

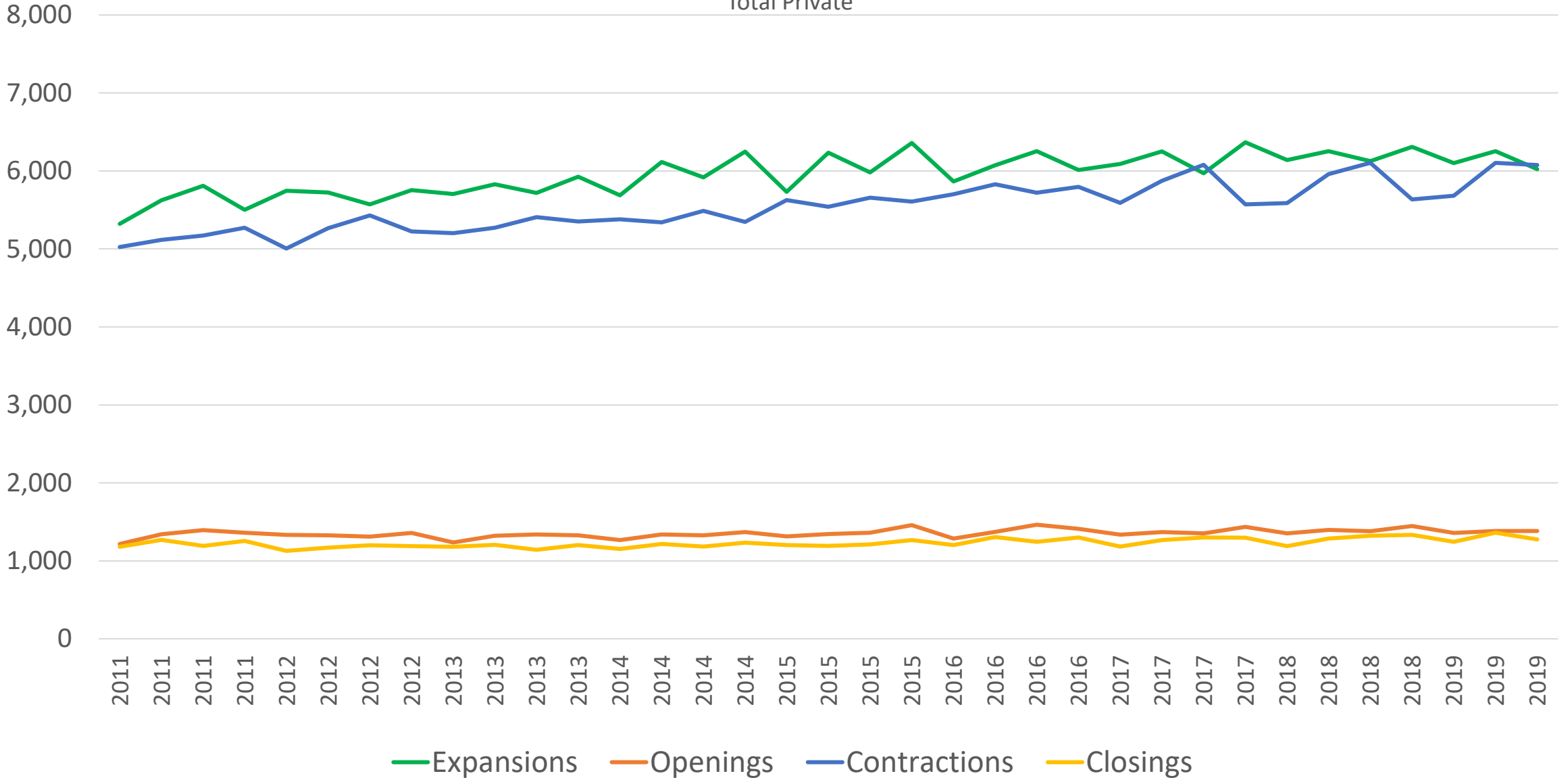
Bureau of Labor Statistics
Current Employment Statistics
Birth Death Methodology Adjustments During
the Pandemic
John Stewart

December 10, 2021



Components of private sector gross job gains and job losses, seasonally adjusted
 March 2011 - September 2019
 Total Private

Employment (ths)



