Econometer

A Newsletter of Economic Indicators in Southwest Colorado
from the Fort Lewis College School of Business Administration
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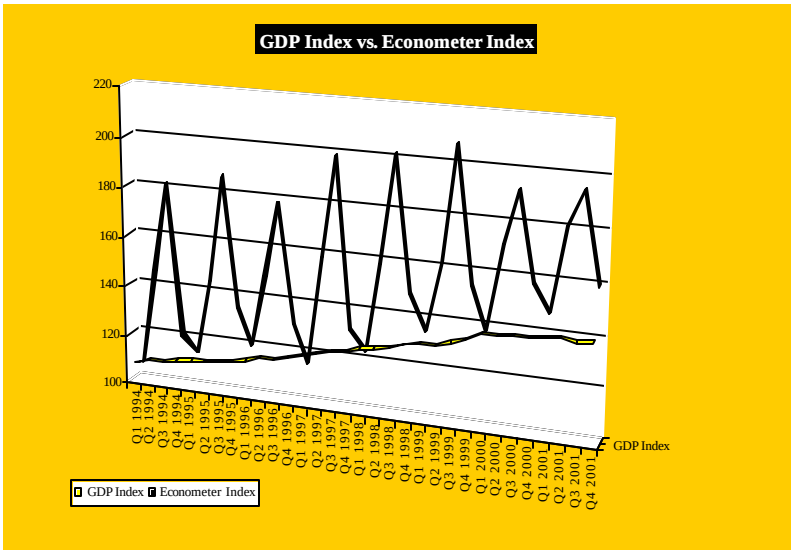
CONTINUED SLOW GROWTH DURING FOURTH QUARTER

The La Plata County economy grew slightly during the fourth quarter of 2001, continuing the slow growth of the third quarter of the year. The Econometer Index, which includes several sectors of the local economy, increased by 1.2 percent during both the third and fourth quarters of the year. The Econometer Index averaged 3.7 percent higher during 2001 than for 2000, suggesting that economic growth was stronger during the first half of 2001 than during the second half of the year.

The national economy also experienced slow growth during the fourth quarter of 2001. Real Gross Domestic Product (GDP) increased at an annual rate of 1.7 percent during the fourth quarter, following a decline at the rate of 1.3 percent during the third quarter. The U.S. economy went into a recession in March, 2001, but output fell only during the third quarter of the year. Real GDP for the year increased by 1.2 percent. The Consumer Price Index, the most widely-followed measure of inflation at the retail level, increased by a slight 1.6 percent during 2001. The unemployment rate for the nation's civilian labor force was 5.8 percent in December, 2001. It now appears that the recession of 2001 was relatively brief and mild.

The Colorado economy was experiencing distress in late 2001. The unemployment rate of the state's labor force was 5.2 percent in December, 2001, compared to only 2.5 percent in December, 2000. The December, 2001 rate was the highest since 1993, while total employment in the state was actually lower than year-earlier levels. Also during 2001, consumer prices in the Denver-Boulder-Greeley area increased by 4.7 over the previous year's level. The Colorado Economic Chronicle of the Colorado Legislative Council gave the state economy an overall rating of "bad" at the end of 2001.

The graph which compares the Econometer Index of the local economy with the GDP of the United States shows the seasonal change of the local economy from the third to the fourth quarters of the year. The annual change of the local economy may be seen by comparing the Index for the fourth quarter of 2001 to the Index for the fourth quarter of 2000. The graph of the GDP Index shows the upturn in the national economy during the fourth quarter of 2001. Both the Econometer Index and the GDP Index are based on 1990, with an average value of 100 for that year.



On an annual, or year-to-year basis, the various sectors of the local economy turned in a mixed performance during the fourth quarter of 2001. Sectors which were improved on an annual basis included industrial activity, bank deposits, residential real estate, college enrollment, and population. Sectors which declined on an annual basis included energy prices, construction activity, tourism, retail sales, and employment. Agricultural prices were mixed.

The La Plata County economy is highly seasonal, so that some sectors of the local economy vary significantly during the course of the year. Sectors of the local economy which expanded from the third to the fourth quarters of the year included college enrollment, industrial activity, residential real estate prices, bank deposits, and population. Declining on a seasonal basis were tourism, construction activity, energy prices, retail sales, and employment. Agricultural prices were mixed.

Economic Indicators

Tourism

Tourism showed a normal seasonal decline from the third to the fourth quarters of the year. On a year-to-year basis tourism measures declined by more than six percent. The annual decrease was probably a part of the national decline in tourism experienced in late 2001.

