## Figure 4.14. Emerging Market and Developing Economies: Effects of Changing the Autoregression Model Coefficients

Simulated data from a calibrated AR(1) model with time-varying coefficients broadly replicate the stylized facts of resilience in emerging market and developing economies. However, comparing 1970–89 and 1990–2007 shows that the simulated data overestimate the increase in the time spent in expansion, and underestimate the median real GDP growth during expansions and the amplitude of downturns. Most of the gains in resilience between 1970–89 and 1990–2007 result from an increase in the constant (α) and to a lesser extent from a lower standard deviation of growth innovations (σ).
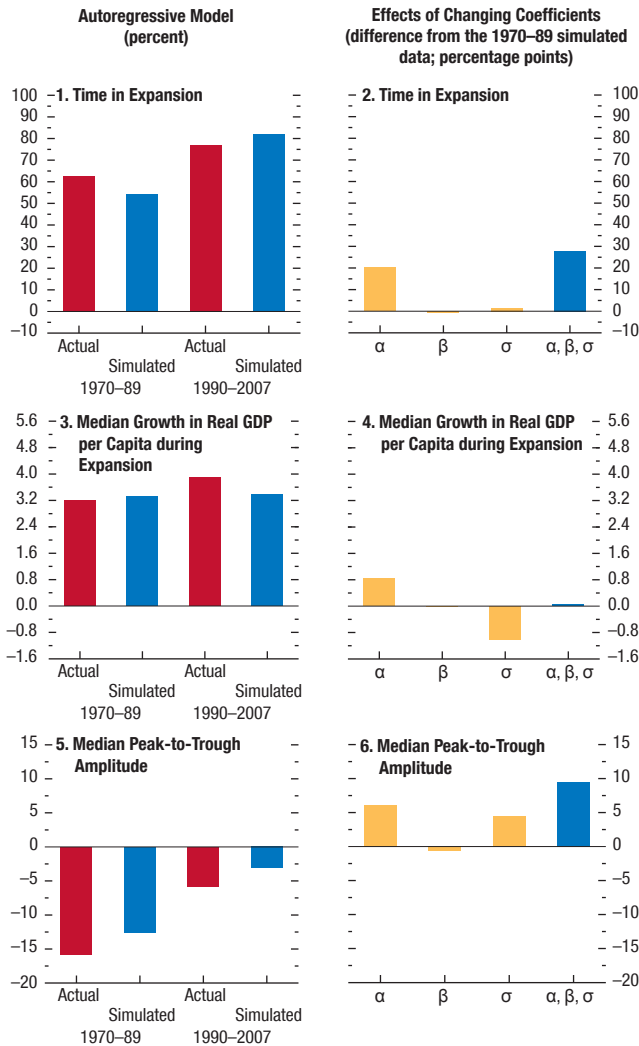
Source: IMF staff estimates.
Note: Peaks and troughs in output per capita are identified using the Harding-Pagan algorithm (Harding and Pagan, 2002). The simulated data are constructed using the median estimated coefficients from Table 4.4 for each period. These coefficients are plugged into an AR(1) equation for GDP growth per capita, and the growth innovations are drawn from a normal distribution with mean zero and variance of σ^2, to run 1,000 simulations of growth processes for 50 years each for each period. The generated series of GDP growth per capita are then used to construct indices of GDP per capita in levels.