Energizing a Cooperative Class with Cooperative Feasibility Software

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Background

Historically, most undergraduate agricultural economics programs included a course on agricultural cooperatives. Agricultural cooperative courses have disappeared from many departmental course listing. In some cases, departments have attempted to integrate cooperative related subjects into existing agribusiness courses. In other cases cooperative education has simply been a victim of university down-sizing and re-prioritization. The loss of cooperative courses is unfortunate. A course on cooperative not only introduces students to the unique cooperative business model, but it also reinforces their understanding of finance, accounting and management principles. Discussion of "New Generation" cooperatives introduces a variety of entrepreneurship topics that are typically absent in agricultural economics curriculums.

Developing and teaching an undergraduate cooperative course can be challenging. Cooperative courses are often free electives rather than part of an agricultural economics or agribusiness major's required courses. Cooperative classes must be perceived as unique, fun and interesting before students will enroll. Unfortunately, many of the typical topics of a cooperative course such as cooperative principles, structure, taxation and earning distribution are not immediately exciting. Many of today's students are also

A cooperative course can be attractive to non-agricultural economics (or agribusiness) majors. While these students can help fill out a course rolls, they bring additional challenges. Students outside of agricultural economics/agribusiness typically have more difficulty in understanding finance, accounting and taxation issues. Students of all majors often fail to grasp the linkages between the topics covered in a cooperative course. For example, a student may memorize the choices for distributing returns but fail to see any linkage between the return distribution decision and cooperative's cash flow or the member's realized return.

Start Your Cooperative Project at OSU

Incorporating activity learning or hand-on activities into the curriculum of an undergraduate class is a recognized method of improving the learning experience. The Purdue Agribusiness Management game has been used effectively in undergraduate classes (Barnard, 2003). At Oklahoma State University, a "Start Your Own Cooperative" project was added to the undergraduate cooperative class. The cooperative class: AGEC 3463, was revived in the Spring of 2001 after an 15 year absence from the department's schedule. The initial enrollment was 35 students and increased to the capacity limit of 65 in subsequent years. Enrollment is typically approximately 50% agricultural economics/agribusiness major and 50% other majors within the College of Agriculture and Natural Resources. Outside majors are mainly Animal Science and Agricultural

Benefits of the "Start Your Own Cooperative" Project

The "Start Your Cooperative" project has several benefits. It introduces concepts of entrepreneurship that are typically not covered in other agricultural economics or agribusiness courses. Students are naturally stimulated by the concept of designing and creating their own business. It also adds relevance to the cooperative concepts covered in the lecture topics. As students realize that they must decide between open and closed membership or design a voting structure for their cooperative they are more interested in the lecture discussion.

The "Start Your Cooperative" project also demonstrates the wide variety of business activities that can be organized under the cooperative business models. The list of agricultural, business and consumer cooperatives created by students is far richer than the examples in a cooperative text. The instructor can integrate student created examples into the lecture and discussion, emphasizing the relevance of the lecture topics. Finally, the "Start Your Own Cooperative" project serves to integrate the various legal, business, financial and taxation issues covered in the cooperative class lectures. In order to complete the project students have to simultaneously consider equity structure, profit distribution, taxation, leverage, pricing strategies and other issues.

Challenges with the "Start Your Own Cooperative" Project

Several problems were encountered in using the "Start Your Own Cooperative"

evaluate their final product and also caused them to miss the cooperative related learning opportunities. Even groups with agricultural economics/agribusiness students often created projections with internal inconsistencies. While it was easy to determine that a projection was "too good to be true" finding the inconsistencies between initial investment, pricing, costs, profits and return on investment was time consuming. Teams with adequate projections were reluctant to examine alternate structures, even when the potential advantages were highlighted.

OSU Feasibility Assessment Templates

In conjunction with the Agricultural Resource Marketing Center, a team of faculty at Oklahoma State University developed a set of feasibility assessment templates (Kenkel and Holcomb, 2005). The templates, which were based on excel spreadsheets included a generic template for simple projects and more specialized templates for flour milling, commercial bakery, commercial wine making, cotton ginning, and beef slaughter. A template for oilseed processing, refining and biodiesel production is under development. The generic feasibility template has been extensively used by Oklahoma State University's Food and Agricultural Products Center by clients examining the feasibility of a value-added business project.

The generic feasibility template was expanded to reflect the equity structure, profit distribution and taxation alternatives of a cooperatively organized business. The

The template has three input sheets. Most basic costs and prices are entered in the *input* worksheet. Information on interest rates, taxation rates and inflation rates are entered. Many other costs are such as insurance, maintenance and employee benefits are calculated based on the percentages entered in the basic input sheet. The *input* worksheet also provides entries for the prices, cost of goods sold and sales growth rates for up to four products. Users can modify the template to include additional products or information. Users also enter information on property plant and equipment in the *depreciation* worksheet and information on personnel requirements and wage rates in the *personnel* worksheet.

