

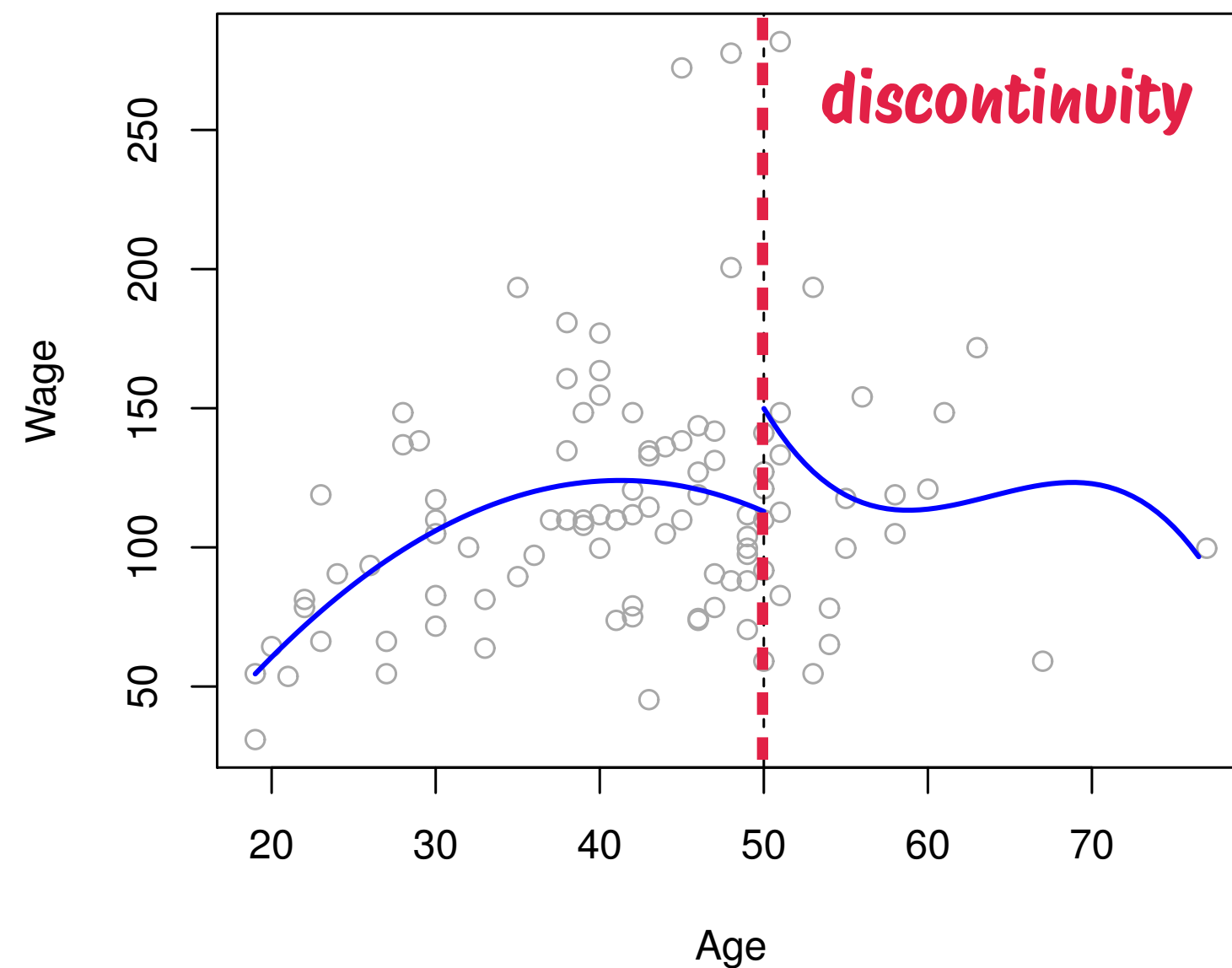
# Regression Splines

## Example: Wage (ISLR2)