Retailing

Retail sales, after adjustment for inflation, declined seasonally by more than six percent and by more than one percent on an annual basis. Again, the annual decline can probably be attributed to the shock experienced by consumers during the Fall of 2001.

Employment

Employment in La Plata County is estimated by the Colorado Department of Labor and Employment. These estimates are subject to significant revisions. According to state estimates, employment in La Plata County decreased by more than three percent from the third to the fourth quarters of 2001 and also decreased by more than one percent from the fourth quarter of 2000 to the fourth quarter of 2001.

Agriculture

Agricultural prices were mixed during the fourth quarter of 2001. Calf prices decreased eleven percent from the third to the fourth quarters of 2001, and by fifteen percent from the fourth quarter of 2000 to the fourth quarter of 2001. Alfalfa hay prices increased by more than seven percent from quarter to quarter and by more than seventeen percent from year to year.

Tourism Indicators
Fourth Quarter, 2001

Indicator	Number	Percentage Change from Previous Year
Mesa Verde	56,934	-0.1%
Durango & Silverton Narrow Gauge Railroad	21,499	-3.7%
Durango-La Plata County Airport	18,795	-16.5%

Industrial Activity

Industrial kilowatt-hours used increased by more than twenty-six percent from the third quarter to the fourth quarter, and also increased by more than thirteen percent on an annual basis. Most industrial use of electricity in La Plata County is to compress natural gas for transmission through gas pipelines.

Population

The number of residential electric meters increased by almost one percent from the third to the fourth quarters of 2001, and also increased by 2.7 percent from the fourth quarter of 2000 to the fourth quarter of 2001. The annual increase in the number of residential electric meters suggests that the population of La Plata County is continuing to grow.

Finance

After adjustment for inflation, bank deposits in La Plata County increased by more than one percent from quarter to quarter and more than eight percent from year to year. Bank deposits are an important indicator of the economic health of the community as well as an indicator of the ability of local banks to make loans.

Fort Lewis College

Enrollment at Fort Lewis College showed a normal seasonal increase during the fourth quarter of the year. On an annual basis enrollment was up more than three percent. Several studies have shown that the college is responsible for about ten percent of the economic activity in La Plata County.

Construction

Construction activity declined seasonally during the fourth quarter of 2001, and also declined about ten percent on an annual basis. Historically, most construction in La Plata County has been residential construction.

Energy Prices

The federal government's energy price index declined more than eighteen percent from quarter to quarter and by more than forty-three percent from year to year. These numbers illustrate very well the extreme volatility of energy prices. Energy prices are of significance to La Plata County because the county is a major producer of natural gas. Rents and royalties, as well as property tax revenues associated with natural gas production, are very important to the local economy.

Real Estate

The median price of residential real estate in La Plata County, after adjustment for inflation, increased by more than three percent from the third to the fourth quarters of 2001 and by more than eight percent from the fourth quarter of 2000 to the fourth quarter of 2001.

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Forecasting is for Everyone

By Julius Snell
Student
Fort Lewis College

Successful business ventures forecast. Yet, for many small businesses, the forecast is typically the owner or manager's 'hunch' based on years of experience. While this "qualitative" method can work for some small businesses, a better approach is to use a simple, "quantitative" method to estimate some future event such as sales, revenues, or cash flows. Having a simple, quantitative forecast is better than having no forecast at all. This article will discuss the value of forecasting, and provide an easy way to prepare a sales forecast.

What Are Forecasts And Why Are They Important?

Basically, forecasting estimates some future event for planning purposes. Everyone does some forecasting in his or her daily life. A simple forecasting example is the upcoming week's meals. The future event is the number of meals to be prepared. Once the number of meals is known, the amount of food needed can then be estimated. Sometimes, too much or not enough food is bought. This is known as forecast error. It is not a major problem if the forecast error concerns canned goods, but forecast error can result in sour milk. Therefore, accuracy is central to the forecasting process.

Some small businesses may have an objective of $300,000 in total sales in 2003. This should not be confused with a sales forecast. Sales forecasts should be by product or by a group of related products. For example, a full-service bicycle shop might have different forecasts for the sale of bicycles, bicycle accessories, and repairs. Once these forecasts are known, they can be used to set achievable goals, to understand relationships between operational areas, to plan, and to reduce risk.

Using the same example, a bicycle shop's objective might be to increase total sales by 20 percent over the prior year. If the forecast for bicycle sales show a decrease in units sold, the overall increase in sales will have to come from sales of bicycle accessories or repairs. Assuming the bicycle forecast is accurate, is a 20 percent increase in total sales an achievable goal? Perhaps. If the customers are not buying new bicycles, the customers may decide to buy new tires, or bring in their old bicycle for repairs. The forecasts will help the manager understand these types of relationships between the business's operational areas.

