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Office of Business and Economic Research, School of Business
Fort Lewis College, Durango Colorado

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The Great La Plata County Recession Myth

By: Dr. Robert Sonora

The abominable snowman. The Devil's Triangle. Al Capone's treasure. The disconnect between our local economy and the `outside world'. What do these have in common? They are fallacies. Since I moved here about five years ago, the mantra I have heard frequently goes something like: ``We will not be affected by the downturn, our economy does not move with the rest of the state, or the country, for that matter.''

So, let's consider some data. In particular, let's consider some fundamental macroeconomic indicators the unemployment rate, the size of the labor force, and personal income. And then consider more micro level data.

Labor Market

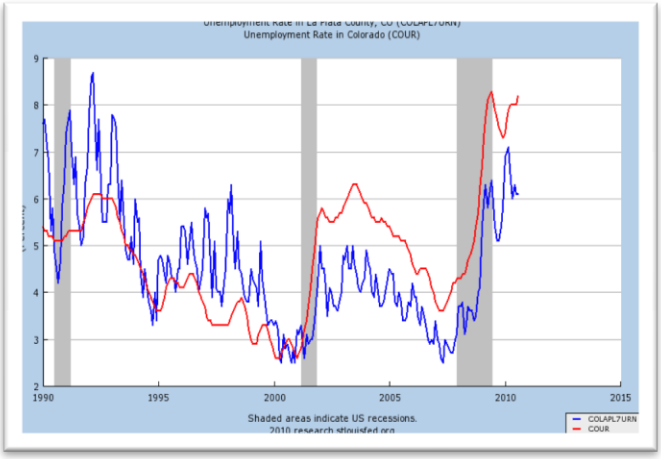

Figure 1: Unemployment Rate: La Plata County and Colorado, Source: BLS/St. Louis Federal Reserve Bank

In July, the unemployment rate in La Plata was about 6.1%, in Colorado 8.0%, and in Denver 8.7%. Looking at the data in Figure 1 above we can see that, beginning in 2000, La Plata (blue) unemployment is consistently between and one and two percentage points below the state (red), and display a considerable amount of co-movement with the state.

Even the `teeth' in the La Plata data are informative, they reflect the highly seasonal nature of our economy. We can think of each of these teeth as being `seasonal business cycles' largely driven by tourism and construction. This effect is particularly acute in the first half of the sample period, 1990-2000. However, the size of these seasonal fluctuations have become less volatile after 2000. Figure 2 below shows the volatility of the unemployment rate from 1990-2010, as measured by the standard deviation of the data over a rolling 12 month period. As you can see, this has been gradually dropping until the recent crisis -- This is a good thing for the local economy as it suggest increasing diversification of the economy, less susceptible to seasonal tourism fluctuations. As can be seen, this is particularly stable from 2001-2008.

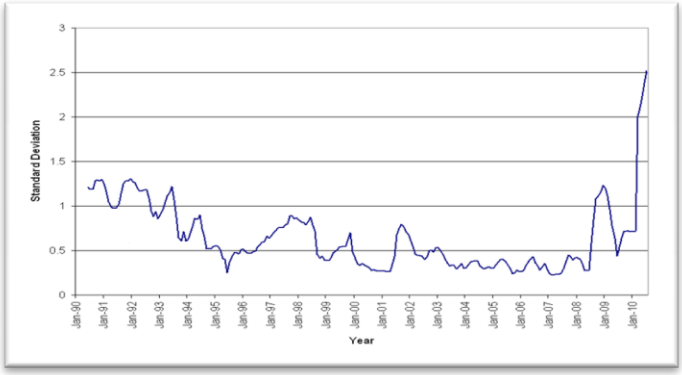

Figure 2: Standard Deviation of the La Plata Unemployment Rate

Next, to confirm what Figure 1 shows, I did simple non-parametric correlation tests on the unemployment rate in La Plata, Denver, Colorado, Albuquerque, and the US. The hypothesis of these tests is the pairwise comparisons are independent, the closer to one the closer the positive correlation. [1] I got the following results:

Table 1. Spearman Pairwise Correlation: Unemployment Rate

	Denver	Colorado	Albuquerque	USA
La Plata	0.607*	0.554*	0.723*	0.698*
Denver	--	0.953*	0.747*	0.822*
Colorado	--	--	0.758*	0.844*
Albuquerque	--	--	--	0.791*

Correlation coefficient, `*'s denote that the series are not independent with 99% confidence.

[1] These statistics will fall between -1 and 1, but never *equal* to 1 or -1. A statistic of 1/-1 it said to exhibit perfect positive/negative correlation. A statistic close to zero implies *no* correlation.