A number of additional worksheets are based on the information entered in the input sheets. These include worksheets on *market projections*, *loan amortization*, *personnel expense, depreciation expense*, *expense summary*, *profit and loss* and *return on investment*. The *return on investment* worksheet includes common measures of project evaluation including net present value, benefit-cost ratio, internal rate of return, return on total assets, return on equity and payback period. Various tables of sensitivity analysis can be created on the *return on investment* worksheet.

Cooperative Feasibility Assessment Template

While the basic feasibility assessment template modeled a simple investor owned business a number of changes were needed to make the template suitable for

stock, preferred stock and loan capital. The user was also allowed to select between a closed and open membership cooperative. When open membership was selected the user was also required to select an equity revolvement period. In the open membership option the market value of the stock at the end of the 10 year projection period was estimated as a function of the cooperative's earnings before interest and taxes (EBIT).

The *input* worksheet of the template was also modified to include the profit distribution alternatives unique to cooperative businesses. The user could determine the percentage of earnings retained as unallocated reserves, and distributed as cash patronage, qualified stock patronage and non-qualified stock patronage. The percentage of member business could also be selected. Based on these inputs the *profit and loss* worksheet was modified to reflect the taxation impacts of the various profit distribution choices, dividends rates on common and preferred stock and the percentage of member business. A separate work sheet, *owner's equity* was created which tracked the initial equity, additional qualified and non-qualified equity created through patronage stock dividends and equity revolvements. Information on the revolvement of non-qualified stock fed back to the *profit and loss* worksheet where it impacted the cooperative's taxable income. The equity revolvement information also fed into another new worksheet: *owner's return*.

While calculations in the *return on investment* worksheet are based on the after tax cash flows for the firm, the *owner's return* worksheet is based on after tax cash flows

closed membership cooperative the owner's cash flow in the final year of projections (year 10) includes an inflow from the sale of the stock at an estimated market value of five times the average earnings before interest and taxes.

Using the Cooperative Feasibility Template

Starting with the Spring of 2004, AGEC 3463 students began work on their "Start Your Cooperative" project beginning with the 2nd class period. Students were allowed to voluntarily form into groups formed around general categories of cooperatives. The team's refined the structure of their cooperative as the semester progressed. The teams met periodically throughout the semester and were required to turn in a number of short reports on membership, voting system, board structure, mission statement, capital structure and market projections. The major projection report was intentionally separated from the rest of the financial projections to try and prevent groups from "back solving" for the market volume and price levels that would make their project feasible. At the end of the semester the teams completed a written report, provided a final version of their template and made a class presentation.

The cooperative feasibility template created a number of "teachable moments". Many teams discovered that their concept of a "reasonable" member investment did not generate sufficient equity to fund the property plant and equipment that they deemed necessary. Student teams also frequently designed their profit distribution system from a

meet loan principle payments or revolve equity. The template allowed the teams to examine the impacts of alternative profit distribution structures.

The *owner's return* worksheet of the template proved to be a great learning tool. Typically, a team would first work on developing a production and marketing structure that generated a profit and an adequate return on investment. They then found they had to adjust the profit distribution structure to generate a positive cash flow. Teams then discovered that the decisions that improved the cooperative's cash flow reduced the owner's realized return on investment. As they toggled back and forth between the cooperative's cash flow projection and the owner's distributions and returns, students gained understanding of the unique structural aspects of cooperative businesses.

Instructor's Perspective

My initial concern over providing the cooperative feasibility assessment template for the "Start Your Own Cooperative" project was that the teams would generate financial projections with no understanding of the inter-relationships. Instead, I discovered that the templates greatly improved the student understanding of financial structure and feasibility issues. Instead of concentrating on the intricacies of generating financial statements, the teams spent more time examining alternative structures. The templates also leveled the playing field between agricultural economics/agribusiness and other majors. Perhaps the greatest advantage of the template was that it made it much

ensured that loan funds were repaid, stock was redeemed and that tax, maintenance and insurance costs were included.

Conclusion

Hands-on activities such as the "Start Your Own Cooperative" project are a great way to invigorate an undergraduate cooperative class. Incorporating the "Cooperative Feasibility Assessment Template" further enhanced the success of the activities. The template leveled the playing field between agricultural economics/agribusiness students and other majors, improved the quality of the final reports, and reduced the workload on the instructor. More importantly, by running multiple scenarios on the template the student teams gained a much better understanding of the financial issues related to a cooperative business. Student evaluations of AGEC 3463 have consistently ranked among the top four or five courses in the department. Write in comments from students frequently mention how much they like the "Start Your Own Cooperative" project and the "Cooperative Feasibility Assessment Template". The Cooperative Feasibility Assessment Template is available free of charge at www.agecon/okstate.edu/coops

References

Barnard, Freddie L. "Using a Computer Simulation Game to Teach Agribusiness Management" Journal of Extension, Vol. 41 Number 5, October 2003. www.joe.org/joe/2003ocober/tt7.shtml