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Future Migration to Europe

What can we learn from the last decade?

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Explain Before Predict

- To ensure safe and orderly migration, there is a need for systems which can help anticipate where and when people are likely to migrate.
- However, building such systems requires a deep understanding of the mechanisms underlying migration flows.
- HumMingBird's starting point: uncover what drove migration flows to Europe, particularly the sharp increase in asylum seekers in 2015-16.
- Key lessons:
  - Migration drivers are mixed, heterogeneous, and have temporal patterns.
  - Traditional migration models are inadequate to capture such complexities.

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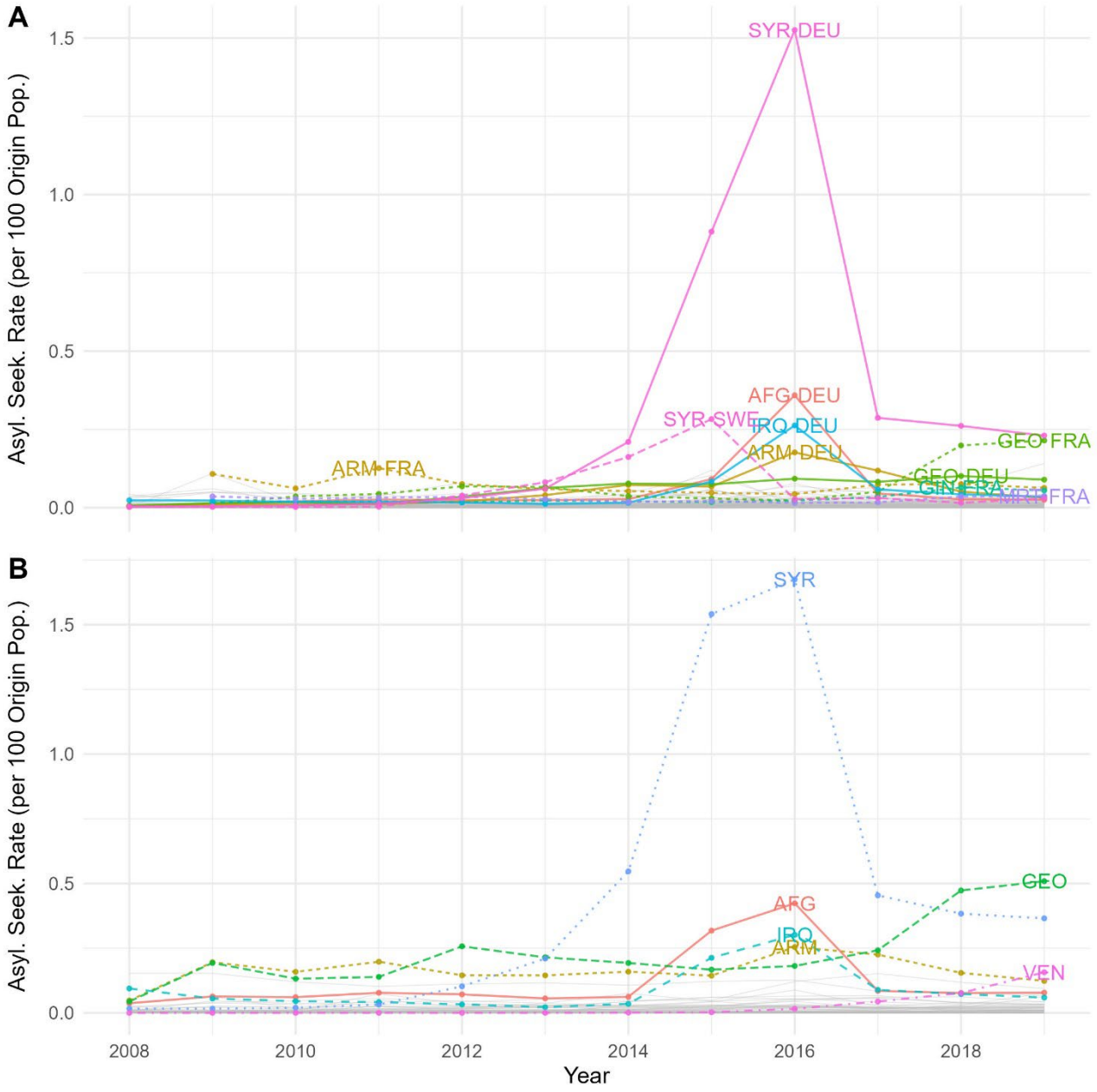
Trends of Asylum-Seeking Rate (ASR)