Assuming the bicycle forecast is accurate, the bicycle shop's manager can begin to plan for the necessary resources to achieve the overall 20 percent increase in sales. These plans may include an increase in marketing dollars for bicycle accessories or repairs, an increase of bicycle accessory inventory, or an increase in the number of repair staff. The end result of accurate forecasting will be reduced risk and a successful business venture.

Useful Forecasts For Small Businesses

The sales forecast is the most important forecast for a small business. The sales forecast determines other forecasts such as revenues and cash flows. Hence, it is important to make the sales forecast as accurate as possible. If the sales forecast is too high or too low, a small business may find itself with too much inventory or lost sales. An inaccurate sales forecast can also cause a cash shortage or an idle cash surplus.

Equipped with the sales forecast, the small business manager can then forecast cash flows. Cash flow is the amount of cash received and disbursed by a business entity for a given period of time. The cash flow forecast is necessary to identify deficiencies or excesses in cash that the business needs. If the manager is forecasting a cash shortage, the manager can take steps to increase or decrease cash expenditures. Similarly, if the manger is forecasting a cash surplus, the manager can figure out how to invest the cash, rather than having it sit in a checking account. The Small Business Administration provides small businesses with an easy to use form to forecast cash flows.

ECONOMIC News YOU CAN USE

Initial Steps in Forecasting

The first step is gathering useful, historical data. The data should be from similar time periods. The period can be any time frame such as weekly, monthly, or yearly.

The second step is choosing a forecasting method. Although the names sound intimidating such as trend extension, regression analysis, decomposition, moving averages, and econometrics, some are actually easy to create using Microsoft Excel or statistical software created to do these types of analyses.

(Continued on page 4)

Forecasting is for Everyone

How To Create A Simple, Quantitative Forecast

The following example will use trend extension to forecast bicycle sales one time period into the future. Trend extension assumes what happened in the past will continue to happen in the future. Once all the data has been gathered, Microsoft Excel has a FORECAST worksheet function to calculate bicycles sales for April/May 2002. By entering

=FORECAST(6,{213,250,231,245,260},{1,2,3,4,5})

into an empty cell, the result is '266.5', which is the bicycle sales forecast for April/May 2002. The '6' in the formula represents the forecasted time period. The next number set '213, 250, 231, 245, 260' is the actual bicycle sales beginning with April/May 1997 bicycle sales as time period 1. The last number set corresponds to the time periods 1 through 5 (See Table 1).

Table 1. Forecast Table for Bicycle Sales

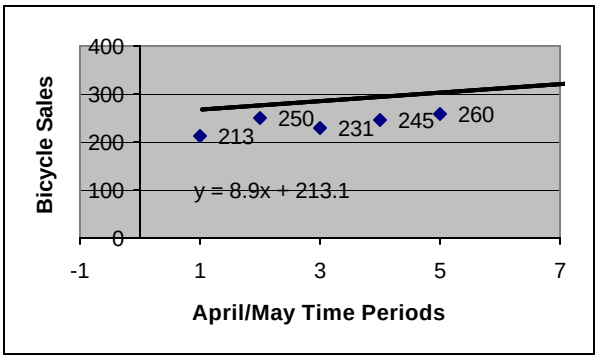
Time Period	Year of April/May	Actual Sales	Forecasted Sales	Forecast Error
1	1997	213	222	9
2	1998	250	230.9	-19.1
3	1999	231	239.8	8.8
4	2000	245	248.7	3.7
5	2001	260	257.6	-2.4
6	2002		266.5	

Advanced Forecasting Methods

A more advanced Microsoft Excel user can use the Chart Wizard to create a scatter plot of the data, and then add a trend line, which maps a best-fitting line through the data (See Figure 1). Microsoft Excel will also calculate the equation of the line, y=9.8x+213.1, where 'y' is the forecasted sales, '9.8' is the slope, and '213.1' is the y-intercept. The equation helps determine the Forecasted Sales for all time periods by plugging the time period number into the 'x' variable. For example, by using time period '3' as the 'x' variable, 8.9(3) + 213.1 = 239.8.

The Forecast Error column is the difference between the Forecasted Sales and Actual Sales (See Table 1). Once the April/May 2002 bicycle sales are known, they can be added to the table, and the forecast error can be calculated. If the forecast error for 2002 is extremely high, it will be time to refine the forecast model. In this simple example, this can be accomplished by taking the older bicycle sales out of the forecast. Thus, time period 1 will be April/May 1998 bicycle sales, rather than 1997 sales. Forecasters typically throw out older data because the business environment changes over time.

