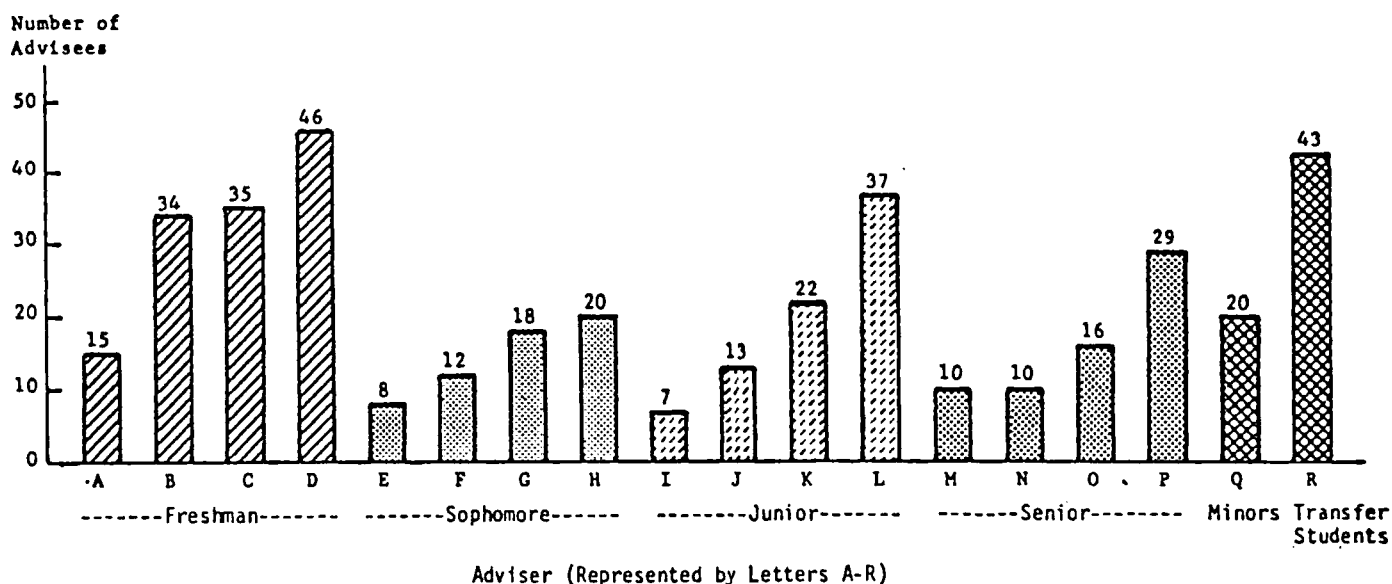


Figure 1. Number of Undergraduate Advisees per Adviser in Agricultural Economics, Fall 1983.



advising has on students who drop out or change majors.

The uneven distribution of advisees among faculty members raises the question whether all faculty should serve as advisers. On the principle of labor specialization, the answer should be no. Furthermore, requiring all faculty to advise could be a disservice to students assigned to ineffective advisers. It may be better not to expect that all faculty members advise rather than to develop a procedure to assist students assigned to ineffective advisers. Yet not requiring advising duties of those who either do not care to advise, or are not able to successfully do so, is a reward because they will have additional time for activities that are rewarded with promotion and advancement (such as research). A system of recognizing and rewarding advising activities would offset this inequity.

Conclusions

A survey of past and present advisees provided data to assess the advising program in Agricultural Economics and revealed students' expectations of their advisers. Students were enthusiastic about having an opportunity to react to their adviser and the department's advising program. As an alternative to requiring all faculty members to serve as academic advisers, departments may want to implement a procedure to identify and utilize only their most effective advisers. This will succeed, however, only if advising is recognized and rewarded by the promotion process.

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¹Discrepancies in number of advisees for freshmen advisers (Figure 1) is due to approximately a dozen students that did not finish in four years (adviser D) and the fewer number of freshmen entering winter quarter (adviser A).

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Microcomputers in Teaching Agricultural Price Analysis

Thomas P. Drinka

Abstract

Microcomputer programs on the subject of agricultural marketing and commodity futures analysis have been developed in the Department of Agriculture at Western Illinois University. These programs are utilized for on-campus teaching and research, as well as for off-campus service. The programs would be of interest to individuals who trade commodity futures contracts for hedging and/or speculative purposes.

Introduction

Agricultural commodity markets have exhibited significant price volatility during the last decade. This volatility can be illustrated with the price of soybean

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futures contracts: since early-1980, for example, the price of the nearby contract rallied from approximately \$5.90 per bushel to nearly \$9.60 by December 1980, then declined to \$5.30 by the fall of 1982, moved to \$9.50 by the summer of 1983, and is below \$6.00 at the time of this writing. During this period the average cash price of soybeans in the Western Region of Illinois (as defined by the Illinois Department of Agriculture) ranged from \$5.00 to \$8.99 per bushel. This degree of price volatility has been characteristic of other field crops, as well as livestock.

