

Annual Assessment Summary

ECONOMICS

**Department of Mathematics,
Computer Science,
and Economics**

January 2006

Goals, Outcomes, Indicators, Findings, and Action

Assessment of the ESU Economics Program 2005

Goal:	Outcomes Expected:	Method(s) of Assessing:	Findings	Program Action (or Recommendations)
<p>To develop a foundation of knowledge in economics</p>	<p>Demonstrate the ability to gain access to existing knowledge and information</p> <p>Display a command of existing knowledge in economics, especially in microeconomics, macroeconomics as a foundation for analysis</p>	<p>Assignments, papers, or exams submitted in economics classes are the primary means of assessment of these expectations</p>	<p>Student cohorts showed considerable progress in macroeconomics analysis in comparison with cohorts from previous years. The consensus of the faculty was the improved quantitative skills were a significant factor in this progress.</p> <p>Overall, students showed in typical progress microeconomic analysis with considerable variation in individuals which is not unusual.</p> <p>Feedback from upper-level economics classes suggest students' retention of knowledge and ability to analyze erodes to some extent over time. Although this is the norm, some improvement was noted in comparison with previous years.</p> <p>Overall, the indicators suggest this goal has been met; however, the feedback suggests areas for improvement.</p>	<p>No major program modifications are indicated from the findings. Minor modifications that are to be implemented within existing courses. Since comprehensive exams are already the norm in economics classes, additional ways to increase retention of knowledge and learning will be explored. The emphasis will be on techniques to expand perspective and motivation each instructor finds compatible with his or her pedagogy.</p> <p>Also, assessment results will continue to be shared with those who major in the program.</p>

<p>To develop critical and analytical thinking skills</p>	<p>Use economic models as a framework of analysis</p> <p>Use appropriate mathematical, statistical, and/or quantitative techniques in economic analysis</p> <p>Identify policy options and the expected outcomes</p>	<p>Assignments, papers, or exams in economics classes are one of means of assessment of these expectations</p> <p>Scores on the mathematics segment of the CAAP (or other approved demonstrations of competence)</p> <p>Completion of courses in mathematics beyond College Algebra is another indicator of achievement</p>	<p>Exams and papers produced mixed results. The consensus was some of these students still need improvement.</p> <p>Linkage studies, which are attached and cannot be easily condensed here, show 29% of students making expected progress and 71% having more progress than typical. These findings are well beyond national and ESU norms in comparable linkage studies.</p> <p>In recent years only one economics student completed a BS degree with just College Algebra; several years ago it was common. Approximately half of the students in recent years graduate with more than a course in calculus. (See Table I for complete details.)</p> <p>External indicators strongly suggest this goal is being met, internal ones show room for improvement.</p>	<p>No program changes are indicated.</p> <p>The quantitative and analytical rigor in economics classes will continue. Opportunities to expand or enhance these skills in specific courses will be at the discretion of the instructor.</p> <p>Students will be continually encouraged to take challenging quantitative classes in mathematics and statistics.</p>
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<p>To develop or enhance effective communication skills</p>	<p>Organize information, thoughts, and analysis in an effective manner</p> <p>Articulate ideas, arguments, and analysis effectively in written or presentation form of communication</p>	<p>Scores on the writing segment of the CAAP (or other demonstrations of competence) are one indicator.</p> <p>Essay tests and short papers are another means of assessment.</p>	<p>Linkage studies, which are attached and cannot be easily condensed here, show 55% of students making expected progress and 45% having more progress than typical. These findings exceed national and ESU norms in comparable linkage studies.</p> <p>External indicators suggest this goal is being met, internal ones show room for improvement.</p>	<p>No major program changes are indicated from the findings.</p> <p>Minor modifications include even more emphasis on formal writing in economics courses. Increased quantity is not what is indicated; the emphasis will be directed toward higher quality.</p> <p>Additional encouragement in advising to take writing intensive courses outside the discipline will be encouraged.</p>
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<p>To provide effective preparation for post-baccalaureate opportunities:</p>	<p>Pursue career interests not as yet an economist which typically requires an advanced degree; however, in a related capacity</p> <p>Pursue graduate or professional studies if the student excelled as an undergraduate overall and in the requisite area(s)</p>	<p>Offers or placement in employment related to the major would be an indicator.</p> <p>Acceptance into an advanced degree program would be indicator.</p>	<p>Over one-third of economics students have economics-related internships before graduation.</p> <p>Although it is nearly impossible to track all offers to all students, they report many voluntarily. Placement into major corporations has increased (e.g., GE, Payless ShoeSource).</p> <p>Previous graduates earned advanced degrees in unknown percentages (since reporting is voluntary) and others continually ask for reference letters for admission; virtually all indicate acceptance. Those who report seem so have impressive career progression.</p> <p>Three students who completed their studies at ESU in May began Ph.D. programs in economics in 2005. Two were funded at higher-level schools.</p> <p>All of these indicators suggest the program is effective in meeting this goal.</p>	<p>No program changes are indicated from these findings; however, it is important to ensure students continue to take responsibility for their careers.</p>
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Background and Special Considerations

