Time series-dependent selection of an appropriate seasonal adjustment approach

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When choosing a software package for conducting seasonal adjustment as part of their daily routines, decisions of many statistical agencies are based on pragmatic reasons, such as employees' individual backgrounds, data users' demands (e.g. for low revisions) and the program's suitability for statistical mass production. Then, usually all time series, or at least broad subsets thereof, are seasonally adjusted according to the approach implemented in the software package chosen. Recent releases of X-13ARIMA-SEATS and Demetra+ may change habits as these programs include both the nonparametric X-11 approach and the parametric ARIMA model-based (AMB) approach. Hence, users may select easily between both approaches for each particular time series under review. Accordingly, the question immediately arises which criteria one should rely on when making this choice. We suggest a decision tree that combines theoretical considerations regarding differences between the X-11 and AMB approach with empirical findings obtained for selected German key macroeconomic indicators. In particular, the latter include visual inspection of squared gains of X-11 and SEATS seasonal adjustment filters as well as calculation of diverse revision measures.

Key Words: Demetra+, signal extraction, unobserved components, X-13-ARIMA-SEATS.