

Part II–The Basics

This section introduces you to the simplex method and prepares you to make intelligent use of the computer codes that implement it.

Chapter 4. The Simplex Method, Part 1

In Chapter 3, you saw that Gauss-Jordan elimination pivots until it finds a basic solution to an equation system. In Chapter 4, you will see that the simplex method keeps on pivoting – it aims to improve the basic solution’s objective value with each pivot, and it stops when no further improvement is possible.

Chapter 5. Analyzing Linear Programs

In this chapter, you will learn how to formulate linear programs for solution by Solver and by Premium Solver for Education. You will also learn how to interpret the output that these software packages provide. A linear program is seen to be the ideal environment in which to relate three important economic concepts – shadow price, “relative” opportunity cost, and marginal benefit. This chapter includes a “Perturbation Theorem” that can help you to grapple with the fact that a linear program is a model, an approximation.

Chapter 6. The Simplex Method, Part 2

This chapter plays a “mop up” role. If care is not taken, the simplex method *can* pivot forever. In Chapter 6, you will see how to keep that from occurring. The simplex method, as presented in Chapter 4, is initiated with a feasible solution. In Chapter 6, you will see how to adapt the simplex method to determine whether a linear program has a feasible solution and, if so, to find one.