

Making sense of Alaska's unruly job numbers

Alaska lost more than 20,000 jobs between August and October, and is expected to lose at least 15,000 more by January. Over that short five-month period, more than 10 percent of the state's payroll jobs will have disappeared. Call somebody in charge! The economy's crashing! (See Exhibit 1.)

No, wait . . . put down the phone. Alaska always loses a lot of jobs between August and January. And, just as importantly, the state always adds a lot of jobs between January and August. (See Exhibit 2.)

A land of extremes

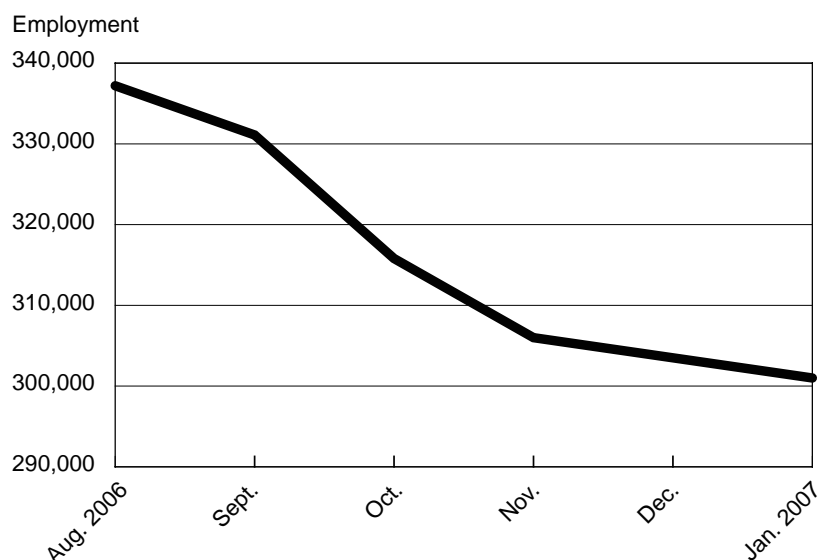
The reasons for the big variations won't surprise anyone who has lived here for more than a few months: it gets cold here in the winter (yes, it's true), and a little bit dark. And although many of us love the beauty and relative calm of Alaska's winter months, most visitors to the state seem to prefer long days and green mountains to long nights and snow and ice (which is not to say that the Iditarod and the Northern Lights and other winter attractions don't draw visitors; but judged by sheer numbers, summer gets most of the action).

Most economies have seasonal patterns

Seasonal variations in employment numbers and other economic indicators aren't unique to Alaska, of course. Most states have seasonal ups and downs depending on their particular mix of industries and employers. Arizona, for example, tends to have a seasonal pattern roughly the opposite of Alaska's: higher employment in the winter, when dry, warm weather is a significant enticement for people from the top half of the country, and lower employment during the summer, when the desert heat rises well above comfort level.

The seasonality in the different states' economies generally has something to do with weather, school calendars or special events that occur annually (such as a music festival or the Boston Marathon). The amplitude of Alaska's seasonal variation is significantly greater than in other states or the nation as a whole, however. In other words, the percentage difference between

1 Alaska Payroll Employment August 2006 to January 2007¹



¹ Employment numbers for November 2006 through January 2007 are projected estimates.

Source: Alaska Department of Labor & Workforce Development, Research and Analysis Section

Alaska's seasonal high and low points is much greater than it is anywhere else in the country.

Separating seasonal growth from more permanent change

So, given the complicating factor of seasonality, how can economists, policy-makers and curious observers tell whether the economy is growing or shrinking when comparing two different months on Alaska's seasonal roller coaster? For example, how can we tell from Exhibit 2 whether the state produced structural job growth – as opposed to just seasonal gains – between January 2006 and July of 2006, or any of the other years shown?

The question is complicated by all the different things that can be happening at once in an economy. Some relatively non-seasonal industries, such as telecommunications or health care, might be growing; other seasonal industries might also be growing in that their seasonal peaks might be getting higher from one year to the next. Mixed in with those changes are the seasonal ups and downs that don't represent structural growth.

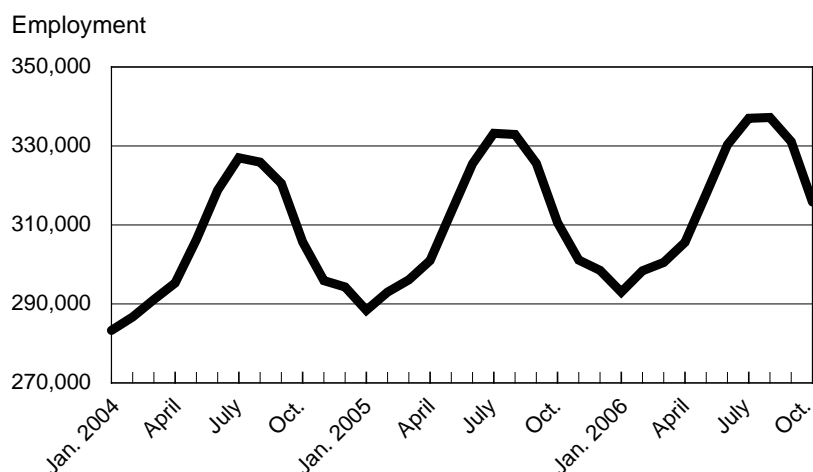
Another complication arises when something out of the ordinary impacts job counts in a way that is neither permanent nor seasonal in the sense that it happens every year at the same time. Natural disasters and labor strikes are two examples. The Super Bowl, which is not held in the same city every year, is another.