- **ASR** is the nr. of people migrated relative to those who remained
- **Known driver:**
  War in Syria
- **What about:**
  economic collapse?
  climate stressors?
  …



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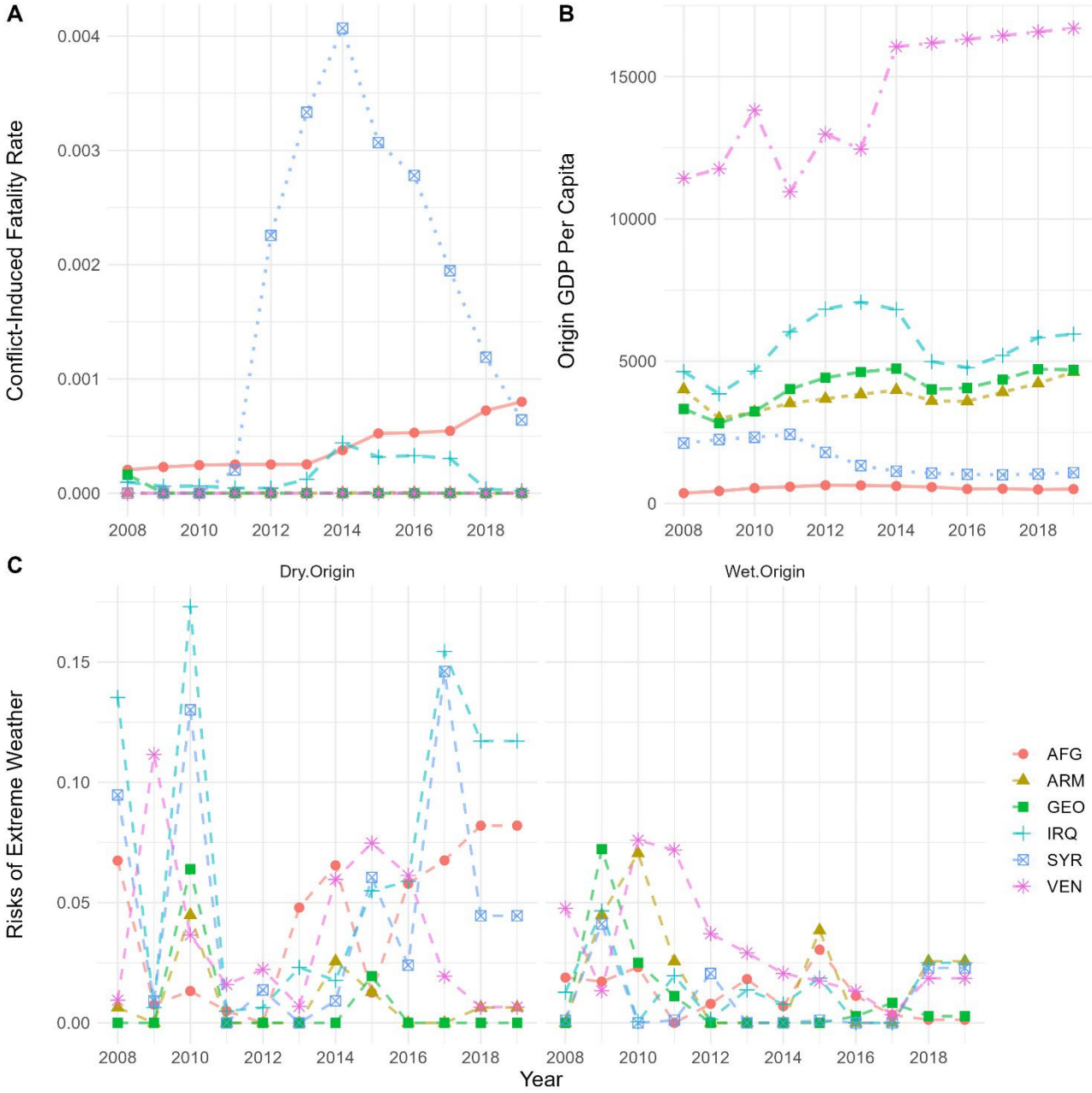
Drivers

- ❑ Panel A:
Conflict-induced fatality (Uppsala Conflict Data Program)

- ❑ Panel B:
Economic indicator (World Bank per capita GDP in USD)

