California Voting Trends

Adam Reilly, Carlee Price, Sanjay Dorairaj

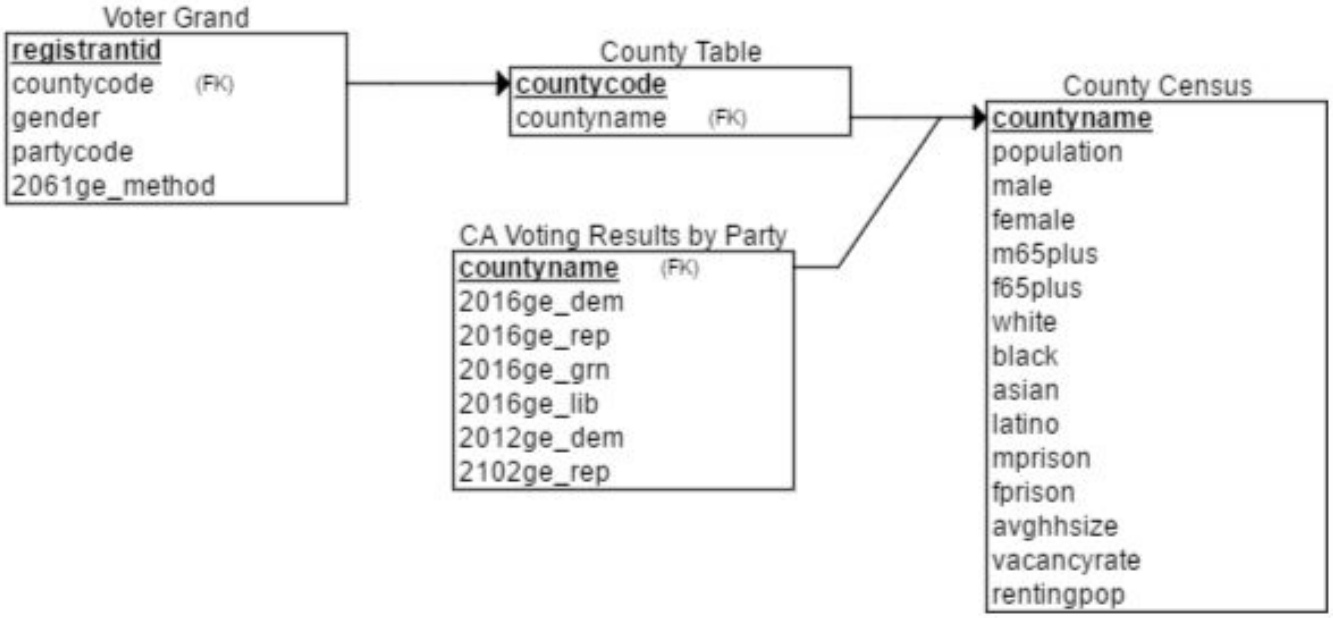
Goals: A Look at CA Election Outcome

- California is a very blue state -- not everywhere.
- Which counties in the state are outliers (mix of party registrations, turnout)?
- Why do they behave differently (gender mix, socioeconomic issues)?
- In which cases did counties swing (D<>R) or show a narrow margin?
- **What might that mean for future outcomes?**

