

# The dangers of using Seasonal Adjustment and other filters in Econometrics: Some economic and environmental examples

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A customary practice in Time Series Econometrics today, is the use of seasonally adjusted (SA) stationary data (usually the  $\Delta \log$  transformation) to be used as the variable of interest.

Independently of the size of the model, such variables are going to be the focus of interest and the subsequent estimation and testing procedures are solely based on them. Also, in many cases, posterior forecasting exercises are based on this transformed data. This practice is so widely spread, that many Statistical Institutes around the world only provide seasonally adjusted data in their official statistics, as if this information originated from truly observed sample data.

But what if this SA data still shows a considerable amount of seasonality on it? In this case, what are the consequences in estimating and testing large econometric models built on this (dubious) assumption? Or, what if an unexpected residual seasonal behavior becomes evident after estimating the model? As far as I know, these issues have not been addressed in recent econometric research and might be an issue of interest for young students and practitioners who are beginning to work with traditional and new econometric methodologies. This presentation sheds some empirical evidence about the numerous cases where the final “official” SA data shows considerable seasonal behavior.

Dangers of using filtered data are not exclusively restricted to SA procedures. It can also be observed in many time series decomposition procedures like the Hodrick-Prescott filter, and others, when the choice of the smoothing parameter ( $\lambda$ ) is arbitrarily decided by the user. Some economic and environmental examples are presented.