- ❑ Panel C:
Climate risks (Standardised Precipitation-Evapotranspiration Index - SPEI)
  - ➢ If SPEI above 2, extreme wet
  - ➢ If SPEI below 2, extreme dry
  - ➢ Risks computed by grids with extreme wet/dry relative to total grids



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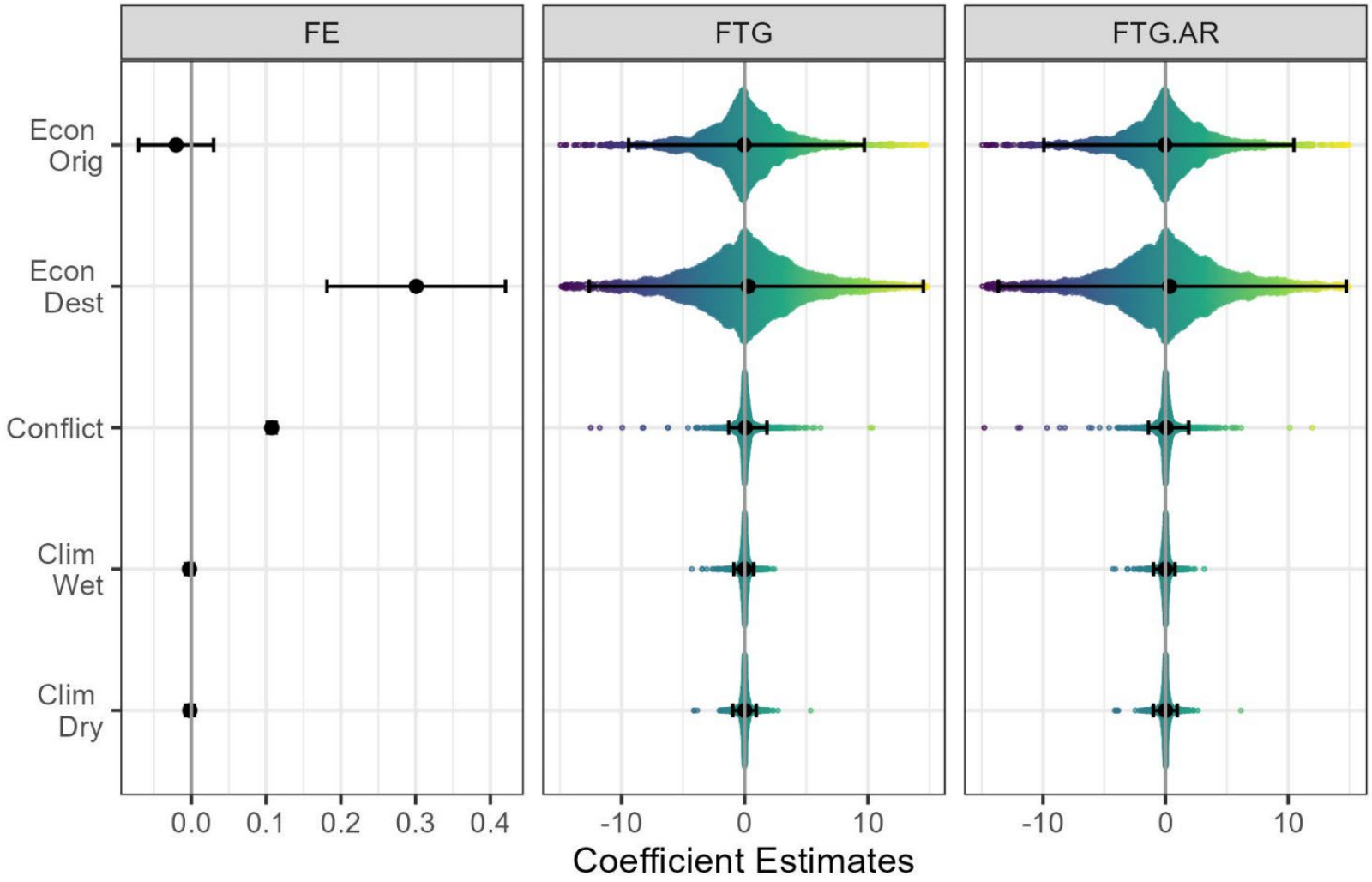
Elasticities of ASR



- FE (Fixed-Effects): a traditional approach to capture time-constant drivers, e.g., language proximity, distance, etc.
- FTG (Flow-Specific Temporal): our new approach to capture heterogeneity in migration responses.

➢ FTG reveals pervasive heterogeneity in migration responses.