Assessment of the economics program requires a slightly different approach from most other disciplines since most students have few if any formal courses in the economics before entering the university. It is exceedingly rare for a student to declare a major in economics before taking a course in it. We recognize other disciplines have the luxury of identifying students in their programs often from the time first matriculate (e.g., students enter the university with the intent of post-secondary study in say history or mathematics and have previous background that can be assessed). Seldom do entering students have significant background in economics. Incidentally, this is somewhat different from the environment in other states since most high school graduates in the United States are required to have at least one formal course in economics typically at the secondary level; Kansas does not have such a mandate and relatively few Kansas high school graduates take economics as an elective. Effectively, this means we face considerable challenges in identifying student cohorts entering the economics program. It is much easier to identify exiting cohorts since students enter at various stages of the undergraduate studies and progress at differing rates through the program.

Ideally, we would prefer to assess the value added to each student entering the program and then aggregate into cohorts, or something that resembles a moving average, to assess the program. We have attempted to do this whenever possible and we use as many external measures as possible (e.g., linkage studies following the ACT model). Economics program assessment is especially challenging due to the diversity of background and ability of students who enter the program. For example, we have non-traditional students who begin with MA095 and must take another non-credit math class before College Algebra. In contrast, some students decide on an economics major after already completing calculus or beyond. Obviously, the program would appear to be far more successful if we just looked at aggregated data on quantitative skills of graduates with more of the later type of students. We have not done that. Wherever possible, we use longitudinal data to attempt to capture the gains made by the student.

Multidimensional Approach with a Balance Internal and External Assessment Instruments

Our approach is multidimensional. Part of this is due to incomplete coverage with some of our assessment instruments; however, we generally prefer to have multiple techniques which provide greater perspective and reliability. A few examples stand out; we wish linkage studies were possible for all of our economics students. Instead, the majority of our talented students are excluded from one or more linkage studies since they have already demonstrated competence in writing, math, or both with the alternative provisions articulated in the university's competency examination requirements. Since they are exempt from taking one or more of the exams as part of the Collegiate Assessment of Academic Proficiency (CAAP) we do not have both ACT and CAAP data for these students to include them in that segment of a linkage study. It seems cost prohibitive and economically inefficient to require these students to take the CAAP

exam(s) in the areas in which they already excel (e.g., writing and math). In some ways, their achievements are noteworthy and are a valid indicator in this assessment; while this information is documented in annotations attached to the linkage studies, it is not emphasized. We elected to go beyond that by adding more revealing data when possible (e.g., see Table I). We consider all of the aforementioned assessment instruments in this section as external to the economics program. We are convinced our colleagues in mathematics and the integrity their courses are beyond reproach and represent external instruments for purposes of this assessment.

Previous Assessment and Its Role in Changing the Economics Program

Assessment of the economics program has evolved and the findings of previous assessments have been resulted in program modifications. For example, Brad Goebel, the Director of Lifelong Learning, conducted a focus group of economics students. None of the economics faculty were present at the focus group to ensure candor. The student responses were extraordinarily helpful in finding a creative approach that not only facilitates assessment but adds an exciting dimension to the program. Briefly, a capstone class was added that has an emphasis on experiential learning. It attempts to include beginning students from Basic Economics, before they would even consider a major in economics) along with students in the last stage of their studies economics at ESU. In the initial (experimental implementation) of the class, students worked on economics-related projects along with United Way Agencies. Both the beginning students and capstone students feedback was highly favorable about the experience. The second stage of implementation involves a similar course this spring.

Math Courses Beyond College Algebra

We recognize the challenges of measuring quantitative skills along with the critical and analytical thinking skills of students. No single indicator has the scope or depth we desire, so we use multiple indicators to form a composite in this area. We do not include mathematical statistics or statistics taught in other areas since statistics is required of all economics majors. There are only a few challenges we face in representing this data. The first is the level of detail to report. We have all of the courses each student took and their respective grades. While this is most revealing because it shows specific courses (e.g., one student began with Calculus II and graduated; it is only listed as one course beyond College Algebra), we are compelled to report less descriptive data. This is for two reasons. The first is, since our assessment information is shared with our students, an astute student might be able to recognize a classmate's grades by knowing the courses his or her classmate has taken. Secondly, the level of detail of this indicator for program assessment does not require such specificity.

