

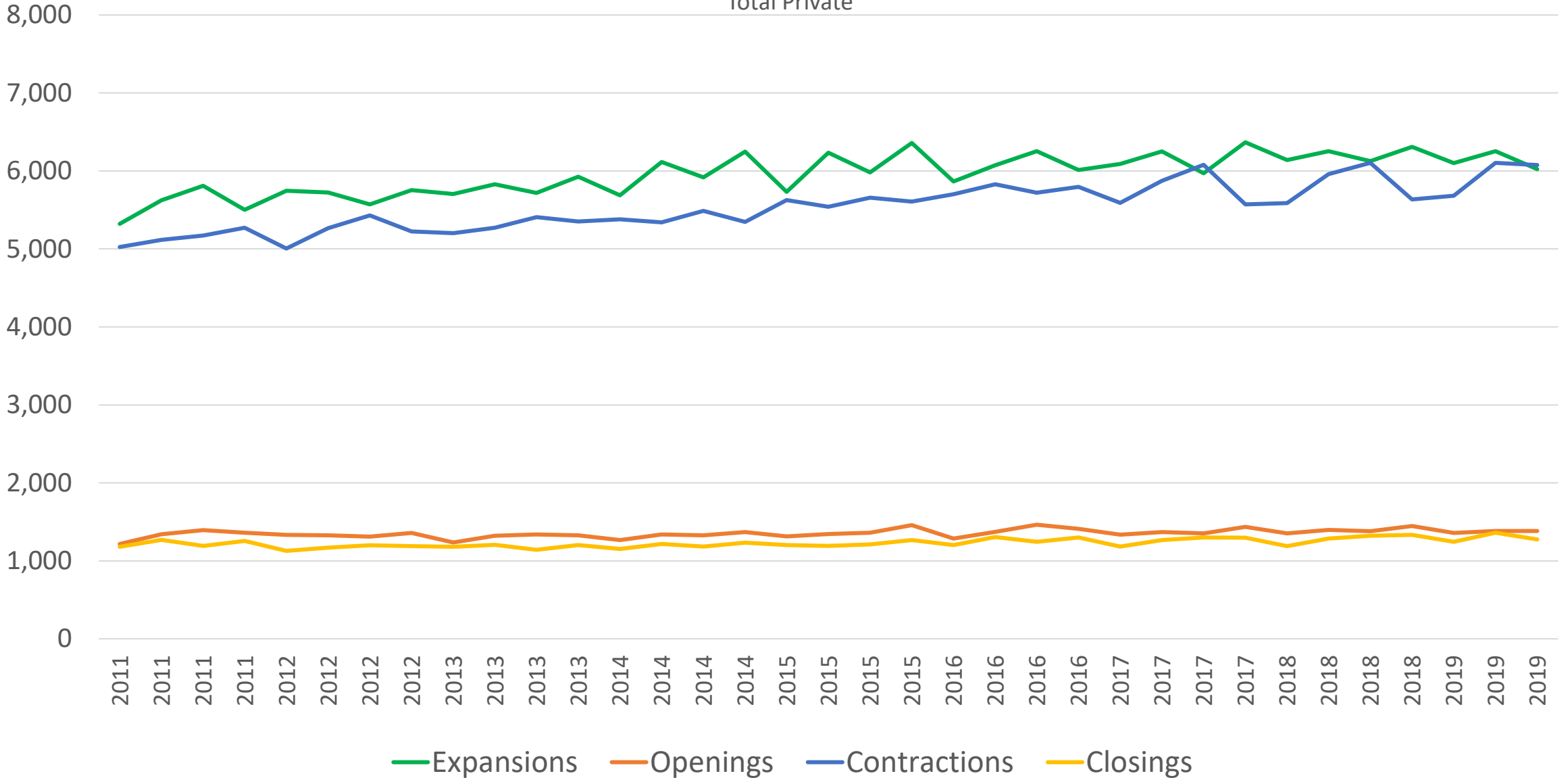
Bureau of Labor Statistics
Current Employment Statistics
Birth Death Methodology Adjustments During
the Pandemic
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December 10, 2021