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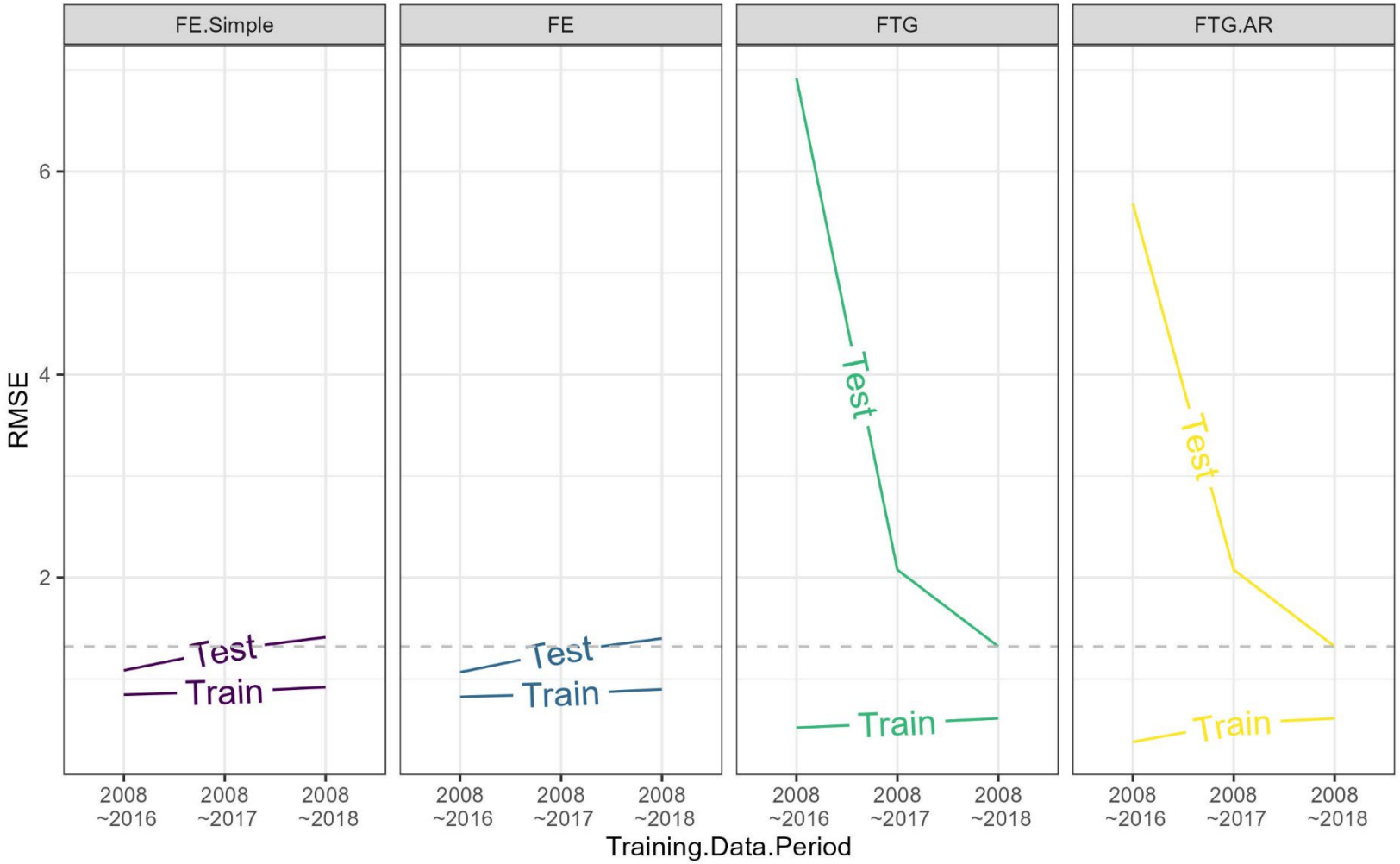
Qi H, Bircan T (2023) Modelling and predicting forced migration. PLoS ONE 18(4): e0284416. https://doi.org/10.1371/journal.pone.0284416

Model Performances



- RMSE (Root Mean Squares Errors): the smaller the value, the better model performs.
- Our FTG model can outperform the traditional FE model when data lengthens.

