**Measurement**

* Fertility: Births per 1000 women aged 15 to 44
* Mortality (by gender): Deaths per 100,000
* Gross domestic product (GDP) by state: All industry total (Millions of current dollars)

**Notes**

* ~~Monthly population data is not available for fertility and mortality calculation, so I used the yearly population data as the denominator, assuming the population does not vary substantially within a calendar year.~~  I have interpolated/extrapolated monthly population data from 2010 to 2011 using a natural spline function. The observed yearly population is treated as the population in the sixth month of the year in interpolation/extrapolation.
* Live birth data in 2021 is available in the following states (bold text indicates that data is final): California, Connecticut, **Florida**, **Hawaii**, **Ohio**, Oregon.
* ~~Population data is also missing for fertility estimates in 2021, thus data from 2020 is used as the denominator.~~
* Natural cubic spline interpolation/extrapolation is more flexible than linear models and can better captures non-linearity in the data. It passes through the observed data points without any erratic behavior or breaks in continuity. See the following for technical details:

1) [Bojanov, B. D., Hakopian, H., & Sahakian, B. (2013). *Spline functions and multivariate interpolations* (Vol. 248). Springer Science & Business Media.](https://books.google.com/books?hl=zh-CN&lr=&id=rHfyCAAAQBAJ&oi=fnd&pg=PR8&dq=natural+splines+interpolation&ots=89zPy2gqyc&sig=bmMavXwKBvMGcnjNRdMCD_HlBUc#v=onepage&q=natural%20splines%20interpolation&f=false)

2) [McKinley, S., & Levine, M. (1998). Cubic spline interpolation. *College of the Redwoods*, 45(1), 1049-1060.](https://scholar.google.com/scholar?cluster=15936402286498652066&hl=zh-CN&as_sdt=0,14)