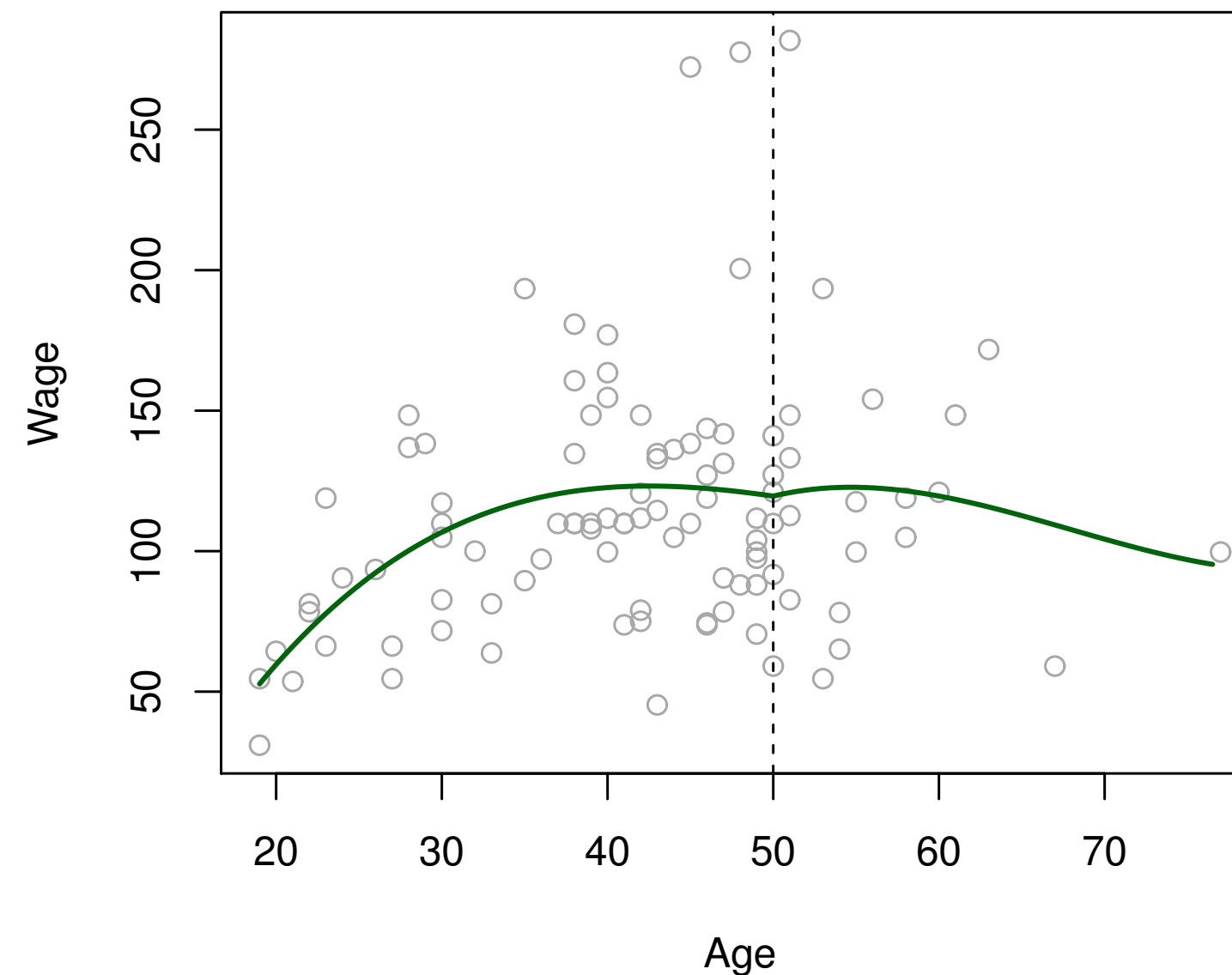
Piecewise cubic polynomial with a single knot placed at age = 50. Constraints:

1.  $f_1(\text{age} = 50) = f_2(\text{age} = 50)$
2.  $f'_1(\text{age} = 50) = f'_2(\text{age} = 50)$
3.  $f''_1(\text{age} = 50) = f''_2(\text{age} = 50)$

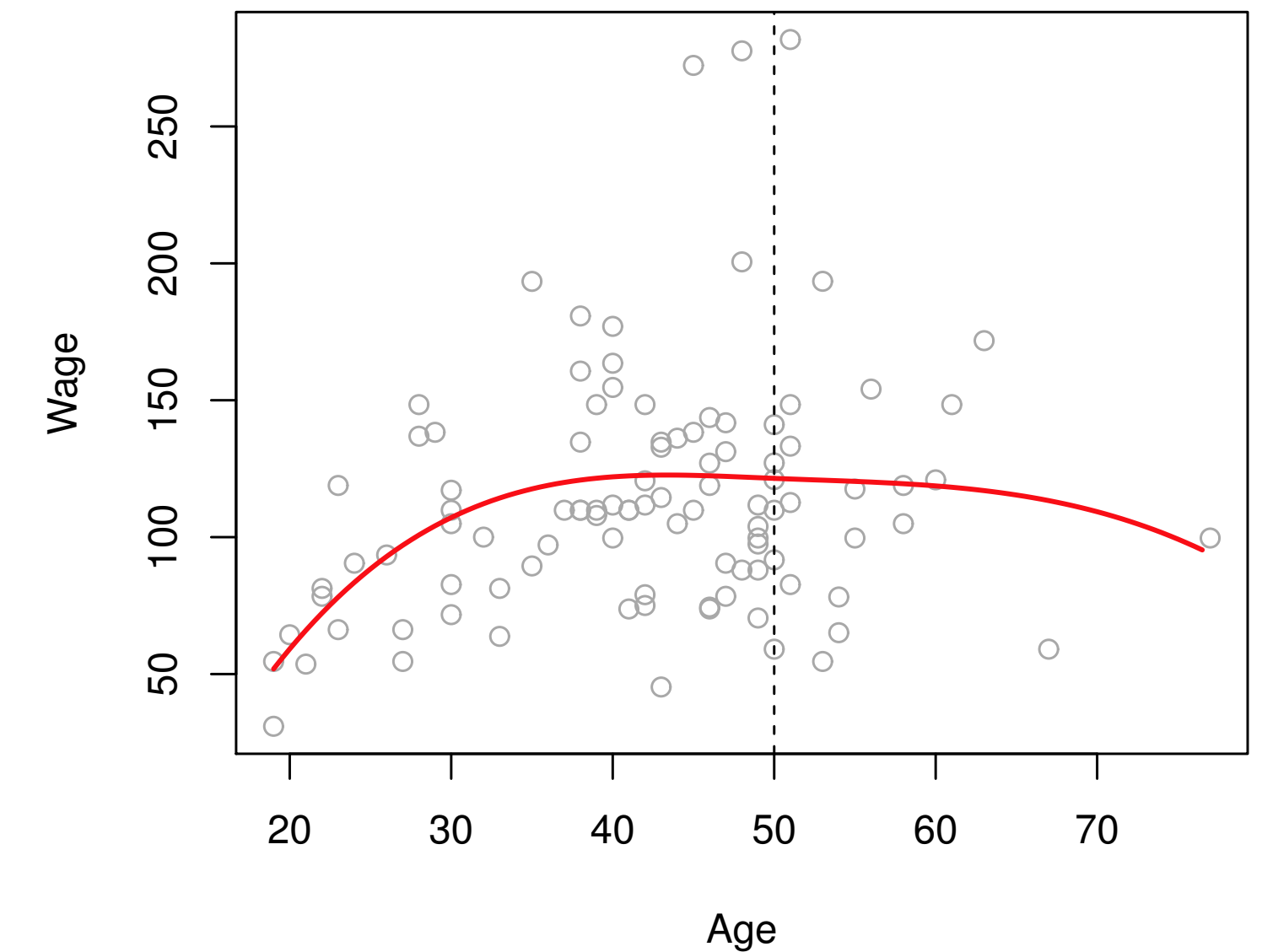
Piecewise Cubic



Continuous Piecewise Cubic



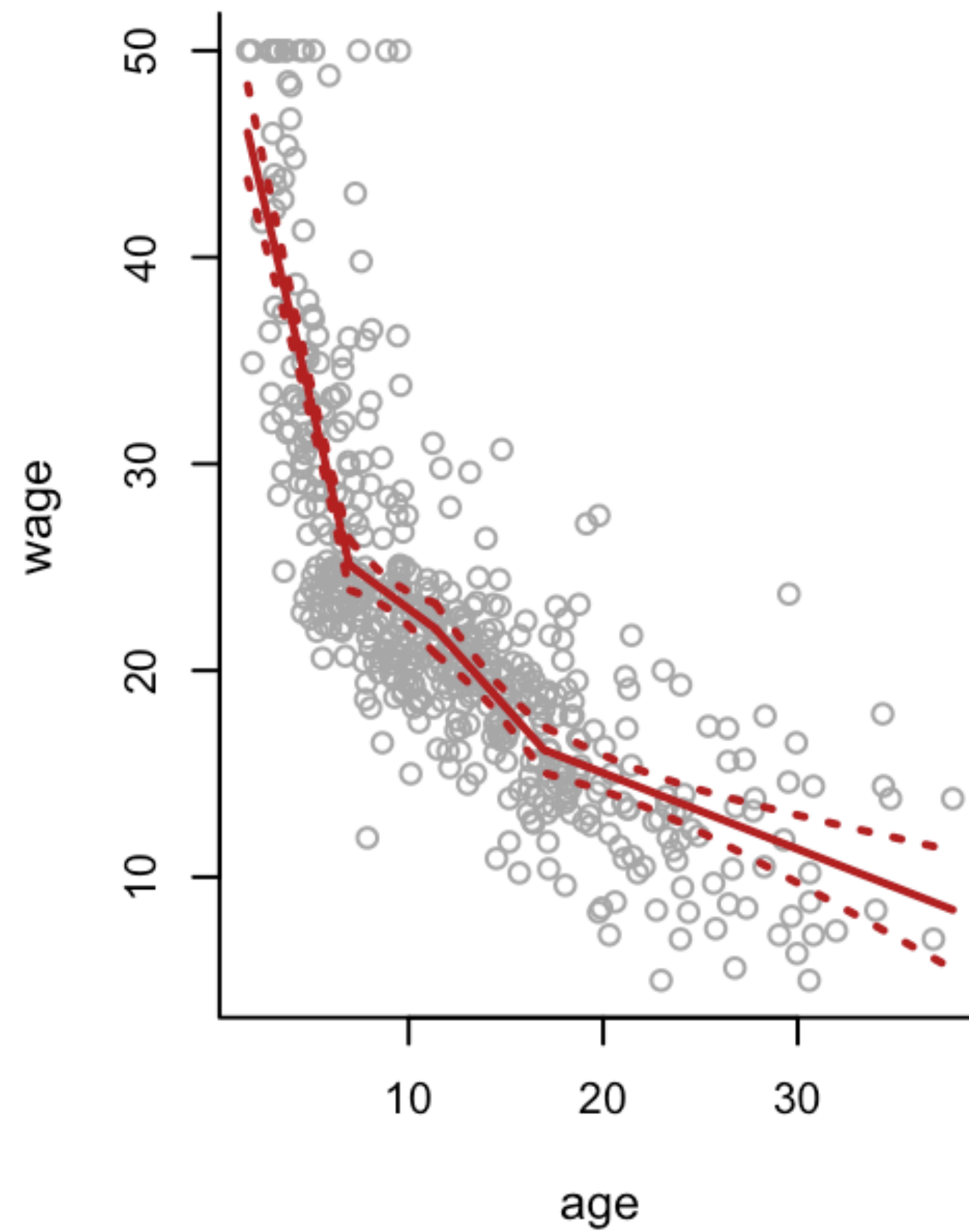