We can see that there is positive, and statistically significant, relationship between unemployment rates across the state, and even a higher degree of correlation to Albuquerque. There is also a close correlation between Colorado and Albuquerque.

Next, lets consider membership in the labor force in La Plata (blue) and Colorado (red) in Figure 3, ignore the teeth in the La Plata data, it's not seasonally adjusted, and simply consider how they move together. The labor force is the number of employed workers *plus* workers who are not employed but are looking. This data suggests that labor force participation was harder hit in La Plata during the 2001 recession, though this was also the impact of the Missionary Ridge fire.

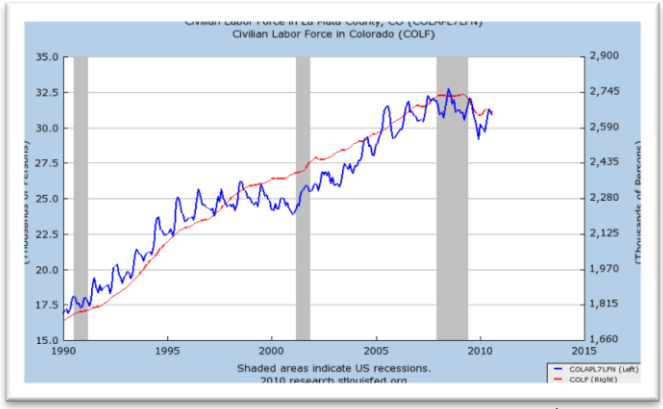

Figure 3: Labor Force: La Plata and Colorado, Source: BLS/St. Louis FED

As with the unemployment rate, I looked at correlation between labor forces in La Plata, Denver, Colorado, and Albuquerque, the results are in the table below. As before, a number close to 1.0 represents close positive correlation, as all the numbers are greater than 0.9, and statistically significant. As can be seen, the La Plata Labor Force is very closely correlated with Denver, Colorado, Albuquerque, and the US, with the highest correlation with Colorado, but also note the close correlation withe the nation as a whole. Thus, as with the unemployment rate, I could find no evidence favoring a disconnect between La Plata and the rest of the country.

Table 2. Spearman Pairwise Correlation: Labor Force

	Denver	Colorado	Albuquerque	US
La Plata	0.933*	0.967*	0.965*	0.963*
Denver	--	0.965*	0.961*	0.966*
Colorado	--	--	0.984*	0.963*
Albuquerque	--	--	--	0.988*

Correlation coefficient, `*'s denote that the series are not independent with 99%+ confidence.

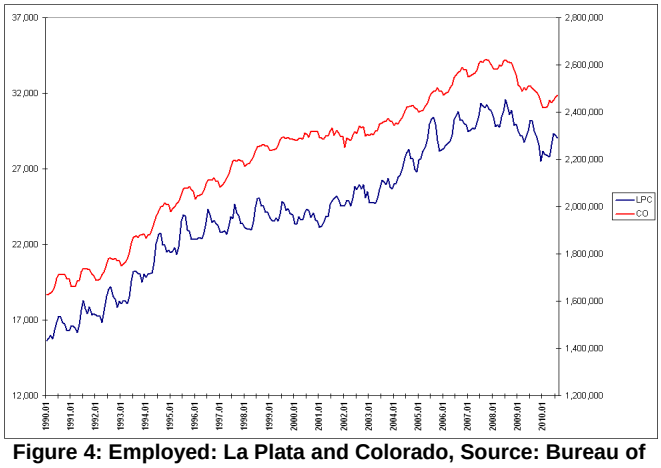

Figure 4: Employed: La Plata and Colorado, Source: Bureau of Labor Statistics

The final data to consider with respect to the labor markets is the number of employed. Figure 4 shows the number of employed in La Plata (blue, left scale) and in Colorado (red, right scale). Once again the figure shows a large degree of co-movement, though an argument could be made that there was a slight disconnect in the years 1998--2005.

As in the previous examples, I look at correlation coefficients, on Table 3. Once again, there is a statistically significant positive correlation between La Plata County, Denver, Colorado, Albuquerque, and the US, all correlations in the region are greater than 0.90, and all are highly correlated with the US as a whole.

Table 3. Spearman Pairwise Correlation: Employed

	Denver	Colorado	Albuquerque	US
La Plata	0.900*	0.980*	0.950*	0.958*
Denver	--	0.947*	0.925*	0.934*
Colorado	--	--	0.975*	0.986*
Albuquerque	--	--	--	0.967*

Correlation coefficient, `*'s denote that the series are not independent with 99%+ confidence.