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

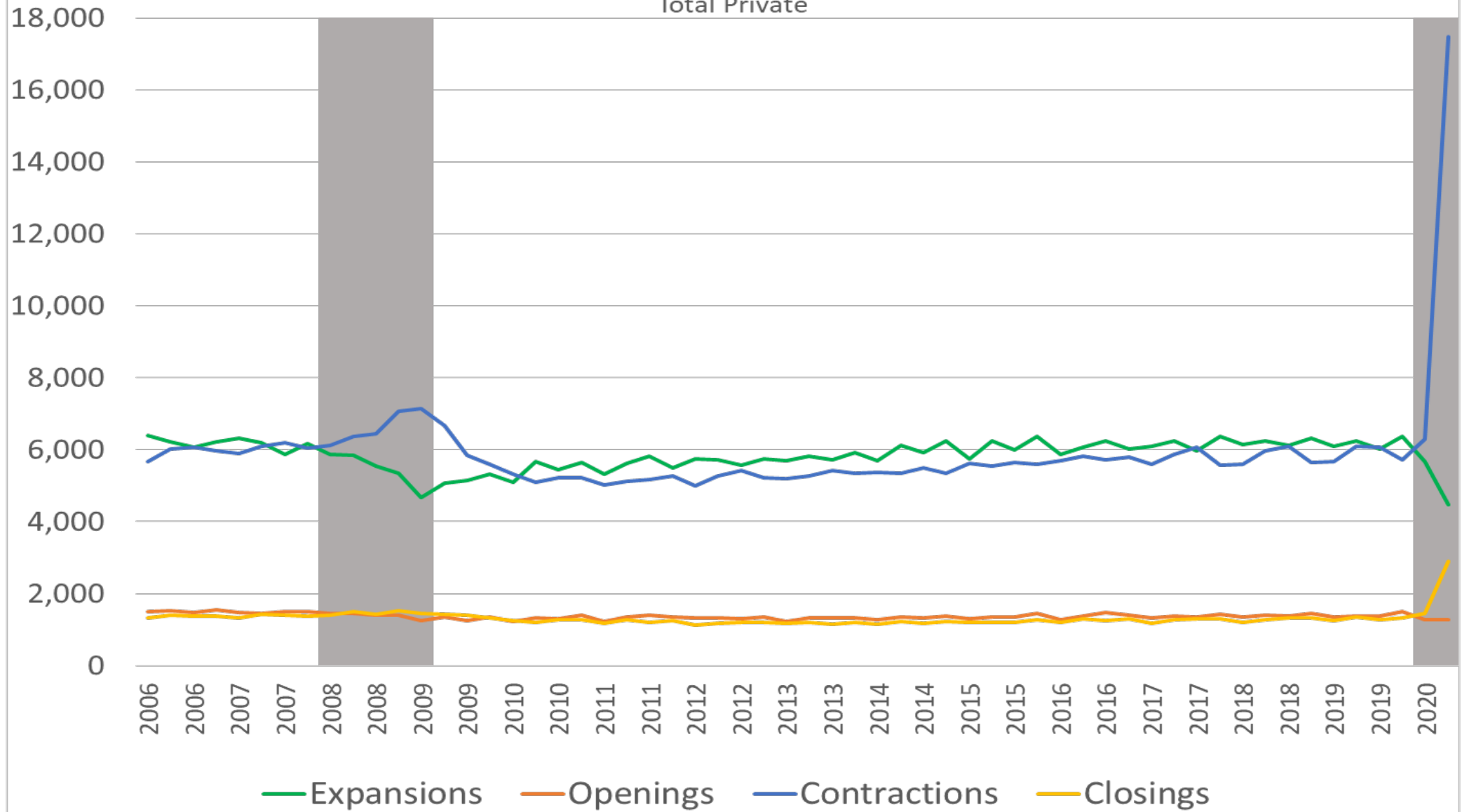
The result:

■ 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



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