



# Forecasting: principles and practice

Rob J Hyndman

3.2 Dynamic regression

#Regression with ARIMA errors

##Regression with ARIMA errors

## Regression models

$$y_t = \beta_0 + \beta_1 x_{1,t} + \cdots + \beta_k x_{k,t} + e_t,$$

- $y_t$  modeled as function of  $k$  explanatory variables  $x_{1,t}, \dots, x_{k,t}$ .
- In regression, we assume that  $e_t$  was WN.
- Now we want to allow  $e_t$  to be autocorrelated.

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## Example: ARIMA(1,1,1) errors

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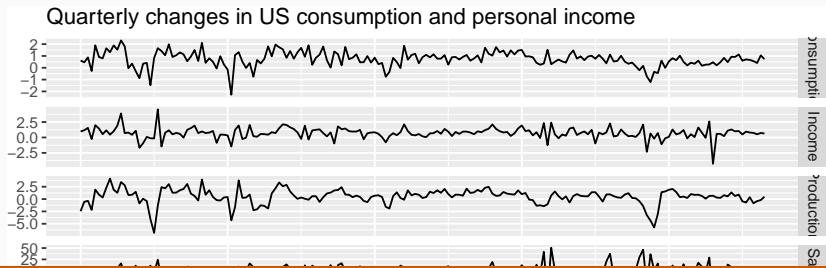
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# Selecting predictors

- AICc can be calculated for final model.
- Repeat procedure for all subsets of predictors to be considered, and select model with lowest AICc value.

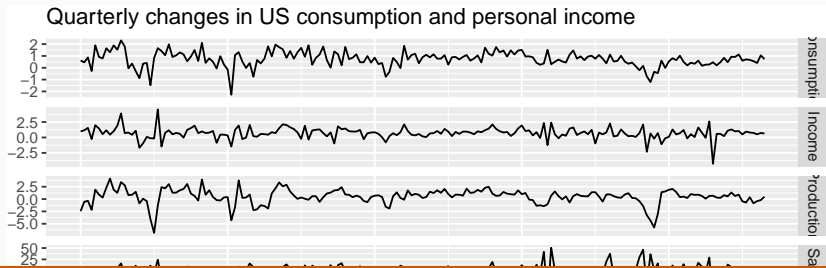
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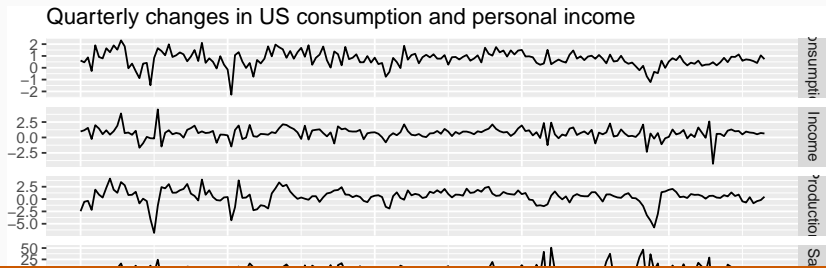
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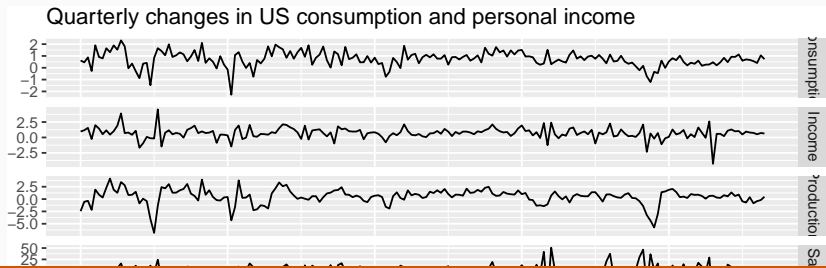
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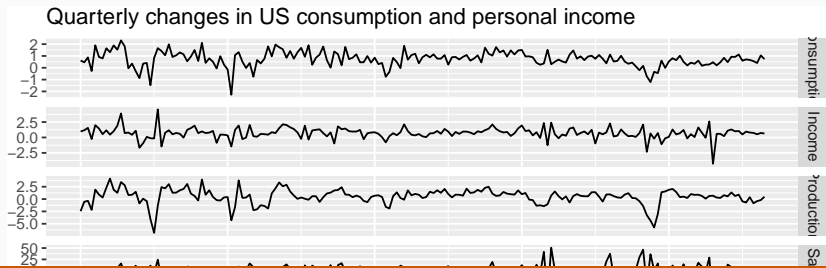
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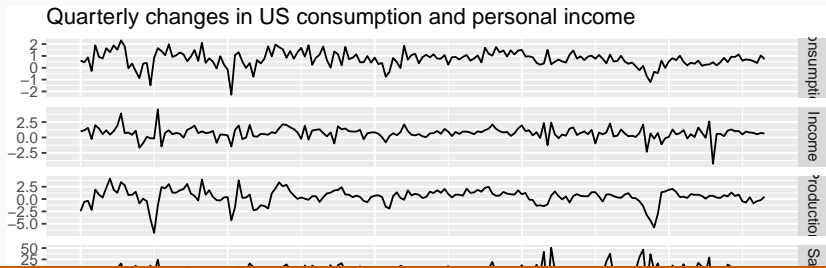
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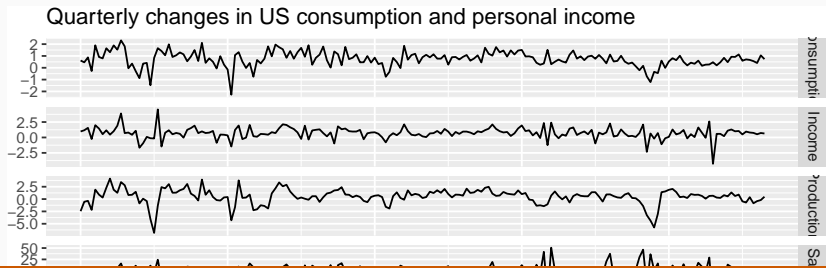
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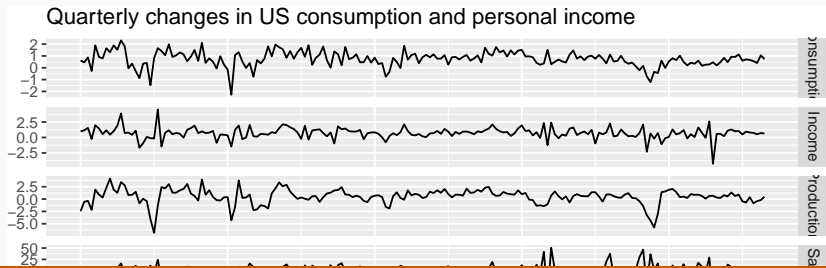
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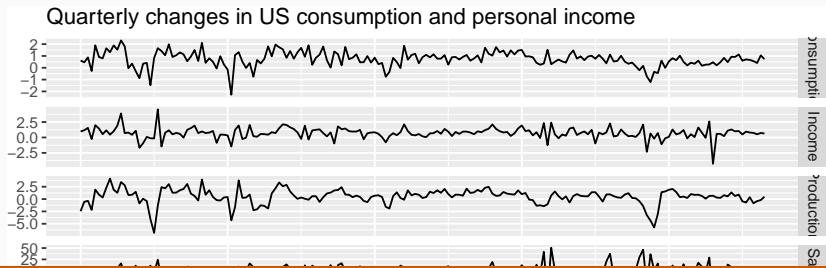