Figure 1. Scatter Plot with Trend Lines



Even if a sales forecast is not created, a scatter plot of the data can be very useful. For example, bicycle sales seem to be increasing from time period to time period. However, time period 2 had unusually high bicycle sales. A sensible manager would determine why April/May 1998 had such great sales so that the sales might be duplicated.

Take Time to Forecast

Forecasting should be a part of any business, large or small. The time it takes to prepare a forecast is minimal compared to the benefits. It must be noted this article is a small introduction to forecasting. Forecasting techniques can be simpler than the example shown here to very complex equations involving large amounts of data sets combined from many different sources. If forecasting sounds interesting and helpful, an Introduction to Statistics course would be a wise investment. In conclusion, forecasting is necessary, not difficult, and for everyone.

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ABOUT THE AUTHOR

After graduating from FLC SOBA in 1998, Julius Snell worked in his hometown of Dallas, TX before accepting a job in Seattle, WA as a Public Access Computer Trainer with the Bill and Melinda Gates Foundation. He returned to FLC to prepare for graduate school. Beginning in June, he will be attending the American Economic Association's Summer Program at CU-Denver. After which, he will move to Pittsburgh, PA to begin the M.S. in Public Policy and Management program at Carnegie Mellon University as one of the first Tribal Affairs Fellows.

Methodology

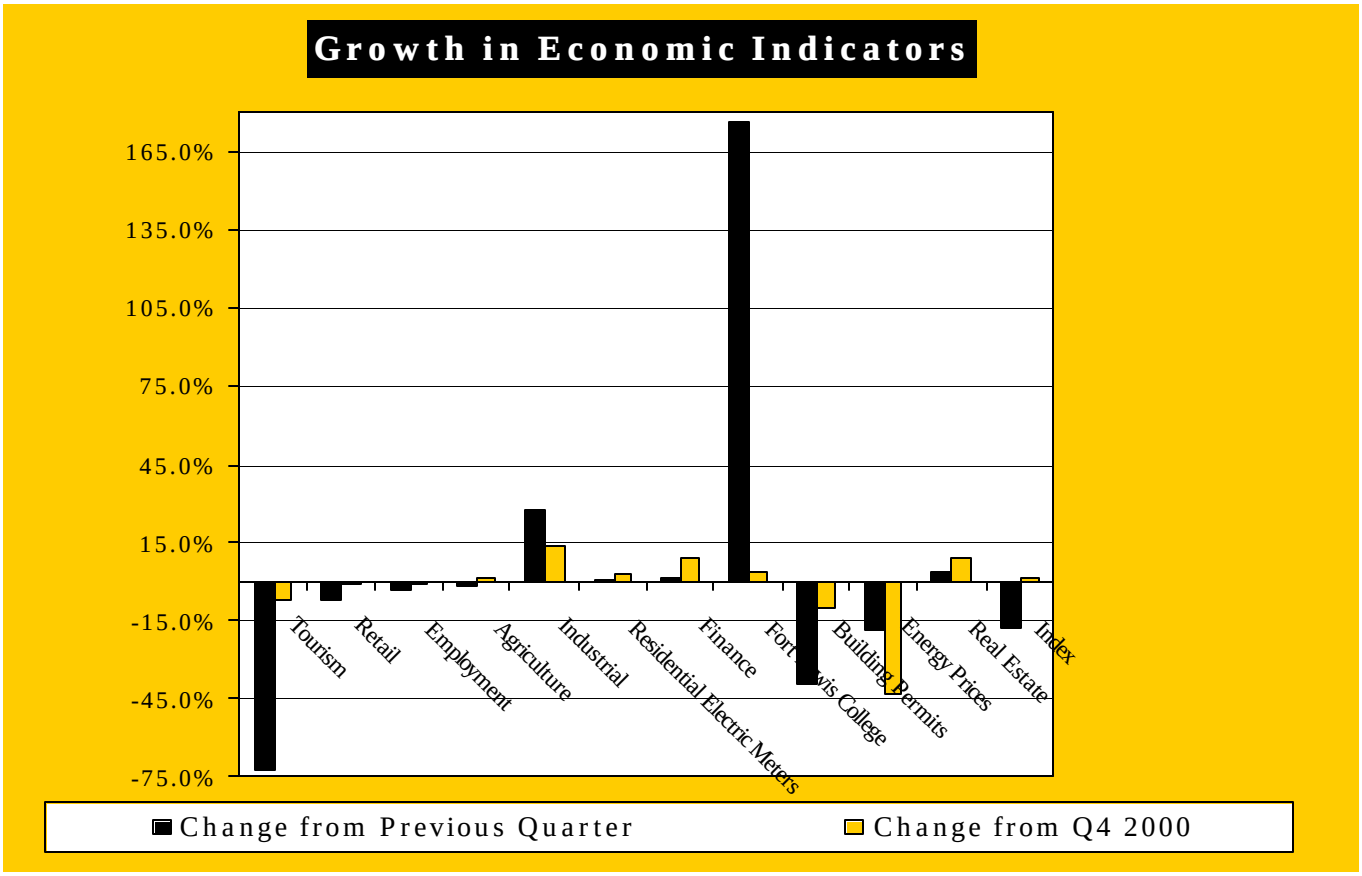
The base period for the Econometer Index is 1990. Data is developed on a quarterly basis, usually from monthly sources. Monetary data are adjusted to the 1990 price level so that analysis may be done in real terms. Weights used in the Index are: Tourism(.325), Retail Sales(.25), Employment(.05), Agriculture(.05), Industrial Kilowatt Hours(.025), FLC Enrollment(.10), Building Permits(.075), Energy Prices(.025), Residential Real Estate Prices(.025), Residential Electric meters(.025), Bank Deposits(.05).

