Capturing GDP nowcast uncertainty in real time[1]

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Macroeconomic forecasting in abnormal times

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[1] A taste of

Motivation

- Nowcasting methods make use of series related to economic growth but released earlier and more frequently.
- These series carry a signal on forecasting uncertainty which is not exploited fully.
- This uncertainty :
  - Has non-Gaussian features, typically fat tails and skewness;
  - Varies along the business cycle.

Figure: Dispersion

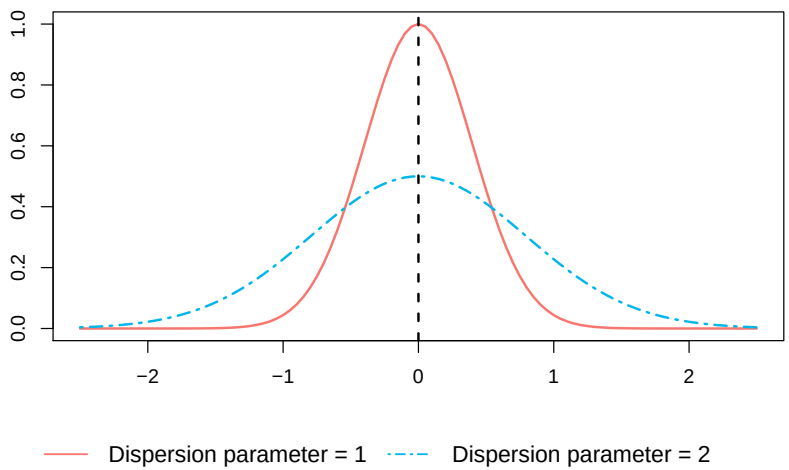
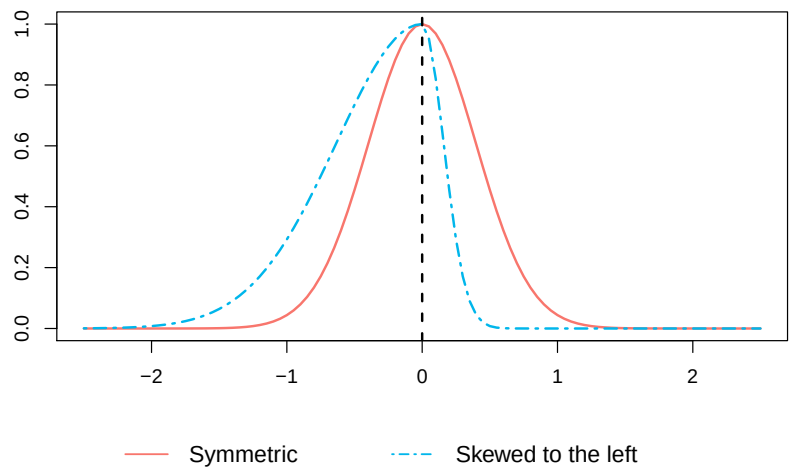