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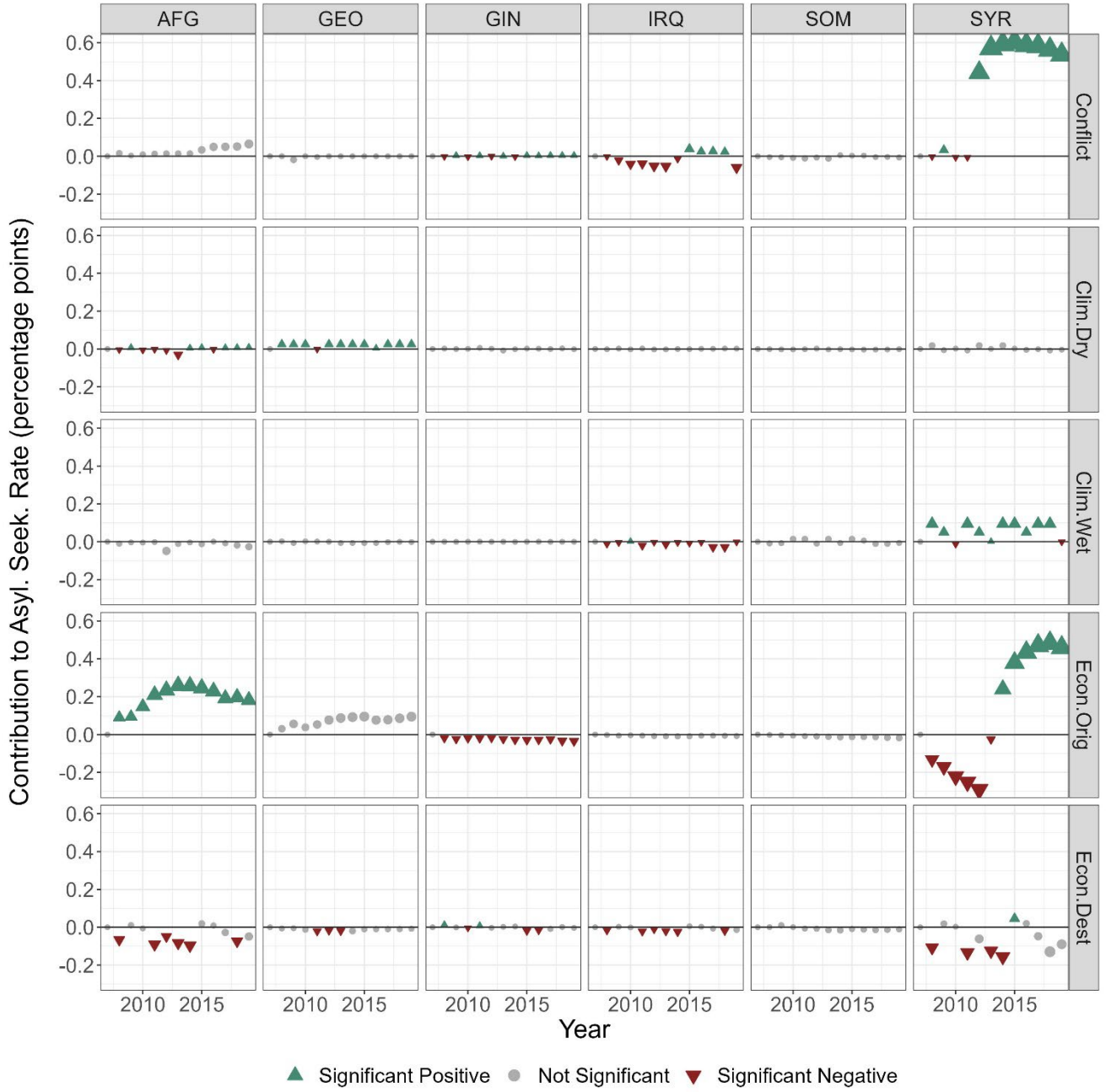
Temporal Dynamics

- ❑ Use FTG to simulate how each driver evolved overtime.
- ➢ The rise of ASR initially triggered by conflict, followed by collapsed economy in Syria - mixed drivers.
- ➢ Drivers and their temporal patterns vary substantially across origins - heterogeneity.



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Key Findings and Implications

- Migration drivers can be mixed, heterogeneous, and have temporal patterns.
- For the Syria-EU flow, conflict was the initial trigger followed by an economic collapse.

- What can we say about the future based on the past patterns?

Given the ongoing war in Ukraine and elsewhere, and/or looming recessions, the desire to migrate might increase.

However, when and where large flows might emerge remain largely uncertain, as

- Migration responses can be highly heterogeneous.
- Temporal patterns can be highly complex.
- Migration policies may be switched on/off.

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