The other challenge we face is how to effectively organize the data for ease of interpretation. To create a longitudinal perspective and the evolution of the program over time, we organized the students by their first matriculation at ESU. It is important to recognize, some part-time students are in the program much longer than traditional students so we also organized by separating graduates of the program in the first part of the list and current students afterwards. Otherwise, it

gives a distorted image. For example, some students who are currently in the program began their undergraduate studies many years ago and they are progressing slowly through the math requirements of the university. Eventually, we hope they will take courses beyond College Algebra; however, if we list them in strict chronological order they would seemingly appear as a graduate. This we elected to use this two-step process which easily distinguishes graduates from those still in the program. It is important to note the data in Table 1 includes some students who left ESU before graduating.

The information in Table 1 suggests students in recent years have been taking more courses in math. While this is generally accurate, there are some students who came to the program with a considerable number of math courses already taken or required by another program. (See the footnotes or captions in Table 1.) The improved quantitative background of our students is consistent with their improved analytical and critical thinking skills.

Linkage Studies – Writing and Quantitative Skills

We follow ACT in conducting linkage studies for our students. A linkage study attempts to compare the same student at different stages of his or her academic career and then aggregates into cohorts with some summary data. The ACT model uses assessment instruments for which there is a published or known concordance. Since ACT creates both the ACT and CAAP exams and effectively suggests both exams attempt to measure the same skills or knowledge, comparing student performance on each exam is valid. The process involves a transformation of the decile ranking of the student's performance into scalar from one to ten. For example, a student who had an ACT score of eleven or below in the English section would be in the bottom ten percent of high school students taking the exam in 2005; this student would have a transformed score of one in a linkage study. Similarly, having a math score of fourteen or below would result in a decile ranking of one. At the other end of the spectrum, another student who earned a 28 or above in English (27 or above in math) would have a decile ranking of ten since this performance had 90 percent or more of other test takers not performing as well on this specific segment of the ACT. Although we are convinced we could improve this approach with additional refinement, we follow ACT because we do not have the same ability to create the norms for what constitutes "expected progress" as distinguished from "more than expected progress" and its less desirable counterpart. Furthermore, our ability to compare and contrast the progress of our students with national or institutional norms would not be possible. Since our university commissioned ACT to provide linkage studies for ESU students and the availability of national linkage reports from ACT, we elected to conform so we can use this information in a directly comparable manner.

The same decile ranking process is used to create a range of transformed CAAP scores. It is important to note, the CAAP is significantly more advanced than the ACT since it is intended for students in the middle of their undergraduate careers after they have completed collegiate courses, especially in math and English. We would certainly expect a hypothetical student who somehow took the ACT and the CAAP on the same day to have a significantly lower decile ranking on the CAAP.

We have used the same boundaries as established by ACT in Figures 1 and 2. The middle boundary on Figure 1 represents what is considered expected progress by ACT; the area below (or to the right) represents more than expected progress and the area above (or to the left) represents the opposite. A specific example is illustrated here to facilitate understanding. The numeral “2” in the cell corresponding to a decile ranking of “2” on the ACT and “5” on the CAAP represents two different economics students. Each had an ACT score where between ten and nineteen percent of other ACT test takers scored lower nationally. For ease of understanding, let’s say they had scores where fifteen percent scored lower. When these same students took the CAAP, their performance exceeded somewhere between forty and forty-nine percent of other college students taking the CAAP. For ease of comparison the interested reader might consider these like forty-five percent scored lower. This much of a gap between the performance on the ACT and the CAAP represents more than expected progress for both of these students. In point of fact, these two students did not have the same ACT or CAAP scores, one student had a higher score than the other on both exams. This richness of detail is lost in the ACT-style linkage study.

The summary of the linkage study involves calculating the percentage of students in each of the three categories. No economics students in the sample made less than expected progress in writing; whereas nine percent of the national reference groups were in this category. Six economics students in the sample (fifty-five percent) made expected progress in writing; whereas, eighty percent of students in the national reference were in this category. Five economics students in the sample (forty-five percent) made higher than expected progress in writing; whereas, eleven percent of students in the national reference group were in this category.

It is important to note fifteen students were exempt for the CAAP or PPST writing segment and nineteen were exempt from the math segment since they demonstrated proficiency by exemplary achievement, typically in course work outside the discipline and are not included in this data. Additionally, five students took the PPST and although they all achieved the cutoff scores or above for the university and the Teacher's College, these students are not included in the chart because the concordance for the ACT and PPST is not available. More detailed information is available in the text and tables in Figures 1 and 2.

In comparison with ESU and national linkage studies, ESU economics students compare quite favorably. As illustrated in Figures 1 and 2. We recognize their unusually large gains are not exclusively the result of courses within the program; in fact we strongly encourage students to take challenging courses outside the discipline which are consistent with their individual educational goals and career aspirations. We are grateful to have many talented colleagues who play a vital role in educating these students.