Tourism includes train ridership, Mesa Verde visitors, and airport passenger activity. Agriculture includes calf and alfalfa hay prices.

The index is revised periodically to ensure that it accurately reflects the developing economy of Southwest Colorado.

Growth in Economic Indicators

Indicator	Change from Previous Quarter	Change from Q4 2000
Tourism	-72.8%	-6.8%
Retail	-6.5%	-1.4%
Employment	-3.7%	-1.2%
Agriculture	-1.7%	1.3%
Industrial	26.8%	13.9%
Residential Electric Meters	0.9%	2.7%
Finance	1.6%	8.7%
Fort Lewis College	176.8%	3.5%
Building Permits	-39.0%	-10.3%
Energy Prices	-18.9%	-43.2%
Real Estate	3.5%	8.7%
Index	-18.1%	1.2%



Dean's Corner

By Skip Cave, Dean School of Business Administration

It is certainly hard to believe that another academic year has passed and we are ready to graduate over five hundred students at the end of this month. Some of them probably are your sons and daughters, and nieces and nephews. Our task at Fort Lewis College is to produce well educated citizens who function well in our democratic nation and to prepare graduates to be productive participants in the workforce. Hopefully we have done a pretty good job of that.

I know that I have written many times before about our new building as it was being designed, planned, built, and finally completed. However, I wanted to comment on what a wonderful facility this is for us and particularly our students. The learning environment is probably among the best in the world. The design of the classrooms and the supporting technology enables students to learn in ways that they are accustomed to but we couldn't provide in our old facility. Many of you have stopped by to see the new building and I have been able to show you personally what a wonderful place it is. If there are still some of you out there that would like a tour, drop by anytime. I am proud of our building and anxious to show it off. I also like to take the opportunity to thank you, the taxpayers, for providing the funding not only for our building but others on campus as well. I believe that it is money well spent since this building should serve students for decades to come.

We should always be thankful that we have a rather well diversified economy that tends to offset both seasonal cycles and the longer term business cycle. The economic impact that has yet to fully show up is going to be a function of the extremely dry winter season extending into the summer. We have already missed the rafting season that we normally enjoy in the spring both for the excitement it creates in the community as well as the economic benefits. I am concerned that the ski numbers will be down for this season. And, last but not least, our agricultural crops and the feed cattle industry will suffer significantly since there is so little irrigation water available. My guess is that we will experience hay shortages and cattle ranchers will need to ship cattle due to low feed supplies. Maybe we will get lucky and it will start raining soon but it doesn't look like that at the moment.

I hope that you have read the article on business forecasting by Julius Snell. It would seem to fit many enterprises that exist in La Plata County especially with so many small entrepreneurial ventures. You know from his biographical sketch that Julius is one of our graduates. We are extremely proud of him and he is entering a first class institution, Carnegie Mellon University, for his graduate studies. I hope you will join me in wishing Julius well.

On a final note I might add that if you need additional assistance or information about small business forecasting or any other issues you may call on our Small Business Development Center located within the Business School. This office provides free consulting and assistance to small businesses. The phone number is 247-7009.

I hope you have a great summer. Be sure to drop by for your personal tour of our new building.

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