Moreover, I confirmed, to my satisfaction anyway, that Colorado and Denver labor markets have substantial influence on La Plata county's, as does Albuquerque. I used ``Granger causality'' tests to identify whether or not labor markets are influenced by each other, or, put another way, whether or not labor markets in one region are useful in forecasting labor markets in another. If they are, labor markets in one area are said to

``Granger cause'' those in the other.[2] I found that that unemployment rates in Denver, Albuquerque, and Colorado ``Granger cause'' the unemployment rate in La Plata. Put another way, these markets have an impact on the local labor market. When I did the same test on employment, I found that both Denver and Albuquerque Granger cause La Plata County employment, however, the relationship is stronger for Denver than for Albuquerque, which I found interesting given the proximity of Albuquerque to La Plata. However, it also suggests there is a ``border effect'' (an economic `widening' of the border) between Colorado and New Mexico.

[2] These tests which are conducted after vector autoregressions, the technical aspects are beyond the scope of this article.

I next tested the long run employment relationship between La Plata, Denver, and Albuquerque. I found such relationship, but only once we take into account some event that altered this long run relationship, what economists call a `structural break'. Interestingly, this `event' happened in 1993, and there is no event I can point to in 1993 to alter the long run labor market relationship.

Income

And what of per capita income? Figure 5 displays per capita income in Durango (DRO, blue), Denver (DENMSA, red), Albuquerque (ABQ, green), and Farmington, NM (FARNM, purple), from 1969 -- 2008 (the most recent available data). First, we note that Denver has the income of these cities followed by Durango, Albuquerque, and Farmington, but that Farmington has been quickly closing the gap on Albuquerque in the past five years or so. We can see there is, once again, considerable co-movement in this sample. This is confirmed by once again using correlation tests in Table 4 below. I had to rely on the fourth decimal place to see the difference in correlation between these cities. It's likely the correlation between Albuquerque and Farmington and La Plata and the US is not `1', but rather very close (e.g. 0.99999999), see Footnote 2 above. All these are about as close to perfect positive correlation as it gets.

Table 4. Spearman Pairwise Correlation: Per Capita Income

	Denver	Albuquerque	Farmington	US
Durango	0.9994*	0.9998*	0.9998*	< 1.000*†
Denver	--	0.9998*	0.9998*	0.9994*
Albuquerque	--	--	< 1.000*†	0.9998*
Farmington	--	--	--	0.9998*

Correlation coefficient, `*'s denote that the series are not independent with 99%+ confidence.` † ' these correlations are less than, but very close to, one.

As before, I looked at the link between the cities' income and whether or not they Granger cause each other. As expected I found evidence for Denver and Farmington to strongly Granger cause per capita income in Durango. Albuquerque has less influence.

What about the long run relationship between per capita income? There is no long relationship between Durango and Denver and Farmington, but one does exist with Albuquerque, but once again, only a structural break is accounted for in 1985. Tests were done for overall aggregate income as well, here there was no disconnect once a break in 1977 is accounted for which pushed income in La Plata and County to follow more similar paths.[3] My suspicion is the oil price changes and fluctuations in cattle prices in the mid-1970s which affected the state and county differently.

I see it through basically three channels: `imported' wealth, ag and mineral prices, and tourism.

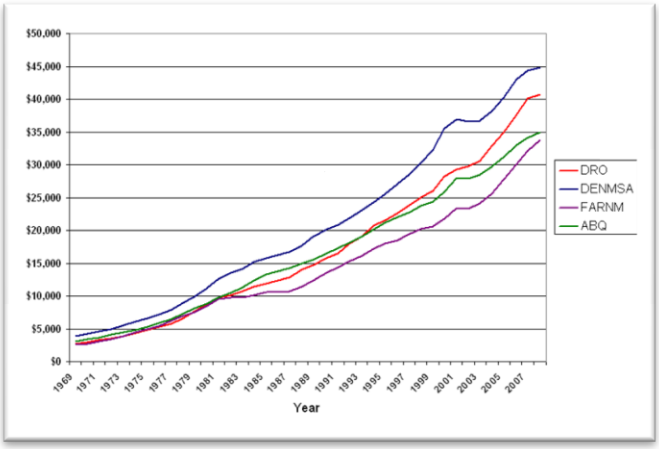

Figure 5: Per Capita Personal Income Source: Bureau of Economic Analysis

Micro Level

And micro level data? In October 2008, my colleague Luke Miller demonstrated the high degree of correlation between southern California and Durango real estate markets with a one year lag. Bank deposits relative to income have dropped since 2006, along with the rest of the country. Fort Lewis enrollment is down as well.