Furthermore, crop and livestock producers have faced cash prices which have not only been volatile, but frequently have also been below cost of production. Such price uncertainty has increased the level of risk involved in agricultural commodity production, and has resulted in an increased awareness of the importance of farmers utilizing sound marketing practices.

Commodity Futures Markets

The fundamental marketing decision is to identify precisely when and how to establish a price in the cash market. Hedging is one of the marketing management tools used to establish or protect the cash price of a commodity before the cash transaction is actually done. This procedure involves the trading of commodity futures contracts. It is a standard business practice for commercial interests to trade futures as price protection for their holdings or commitments of cash commodities. The value of a hedge to commodity producers and users is risk reduction in situations where cash pricing for immediate delivery is impossible. Individuals who use futures contracts in their pricing strategies can do so in two general ways: true hedging and multiple hedging (Carter and Loyns 1983; Chicago Board of Trade 1984; Chicago Mercantile Exchange 1977; Drinka June 1984; Hayenga et al 1983; Martin 1983; Skadberg 1984).

Microcomputer Technology

Analysis of local basis and technical analysis of futures can be used by farmers to help determine the subsequent direction of commodity markets, and to help determine when to establish a price in the cash market. Such analysis, however, is both time-consuming and tedious. The microcomputer can relieve the farmer of much of the time required to do such analysis.

Over the next two decades, electronic hardware related to communications and information management "will exert a tremendous influence on the daily life of American Farmers" (Production Credit Associations 1983). Microcomputers capable of accommodating most agricultural needs are available at prices from \$2,000 to \$10,000; as a result, information on many agricultural subjects can be collected and stored by farmers on personal computers at home, giving them the capability of sophisticated computation and analysis at fairly low cost.

A recent survey of 151 farmers within a 50-mile radius of Western Illinois University (Norvell and Staub 1983) indicates that while these farmers have a positive attitude toward computer uses in agriculture, their experience is limited. Nearly 75 percent of these farmers recognize the potential for agricultural uses of the microcomputer, and are willing to spend as much as \$5,000 to purchase one. However, the survey indicates that only 41 percent of these farmers have even seen a microcomputer, and that only 13 percent have had a chance to use one.

University of Illinois farm management specialists estimate that only "more than 600" Illinois farm families regularly use microcomputers in making operating decisions. This number represents less than 1 percent of the Illinois farms in 1982.

Microcomputer Software

Capitalizing on computer capability, the business sector has developed programs that are just beginning to affect agriculture. Microcomputer programs have been developed to do technical analysis on commodity futures, and are available at prices ranging from less than \$100, to several thousand dollars.

A survey of the 50 U.S. Land Grant Universities (Strain 1980) was conducted to inventory the hardware and software currently in use, and being developed, at those Universities. The results of this survey indicate that the academic community is not providing the American farmer with the sort of microcomputer programs required to do market analysis!

Microcomputer programs designed to analyze commodity cash and futures prices have been developed in the Department of Agriculture at Western Illinois University. This paper describes two of these programs.

The Microcomputer Programs

The two programs described in this paper are menu driven, and are Apple-compatible. The computer must be equipped with two disk drives, 64K memory, an 80-column printer, and DOS 3.3. One of the programs is designed to generate high-resolution charts. To print these charts, the computer must either be equipped with a high-resolution printer interface, or the user must utilize a high-resolution graphics screen printing microcomputer program.

The WIU Soybean Basis Package

When evaluating a prospective true hedge, one localizes a futures price by subtracting from it an estimate of what basis will be at the time that the hedge is planned to be lifted (Drinka and Savilla 1984). True hedgers must maintain basis records since one is able to project basis weeks or months ahead only by analyzing the behavior of local basis during the past several years. The WIU Soybean Basis Package ("Basis Package") was developed to assist true hedgers in the preparation of historic local soybean basis records, and in the week-to-week updating and analysis of those records.

Soybean futures are traded for seven maturity months: January, March, May, July, August, September, and November. The Basis Package contains a matrix of futures prices for these seven nearby maturity months. This matrix consists of settlement prices of each Thursday (or Wednesday, if Thursday is not available) during the 1979/80 through 1982/83 marketing years.

The Basis Package contains the BASIS program, along with its matrix of futures prices on a 5¼-inch disk; this disk is booted in drive 1. A second--initialized--disk is booted in drive 2; this disk is used to store soybean cash prices collected by the user of the Basis Package. These cash prices are from one's local market, and must be over-night cash bids (for the same days as are the futures prices) available after the close of the Chicago Board of Trade at 1:15 PM.

After these two disks are booted, the main options menu is displayed:

- "Options
1. Enter Data
 2. Edit Data
 3. Print Data
 4. Basis Table
 5. Basis Chart
 6. End Program

Key Number."