The challenge is to separate the different factors influencing the creation and elimination of jobs and to determine which changes are merely seasonal and which changes reveal the underlying trend.

Seasonal adjustment programs: a better analytical tool

U.S. Census Bureau analysts, statisticians and computer programmers, wrestling with

Alaska Payroll Employment January 2004 to October 2006 **2**



Source: Alaska Department of Labor & Workforce Development, Research and Analysis Section: Employment and Earnings Report

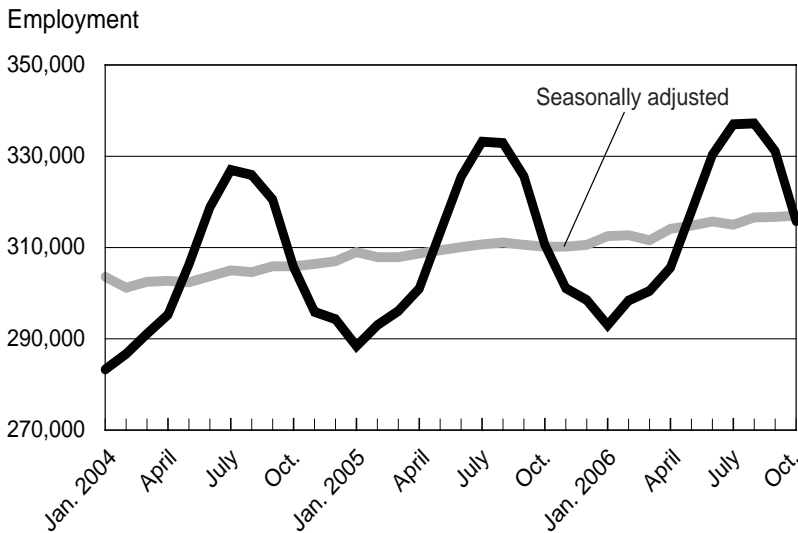
this same problem decades ago, developed a statistical method to separate economic time series into three main components. First, there's the trend component of the series, or the stable part that reveals the series' long-term changes. Second, there's the seasonal component, which varies predictably from year to year. And third, there's the irregular component, which is sometimes referred to as statistical "noise" or error.

To oversimplify, the ability to isolate the trend component in historical data allows analysts to adjust seasonal change out of current data and see longer-term structural changes more clearly.

Since the Census Bureau's first seasonal adjustment program was developed, it has been repeatedly refined and updated. The current version is called X-12 ARIMA.¹ The main point here is not to examine the nitty-gritty of how the program works, but just to note that there is a widely accepted method for removing seasonality from economic series such as monthly job counts in order to better understand the underlying trends in the data.

¹ Autoregressive Integrated Moving Average

3 Alaska Payroll Employment January 2004 to October 2006



Source: Alaska Department of Labor & Workforce Development, Research and Analysis Section

Seasonally adjusted data will be made available

In the past, seasonally adjusted employment data haven't been available in *Alaska Economic Trends* or on the Alaska Department of Labor & Workforce Development's Research and Analysis Section Web site.² Given Alaska's extreme and sometimes changing seasonality,³ Department of Labor economists were concerned about the statistical program's ability to accurately separate seasonal change from structural change.

Although the special challenges of adjusting Alaska's employment data haven't gone away, the Department of Labor will begin publishing the seasonally adjusted numbers in January 2007. Month-to-month changes in seasonally adjusted data should be viewed with a degree of caution, but the adjusted data provide important insight into the current health of the job market that unadjusted data can't.

Returning to the earlier problem, in response to the fairly simple question about how many jobs Alaska added from January to July, the seasonally adjusted data provides a simple answer: about 2,500. (See Exhibit 3.)

So please contact us if you have any questions when you look at the newly available seasonally adjusted data in *Trends* and on the Department of Labor's Web site. We'll do our best to answer them . . . and keep the Census Bureau's number handy just in case.

² Seasonally adjusted Alaska data have long been available from the U.S. Bureau of Labor Statistics. Alaska works with BLS to produce a variety of employment and unemployment statistics.

³ Statistical programs can only identify seasonality and adjust for it when it occurs in the same calendar months from year to year. The first cruise ships predictably show up in Southeast during May, which makes seasonal adjustment relatively easy for tourist-related industries, but the peak months of salmon runs often vary slightly from year to year, making it much more difficult to seasonally adjust fishing-related industries such as seafood processing.

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