So how are we connected? I see it through basically three channels: `imported' wealth, ag and mineral prices, and tourism. Tourism is impacted by disposable income which nationally has taken a bit of a hit. Bear in mind, the impact would have been larger without the Bush and Obama (American Reinvestment and Recovery Act) tax cuts. Much of the growth in real estate prices is from non-La Plata residents buying in our local market, and with nationwide wealth, and disposable income, in decline there is little demand for second homes. Finally, our natural resource prices are dictated to us by the world wide market, as previously reported in the *Herald*, the decline in gas prices affects county coffers and related spending on infrastructure and education, things which boost our future incomes.

Figure 6 shows the share of total *private* income for La Plata county for 2001 and 2009.[4] As can be seen, services dominates our economy, accounting for over 45% of total private income, followed by education and health (this would be larger if we include public state and local education income), construction is about the same at 7.7%, though its high was in 2006 when it reached 10.1%. And agriculture and mining (AG-MIN) has more than doubled, it worth noting that gas prices reached their high in 2008, about $10 per mcf. Forage, hay and alfalfa, prices were about 11% higher in 2009 than in 2001, and reached their peak in 2008, 59% higher than in 2001.

Services and hospitality are both highly correlated with national disposable income as they include restaurants, hotels, and others. Correlation results for these industries are: Leisure and hospitality, 0.883, and services, 0.983. Both are statistically significant.

[3] **NB:** My editor at the *Herald* got this backwards (the article had to be edited for space), the article states the series became *divergent* after 1977, when they become more *convergent* after this date.

[4] [4]Except Public Administration, which is local government expenditures.

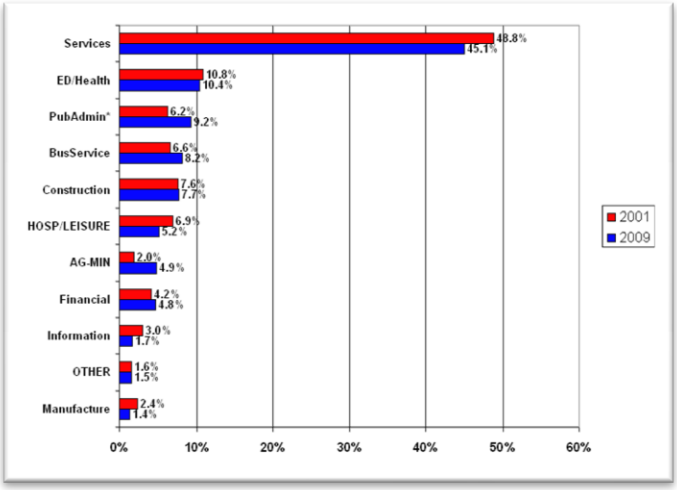

Figure 6: Private Industry Income Shares, Source: Bureau of Labor Statistics

Summary

In this article I demonstrate that the La Plata economy is not independent of the rest of the state, region, or country. I primarily focus on macroeconomic variables to demonstrate the high degree of correlation between our local economy and the rest of the world.

Clearly, an important additional indicator would be inflation, but as there is no long term data for Durango specific inflation, it is impossible. However, it should be mentioned that recent work done on looking at local inflation by Dr. Luke Miller and myself at the Office of Economic Analysis & Business Research at Fort Lewis does, for the short number of observations there is positive correlation between Durango and Denver, and, so by induction, with the rest of the country. Clearly, this is not meant to be an exhaustive investigation, but should dispel any doubts about La Plata's economic independence. A more detailed analysis

Economic Summary of the Region

By: Dr. Luke T Miller

The Office of Economic Analysis & Business Research in the School of Business Administration at Fort Lewis College measures and reports on economic activity in La Plata County. We keep track of numerous economic statistics for the region to include:

Looking ahead to 2011, we believe the softening trends will continue, with an increased risk of a double-dip recession.

1. Throughout 2009 La Plata County had a lower unemployment rate than both the United States and Colorado, with an unemployment rate of 4.7% (though it is 1.3% higher than last year). In September 2010 the La Plata county labor force was 29,952, or about 3.6% below last year, even with the county population growing 2%.

2. Similar to the U.S., total income in La Plata county over the last year fell 6.4% to $214 million. Of further note, construction as a share of total *private* income is presently at 7%, down from its peak in 2006 of 10%, services-based income is up nearly 5% at 45% of total income in the region, and hospitality/leisure has fallen from 7% to 5% of total income.

3. Airplane deplanements are up 13% from last year, visits on the Durango-Silverton train are down several percentage points, visits to Mesa Verde National park are essentially flat, and sales taxes were up 20% versus last year.