An option is selected by keying the appropriate number. Initially, the data management routines of BASIS--namely, ENTER DATA and EDIT DATE--are used to store local cash prices for the 1979/80 through 1982/83 marketing years. Subsequently, these routines are used to update cash and futures prices week by week. Cash and futures prices can be printed by selecting the PRINT DATA option.

Once price data have been stored, the analytic routines of BASIS--namely, BASIS TABLE and BASIS CHART--are used to prepare basis tables and/or high-resolution basis charts. These basis tables and/or charts are used to estimate local basis some weeks or months ahead for the purpose of evaluating a prospective true hedge. The Basis Package is described in greater detail in its user manual (Drinka Copyright 1984).

The WIU Commodity Futures Technical Package

Whereas the true hedger determines when to place and lift a hedge by studying basis, the multiple hedger makes those decisions by doing technical analysis of the futures market (Drinka February 1984). The WIU Commodity Futures Technical Package ("Technical Package"), was developed to assist the multiple hedger in such market analysis.

The Technical Package consists of two separate programs: DATA MAN and COMTECH. The data management program is used to enter, edit, and display futures daily trading statistics (i.e., open, high, low, settle, volume and open interest). COMTECH executes technical analysis on these data. The Technical Package is stored on a 5¼-inch disk. This disk is booted in drive 1, and a second--initialized--disk for data storage is booted in drive 2.

In deciding precisely when to place and lift a hedge, the multiple hedger would use the Technical Package in two ways. First of all, historical trading statistics--previously entered with DATA MAN--would be analyzed to identify the most profitable trading system utilizing the technical indicators contained in COMTECH. Secondly, the multiple hedger would then apply this trading technique in real time, and use COMTECH to compute technical indicators after having entered trading statistics each day with DATA MAN.

Upon entering the data management program, the DATA MAN menu is displayed:

- "Data Man Main Menu
1. Enter Data, Different File Name
 2. Enter Data, Same File Name
 3. Edit Data, Same File Name
 4. Edit Data, Different File Name
 5. Display Data, Same File Name
 6. Display Data, Different File Name
 7. Exit To Main Program
 8. Exit Completely

Key Number."

An option is selected by keying the appropriate number. Each futures contract is assigned a file name when stored with DATA MAN. Upon booting the Technical Package and entering DATA MAN, option number 1, 4 or 6, respectively, would be keyed to enter data, edit data, or display data on the screen; the user is then prompted to indicate the file name. Once a file name has been so indicated, the user could continue to enter, edit or display data by keying option number 2, 3, or 5.

To exit DATA MAN and do analysis with COMTECH, number 7 is keyed. Upon doing so, the COMTECH MAIN MENU is displayed:

- "Main Menu
1. Display The Data (Y/N)
 2. Print Bar Chart (Y/N)
 3. Print Mov. Averages (Y/N)
 4. Print Oscillators (Y/N)
 5. Print RSI (Y/N)
 6. Print Percent R (Y/N)
 7. Latest Figures (Y/N)

'Y' for Yes — 'N' for No.

Option 1 prints a table of daily trading statistics. Options 2 through 6 are used to analyze historical data, while option 7 makes calculations for the last day only. Options 3 through 7 prompt the user to specify the number of days required in each analysis. For example, to analyze the bar chart and 14-day RSI on historical data, the user would respond by keying

"N,Y,N,N,Y,N,N,"; and, when prompted, the user would key "14" and hit the RETURN key. Or, for example, to have technical indicators calculated for the most recent day only, the user would respond by keying, "N,N,N,N,N,N,Y"; and, when prompted, enter the desired number of days for each technical indicator.

Such analysis would be done daily to help determine when to place and lift a multiple hedge. The Technical Package is described in greater detail in its user manual (Drinka Copyright 1983).

Discussion

The WIU Packages were developed to assist in on-campus teaching and research, and in off-campus marketing workshops. In our Advanced Agricultural Marketing course, students are stratified into research teams by virtue of their marketing interests and/or career objectives. Each team submits a research report which is to be graded. Preparation of a typical report would entail the collection of price data to be stored and analyzed by the WIU Packages; the analysis would be utilized, for example, to evaluate the effective revenue or cost generated by alternative pricing strategies for a specific farm output or input. In this way, students acquire hands-on experience with the WIU Packages in specific practical applications, as well as gain experience in conducting applied research as part of a team.

The Department of Agriculture sponsors on-campus and off-campus farm commodity marketing workshops for high school vo-ag groups, for Department alumni, as well as for general farm audiences. For such purposes, a microcomputer is taken to the off-campus location to demonstrate the WIU Package, and/or to provide hands-on experience. Furthermore, the Packages are available for public distribution.

Research has begun to upgrade the WIU Packages. The Technical Package is being modified to include additional technical indicators, to generate high resolution charts, as well as to compute profit/loss from simulated trades on historical data. And, additional Basis Packages are being developed to serve the needs of corn and livestock producers.

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