













































OSA w/o length 83 resid > 0 **FALSE** TRUE length abs(resid) 99 -1990 2000 2010 2020 year

OSA w/o length 85 resid > 0 **FALSE** TRUE length abs(resid) 1 2 99 = 1990 2000 2010 2020 year

OSA w/o length 87 resid > 0 **FALSE** TRUE length abs(resid) 0.5 1.0 1.5 2.0 2.5 99 -1990 2000 2010 2020 year

OSA w/o length 89 resid > 0 **FALSE** TRUE length abs(resid) 0.5 1.0 1.5 2.0 2.5 99 -2000 2010 1990 2020 year