Cubic Spline



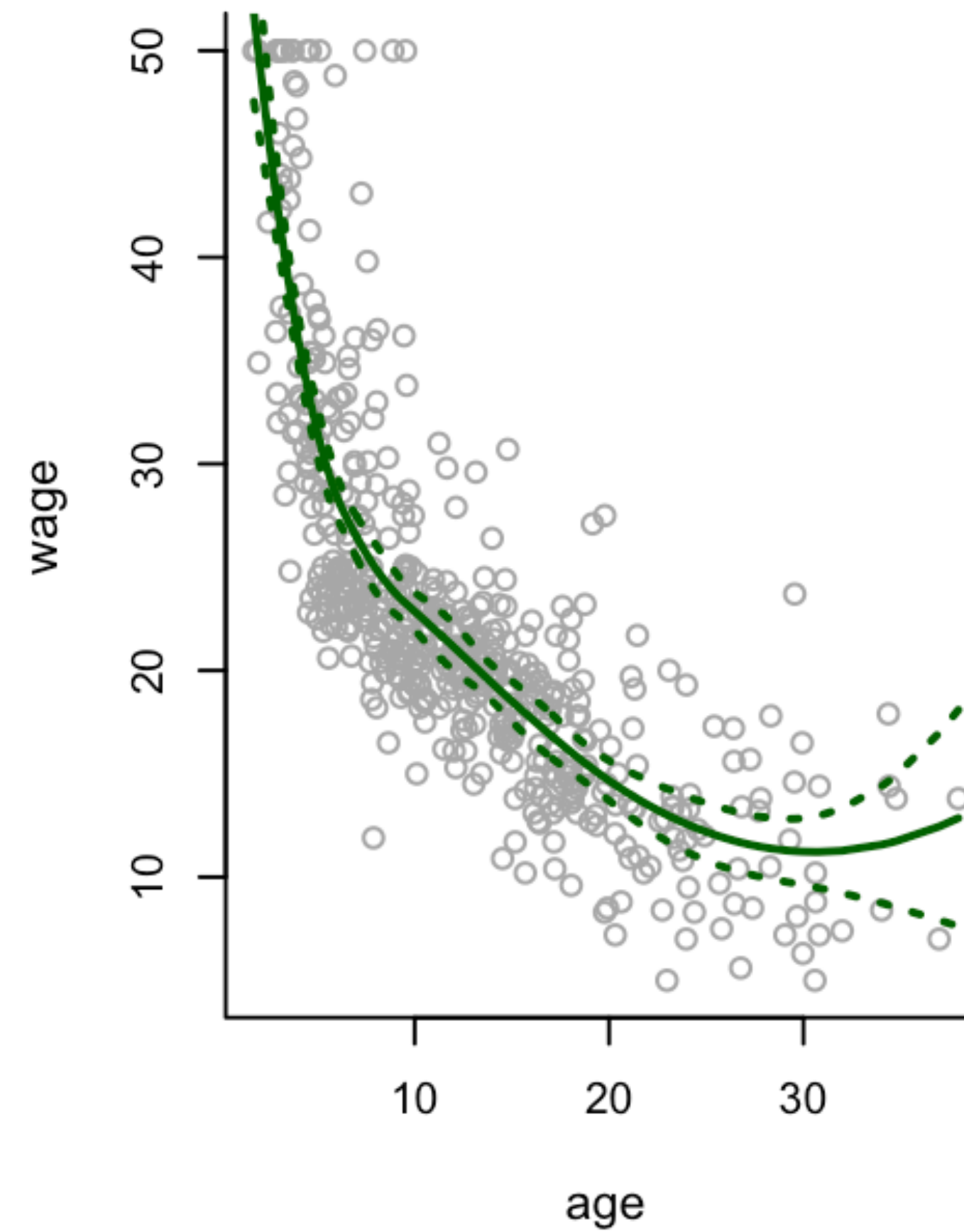
# Regression Splines

Example: Wage (ISLR2)

Linear Spline



Quadratic Spline



Cubic Spline

