

Office of Economic Analysis¹ – Historical Forecast Error

August 2019

This briefing paper looks at the performance of the prison population forecast for the October of odd years beginning with October 1999². For each forecast, we compare the projection for the July 1 population at the end of the respective biennia with the actual population that is realized when that day arrives. This error timeframe is called the inter-biennial error and is chosen due to the many legislative changes that have occurred over the past two decades, including Ballot Measure 57 (2008), House Bill 3508 (2009), Senate Bill 1007 (2010), Ballot Measure 73 (2010), Senate Bill 395 (2011), House Bill 3194 (2013), and HB 3078 (2017). Comparing a forecast made prior to one of these changes to an actual population post hoc produces an over estimate of the baseline methodology’s performance error.

Prison Population Forecast Performance					
Comparison Date	Forecast Release	July 1 Actual	July 1 Forecast	Forecast Deviation	Percentage Deviation
7/1/2001	Oct 1999	10,694	10,864	-170	-1.6%
7/1/2003	Oct 2001	12,003	11,563	440	3.8%
7/1/2005	Oct 2003	12,875	13,178	-303	-2.3%
7/1/2007	Oct 2005	13,498	13,657	-159	-1.2%
7/1/2009	Oct 2007	13,926	13,866	60	0.4%
7/1/2011	Oct 2009	14,073	14,352	-279	-1.9%
7/1/2013	Oct 2011	14,577	14,592	-15	-0.1%
7/1/2015	Oct 2013	14,706	14,251	455	3.2%
7/1/2017	Oct 2015	14,742	14,778	-36	-0.2%
7/1/2019	Oct 2017	14,753	14,700	53	0.4%
Average error				5	0.0%
95 percent confidence interval*				265	2.1%
* Equals two standard deviations					

As presented in the above table, the average error over the observed timeframe was five more actual beds than forecast. In percentage terms, this error is statistically indistinguishable from zero and is evidence that the methodology in use exhibits no bias to either a higher or lower extent. If we look at the deviation in the errors in percentage terms and multiply by two, we get a historical 95-percent confidence interval of 2.1 percent. This can be used as a proxy for the expected deviation for future October of odd year forecasts such as that which will be released October 1st, 2019. This report will be published following the end of each biennium going forward.

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² The October 1999 forecast was chosen as the starting point to exclude the phase-in of Measure 11 (1995), which exhibited significant downward revisions to the forecast due to the substantial impacts of this law change.