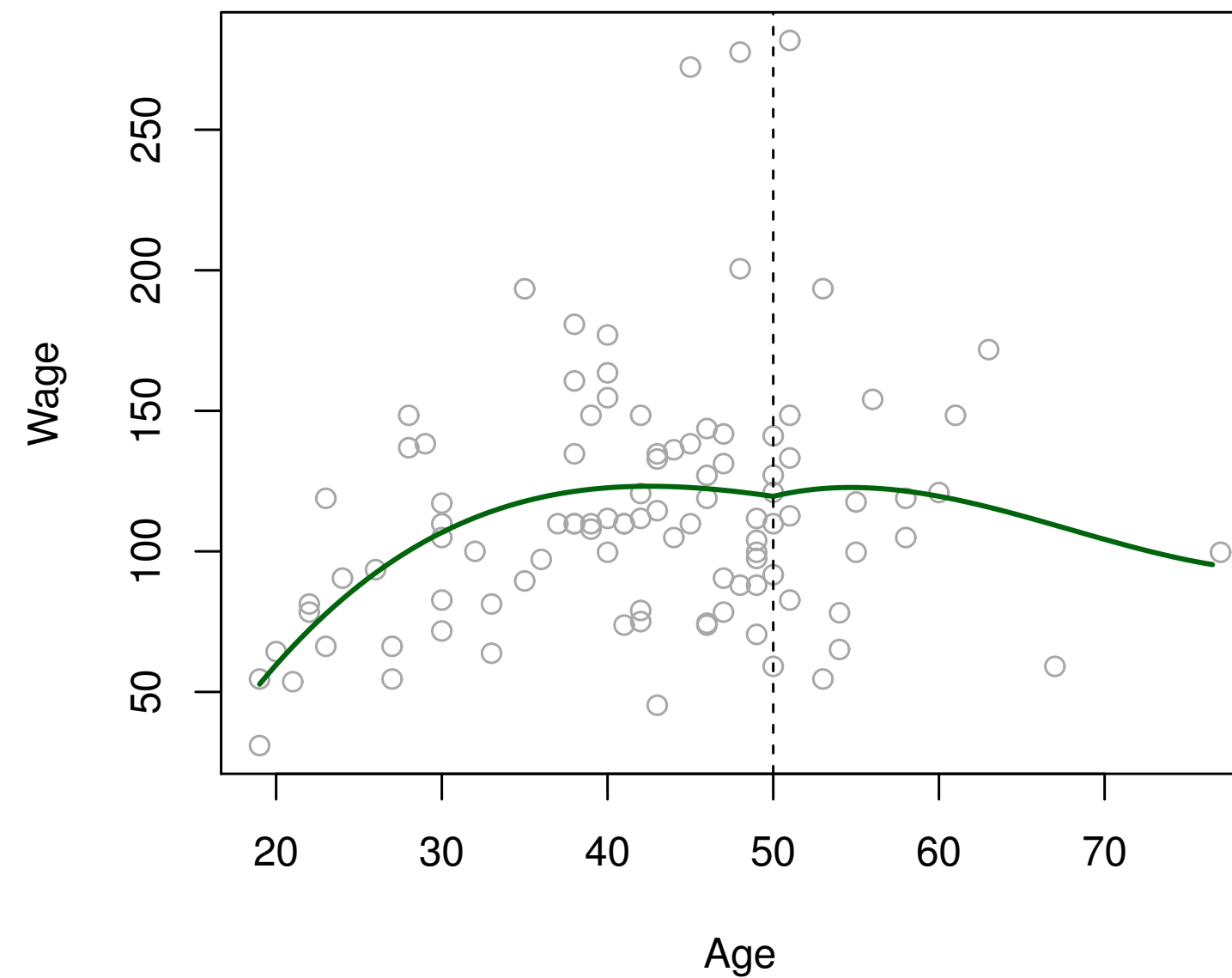**1.** $f_1(\text{age} = 50) = f_2(\text{age} = 50)$

2. $f_1'(\text{age} = 50) = f_2'(\text{age} = 50)$

3. $f_1''(\text{age} = 50) = f_2''(\text{age} = 50)$

Piecewise Cubic

discontinuity

Continuous Piecewise Cubic

Cubic Spline

Linear Spline