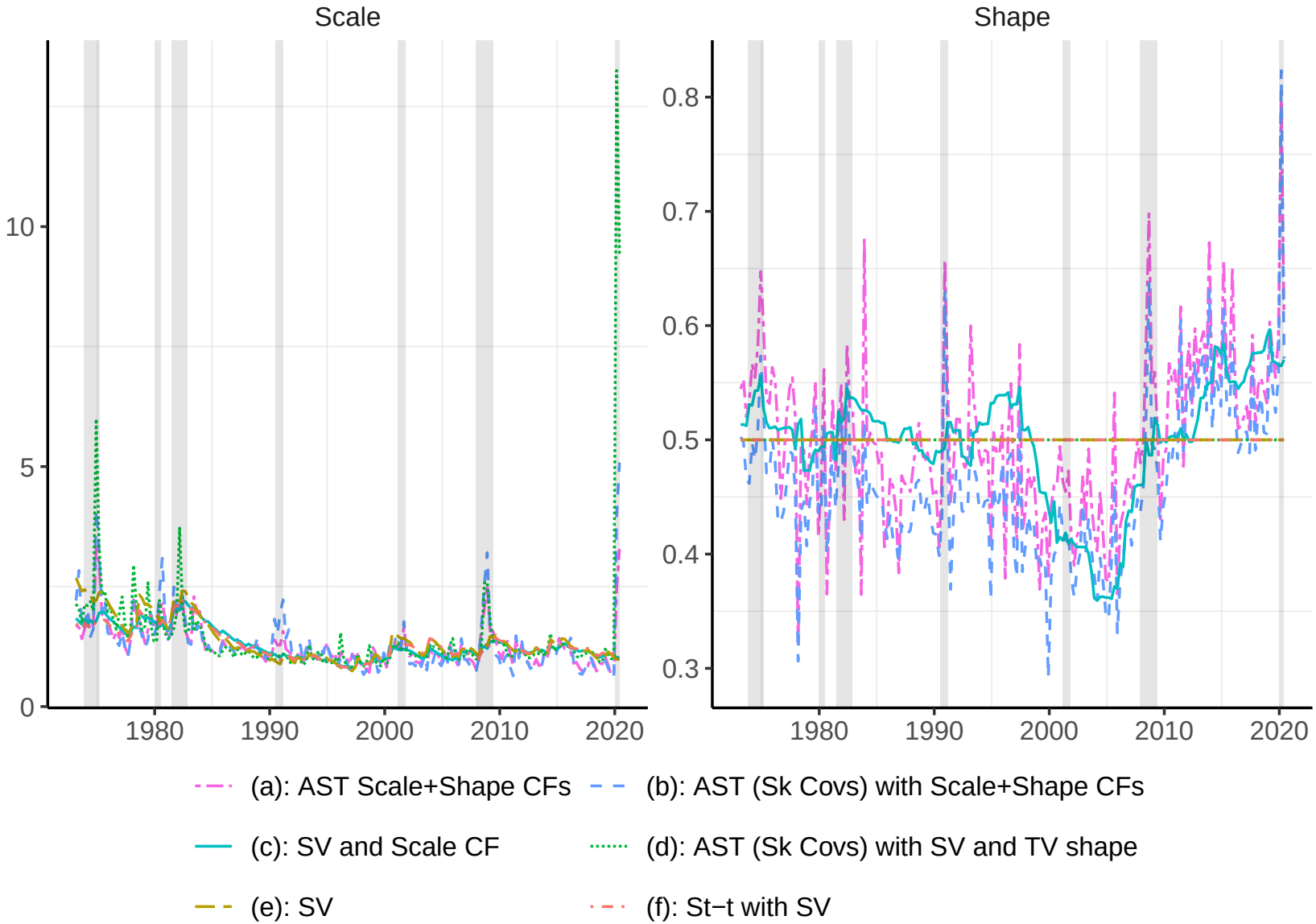
Figure: Asymmetry



Novelty of the approach

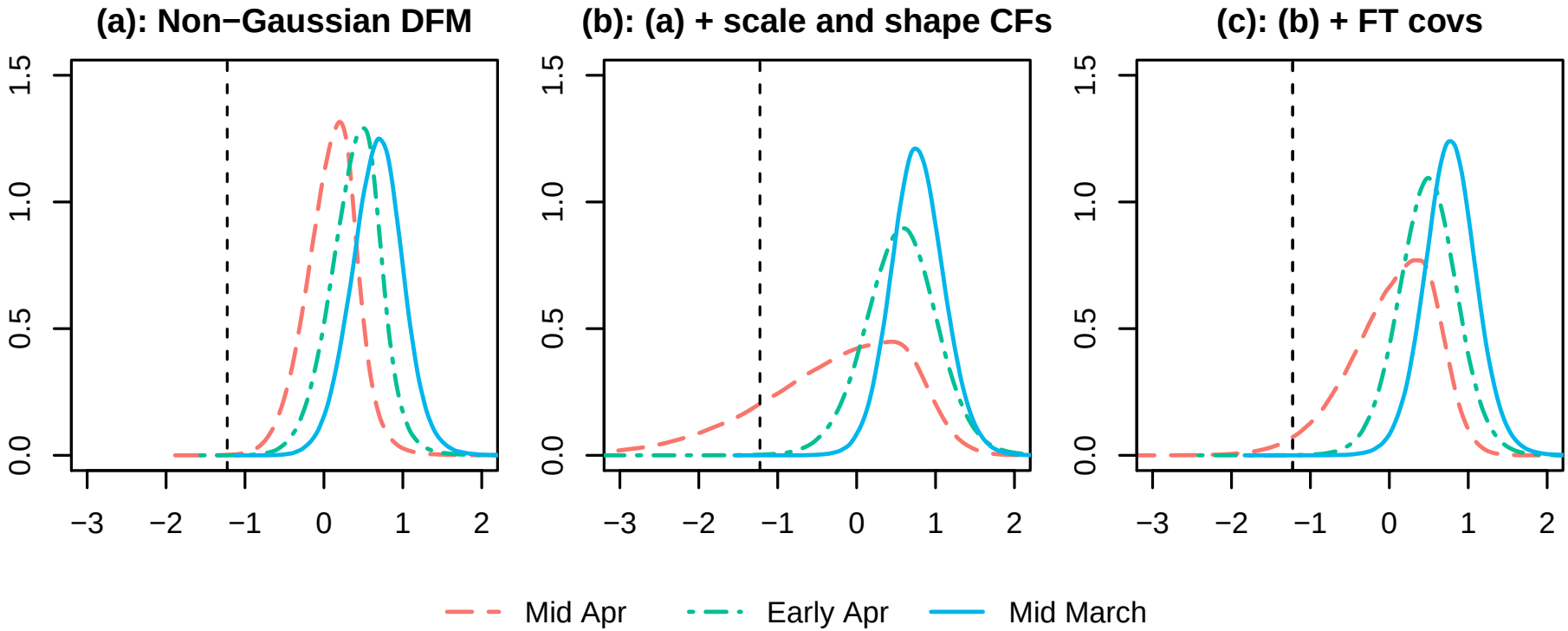
- I model common factors in **scale** and **shape** parameters, controlling the **dispersion** and **asymmetry** of possible outcomes round point forecasts.
- I discuss the temporal disaggregation of scale and shape parameters.
    - An approximation for modelling a common volatility component in mixed-frequency Gaussian models is proposed.
- To model non-Gaussian features I use **score driven** methods.
- Estimation with weighted maximum likelihood.

First key (full-sample) result : Scale and shape common factors carry economic meaning



Second key (real-time) result : Scale and shape common factors improve nowcasting

Figure: Onset of the pandemic : Density nowcasts of Q1 2020 US GDP



- A) Scale and shape common factors yield gains in density forecasts towards the end of the nowcasting window.
- B) Modelling fat tails in related series hinders the model's ability to capture turning points.

Take-aways

- Modelling scale and shape common factors improves estimation of nowcasting uncertainty during bad times.
- The gain from modelling a shape common factor outweights the loss in precision stemming from the aggregation of the related series.
- The approximation for modelling a common volatility component with mixed-frequency data can be applied to many models. Worth trying in MIDAS models.