Two-step Process Used for CES Estimates

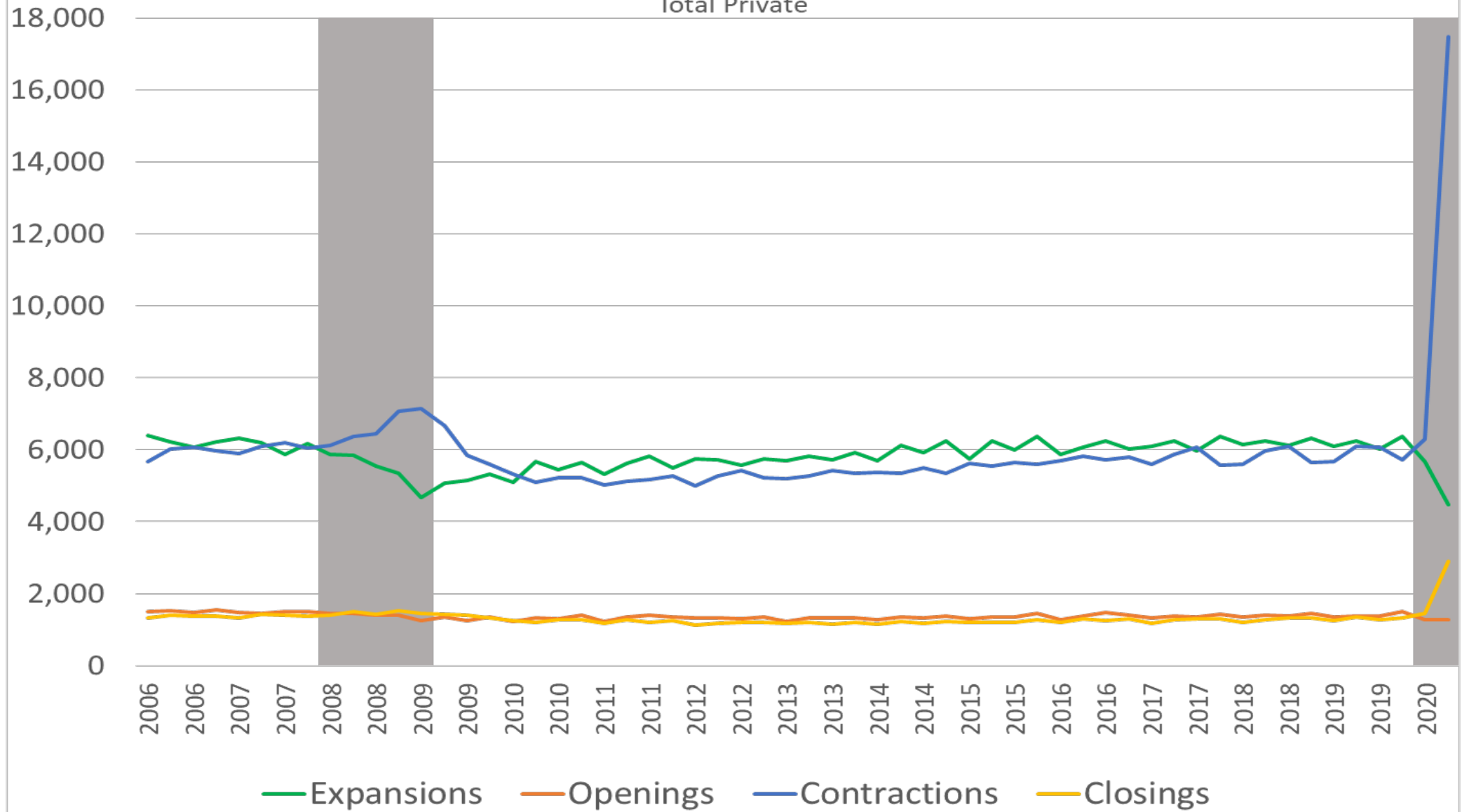
The result:

■ A two-step process:

1. Matched Sample - **Exclude establishment deaths** from CES sample link
 - Implicit imputation of deaths and non-responding units based on growth rate of continuing businesses
 - Proxy for missing birth employment
2. **Model and Forecast** the net birth/death residual to be **added** to CES estimate



Components of private sector gross job gains and job losses, seasonally adjusted
March 2006 - June 2020
Total Private



Birth-Death - Shortcomings

- Two problems during downturns
 - ▶ Growth rates in continuous and birth parts of population no longer have same relationships
 - ▶ The residual is no longer small and stable - deaths probably far outpace births (large increase in death records and no offset)
- Present 2 solutions to these shortcomings:
 1. The use of current aggregate employment changes to better account for the change in growth rate relationships during a downturn
 2. The use of “excess reported zeros” / “excess returns from zero” to account for how deaths and/or births outpace their typical relationship



Solution #1

- Inclusion of the current month's continuing unit growth rate as an additional regression variable to account for changes in the relationships between growth rates
 - ▶ The rates of employment losses from contracting units is outpacing the rate of employment gains from expanding units from a year ago.
 - ▶ Including the current month's growth rate of continuing units better informs the forecast to current labor market conditions.



Solution #2

- Include excess reported births (re-entrants) and deaths (exits)
 - ▶ **Limits of sample still exist**, however we can estimate the *proportional* values of each since we are interested in the *shock of an event, not levels of births and deaths per se*
 - ▶ Implicitly impute for non-respondents by using reported 0's and returns from 0 and weighting them according to:
 - Weight adjusted by how much current month's reported births (re-entrants) and deaths (exits) have exceeded their average (5-years; month dependent)

Results

■ These adjustments:

- ▶ Lowered our estimated over-the-month change for employment for April 2020 by an additional 3.1 million jobs
- ▶ In May it added an additional 1.4 million jobs

Over-the-year Percentage Changes, not seasonally adjusted, CES and QCEW			
Series	Apr-20	May-20	Jun-20
QCEW (total covered)	-13.80%	-12.00%	-9.40%
CES (total non-farm)	-13.40%	-11.70%	-8.70%

Results

- Preliminary benchmark revision for March 2021:
 - -166,000 (vs ~ -1,061,000 without adjustments)
- Error breakouts for detailed sectors
 - ▶ Much higher than the prior 10-year average for many basic cell estimates
 - ▶ For many basic cells the addition of the sample link was a poor fit (not statistically significant)
 - ▶ For some basic cells spurious relationships resulted in poor forecasts
 - ▶ Error components offset



John Stewart
Bureau of Labor Statistics
Current Employment Statistics Program

Stewart.john@bls.gov
Benchmark Branch

