1014-P1-404   **Mike Pogodzinski*** (`jmp@pogodzinski.net`), Department of Economics (0114), San Jose State University, 1 Washington Square, San Jose, CA 95192-0114. *Profit Maximization and Level Curves: Applying Excel Data Tables, Conditional Formatting, and the Solver.*

This paper illustrates three tools in Microsoft Excel that enhance the analysis of profit maximization by a firm: data tables, conditional formatting, and the solver. In the Theory of the Firm, alternative models treat profits either as an objective or a constraint. In some cases a closed-form expression for the optimal levels of inputs or outputs can be determined. Microsoft Excel has an included add-in, the Solver, that can determine optimal solutions even when the closed-form solution is unavailable.

The analysis of the profit maximization problem is also enhanced by examining the iso-profit lines: combinations of outputs (alternatively, inputs) that yield a given level of profit. The conditional formatting feature of Microsoft Excel can be used to display combinations of outputs (alternatively, inputs) that yield profits within a given range.

Data tables are a convenient tool for showing the values of functions of two variables. Using data tables can significantly reduce the programming costs in displaying values of functions of two variables, and enhance the ability to do "what if" analysis.

Although the tools are illustrated for particular problems in economics, the techniques are of more general interest. (Received September 14, 2005)