

Base Example for Sensitivity Analysis.

consider the LP

$$\begin{aligned} \max Z &= 3x_1 + 2x_2 + 5x_3 \\ \text{s.t.} \quad x_1 + 2x_2 + x_3 &\leq 430 \\ 3x_1 \quad + 2x_3 &\leq 460 \\ x_1 + 4x_2 &\leq 420 \\ x_1, x_2, x_3 &\geq 0 \end{aligned}$$

Let S_1, S_2, S_3 be the slack variables corresponding to the three constraints. Upon solving the LP, the *optimal* simplex tableau is as follows:

	x_1	x_2	x_3	S_1	S_2	S_3	RHS
Z	4	0	0	1	2	0	1350
x_2	-1/4	1	0	1/2	-1/4	0	100
x_3	3/2	0	1	0	1/2	0	230
S_3	2	0	0	-2	1	1	20

The optimal solution is $x_1^* = 0, x_2^* = 100, x_3^* = 230$, and $Z^* = 1350$.