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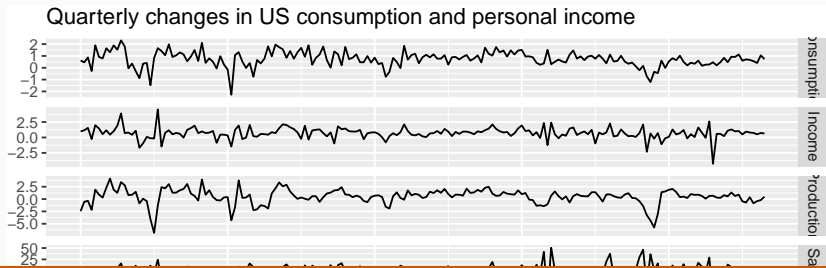
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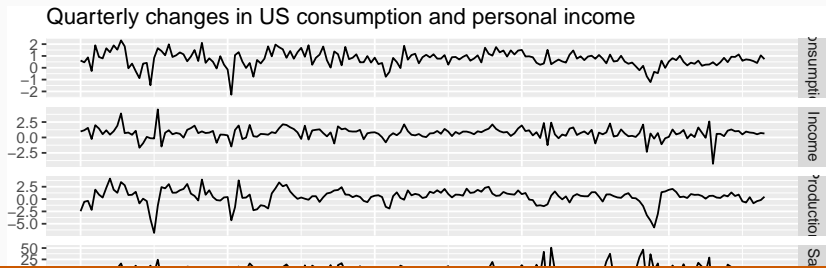
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