4. The median home price in Durango is down nearly 30% from its peak in 2007 from a peak of $455,000 to the most recent median price at $325,000.

5. With help from the Region 9 Economic Development District of Southwest Colorado, Inc., we have constructed and maintained a consumer price index for Southwest Colorado. Since the 4th quarter of 2008, we have collected prices on nearly 60 goods and services in the region. The main categories of our data collection include: groceries, housing, utilities, transportation, health care, and miscellaneous. Our index indicates the cost of living in the region has fallen 3.6% since late 2008 versus the national CPI dropping 1.5% and Denver prices declining 1.7%. The region's grocery tab has decreased 7%, housing rents have increased 0.4%, utilities have fallen 28%, transportation expenses have dropped 18%, health care costs have increased 6%, while miscellaneous goods and services have increased 4%.

Looking ahead to 2011, we believe the softening trends will continue, with an increased risk of a double-dip recession. We believe small businesses should position themselves for at least one more year of economic malaise while making efforts to reduce debt obligations. While the recession of 2008 was led by the banking and housing sector, we believe the continued weakness will be led by reduced consumer demand and risk management activities.

Economy Showing some (solid) Positive Signs

By: Dr. Robert Sonora

Midway through a Sunday afternoon ride a friend asked me a favor: "Please have some good news for once." I am aware that most of my synopses of the economy have been, shall we say, less than favorable – but I agree it is time to look for some positives.

Where to start? Why not with real gross domestic product? The annual growth rate of the economy in the third quarter leaped to about 2.5 percent from last year. Quite an improvement from the negative 4 percent growth in the last quarter of 2008. But the "output gap" (the difference of what the economy is doing compared with what it could do) is still at negative 6 percent.

But this helps inflation. Inflation is a little low for comfort at about 0.6 percent, removing food and energy. Inflationary expectations, computed from the relationship between 10-year bond yields and inflation adjusted bonds is about 2 percent, just about right. So right now, markets don't see any runaway inflation in the medium term, and that's good.

Default risk is down. The interest rate spread between BAA and AAA corporate bonds has fallen to 1 percent, just about right, and it spiked to 3.5 percent at the height of the crisis.

Even the labor market is showing some signs of life. True, the unemployment rate is up to 9.8 percent from 9.6 percent, but this could be caused by discouraged workers re-entering the labor market (they aren't part of the unemployment rate), which temporarily drives it up.

Here in La Plata County,the unemployment rate is a hair above 6 percent, down from 7 percent – even as Colorado's rate is rising.

The number of long-term unemployed is down, as is the mean length of unemployment, though it's still long at 34 weeks, almost twice the norm. Nonfarm payrolls are growing after spending the last two years in the red.

The Dow Jones Industrial average is about 7 percent higher than on Jan. 1, and NASDAQ is up 13 percent. Consumer sentiment is trending upwards.

Taken together, this manifests into growing household expenditures, up 2 percent from a year ago, and retail sales up 6 percent.

> Obama and the Republican leadership managed to talk long enough to extend the Bush tax cuts and extend unemployment insurance

And to top it off, macroeconomic policy is trying nurse the economy back to health. The quantitative easing by the Fed should help keep long-term interest rates down, 30-year mortgage rates remain below 4.5 percent (assuming your credit is good and you can get a loan).

Obama and the Republican leadership managed to talk long enough to extend the Bush tax cuts and extend unemployment insurance, and everyone gets a temporary payroll-tax deduction. This is particularly good for low-income workers whose average tax from payroll is higher than their income tax.

I remain cautious, however. The economy still is not growing fast enough to reduce unemployment, let alone absorb new workers. There are still a considerable number of foreclosures, and the associated real estate values will remain low – which could undermine sustained spending over the next couple years or so.

I won't say we are out of the woods until everything is trending in the right direction, but today's snapshot at least lends us some hope for the holidays.

The *Four Corners Economic Quarterly* is a newsletter on economic indicators of Southwest Colorado published by the Office of Economic Analysis and Business Research in the Fort Lewis College School of Business Administration and Region 9 Development District of Southwest Colorado, Inc.

For contact information:

Dr. Luke Miller, Director
Email: Miller_L@fortlewis.edu
Phone: (970) 247-7060

Dr. Robert (Tino) Sonora, Director
E-mail: sonora_t@fortlewis.edu
Phone: (970) 247-7296

Office of Economic Analysis & Business Research
School of Business Administration

Fort Lewis College
1000 Rim Drive
Durango, Colorado 81301

Web Address: www2.fortlewis.edu/ober

Region 9 Economic Development District of Southwest CO, Inc.
(970) 247-9621
www.scan.org