

stages: 4 weeks $n = 1, 2, 3, 4$

decisions: whether to return vehicles or keep.

states: # of vehicles already hired

Assumptions:

you don't pay 500 if you return

$n=4$

$$f_4(7) = (220)7 + 220 + 500 = 2260$$

$$f_4(8) = (220)8 = 1760$$

$x_4^*(S_4)$

7

8

$$\underline{n=3}$$

$$\underline{x_3^*(S_3)}$$

$$f_3(4) = \min_{7,8} [4(220) + 3(220) + 500 + 2260, \\ 8(220) + 500 + 1760]$$

$$8$$

$$= \min_{7,8} [4300, 4020]$$

$$f_3(5) = \min_{7,8} [7(220) + 500 + 2260, 8(220) + 500 + 1760]$$

$$= \min_{7,8} [4300, 4020]$$

$$8$$

$$f_3(6) = \min_{7,8} [4300, 4020]$$

$$8$$

$$f_3(7) = \min_{7,8} [7(220) + 2260, 8(220) + 500 + 1760]$$

$$= \min_{7,8} [3800, 4020]$$

$$7$$

$$f_3(8) = \min_{7,8} [7(220) + 2260, 8(220) + 1760]$$

$$8$$

$$= \min_{7,8} [3800, 3520]$$

$$\underline{n=2}$$

$$f_2(7) = \min_{4,5,6,7,8} [(4)(220) + 4020, (5)(220) + 4020, (6)(220) + 4020, \\ (7)(220) + 3800, (8)(220) + 3520 + 500]$$

$$= \min [4900, 5120, 5340, 5340, 5780]$$

$$x_2^* = 4$$

currently have 8

$$f_2(8) = \min_{4,5,6,7,8} [(4)(220) + 4020, (5)(220) + 4020, (6)(220) + 4020, \\ (7)(220) + 3800, (8)(220) + 3520]$$

$$= \min [4900, 5120, 5340, 5340, 5280]$$

$$x_2^* = 4$$

$$\underline{n=1}$$

$$f_1(0) = \min_{7,8} [(7)(220) + 500 + 4900, (8)(220)^{+500} + 4900]$$
$$= \min [6940, 7160]$$

$$x_1^* = 7$$

$$\text{Min cost} = 6940$$

$$7 \rightarrow 4 \rightarrow 8 \rightarrow 8$$