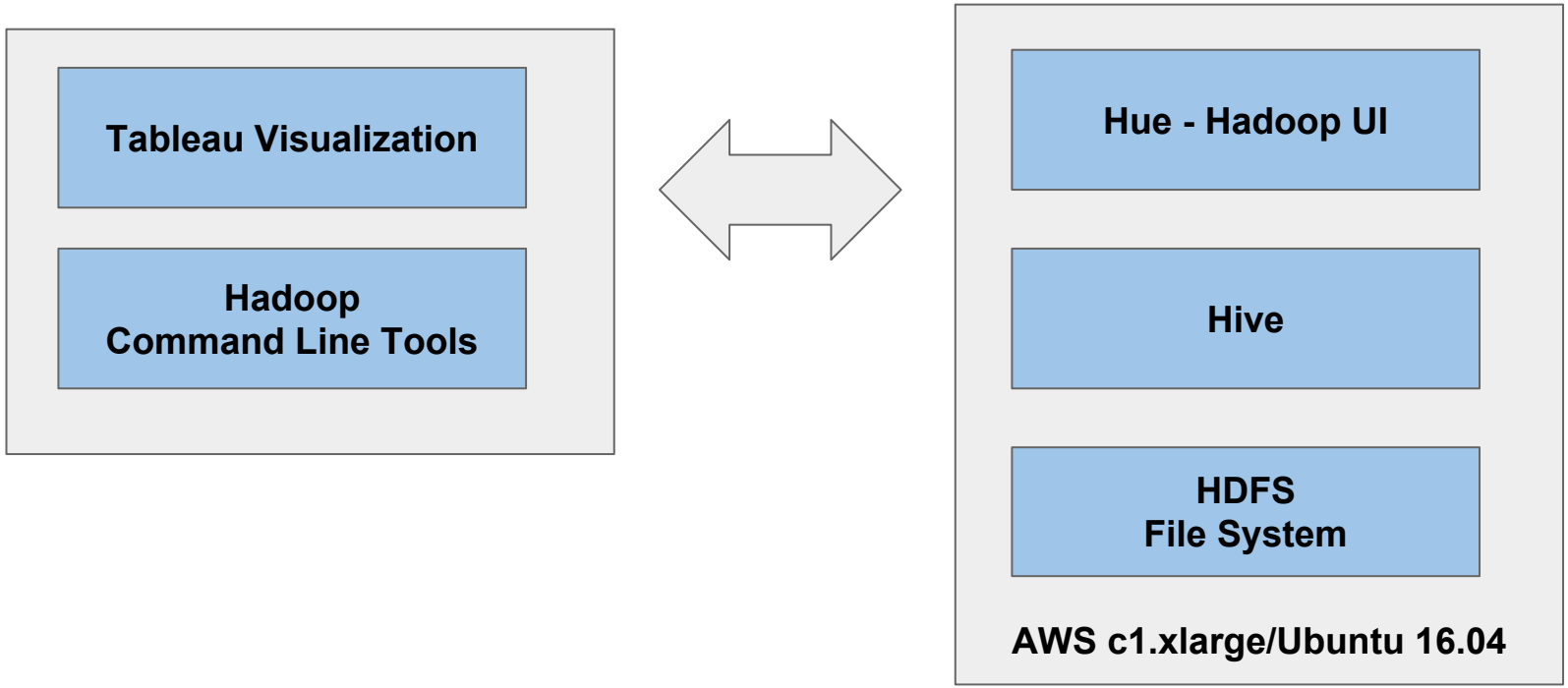
Data Sources

- Election data made available by the State of California Public Voter Registration Data Request (PVRDR)
- County Census data from 2010
- Election outcome data
- Reconcile county codes to county names

Relational Schema

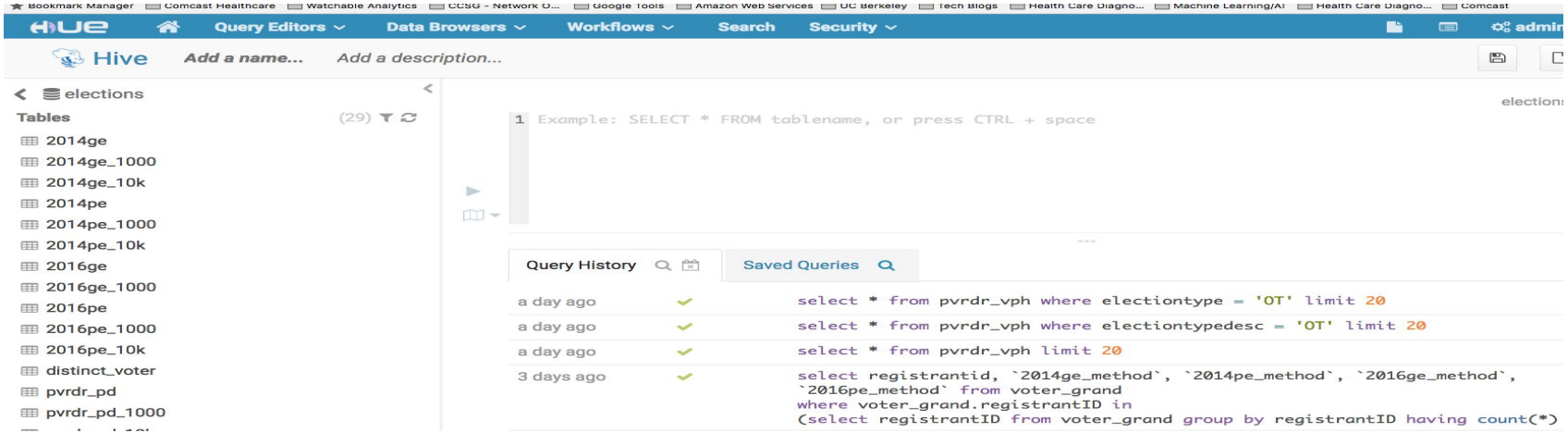


INFRASTRUCTURE FRAMEWORK



QUERYING PLATFORM

- Hue and Hive were used as the platform for allowing multiple group members to concurrently query the underlying Hive/HDFS data
- Hive metastore backend was changed from SQLite to MySQL in order to address scale issues.



Scope: EDA & Transformations

- *Volume:* Extracted 20GB plus voter registration data into individual components
- *Variety:* Significant cleaning was required (notably gender)
- *Velocity:* Periodic Election Outcomes are easily loaded, as is new census data. By nature, batch rather than streaming.

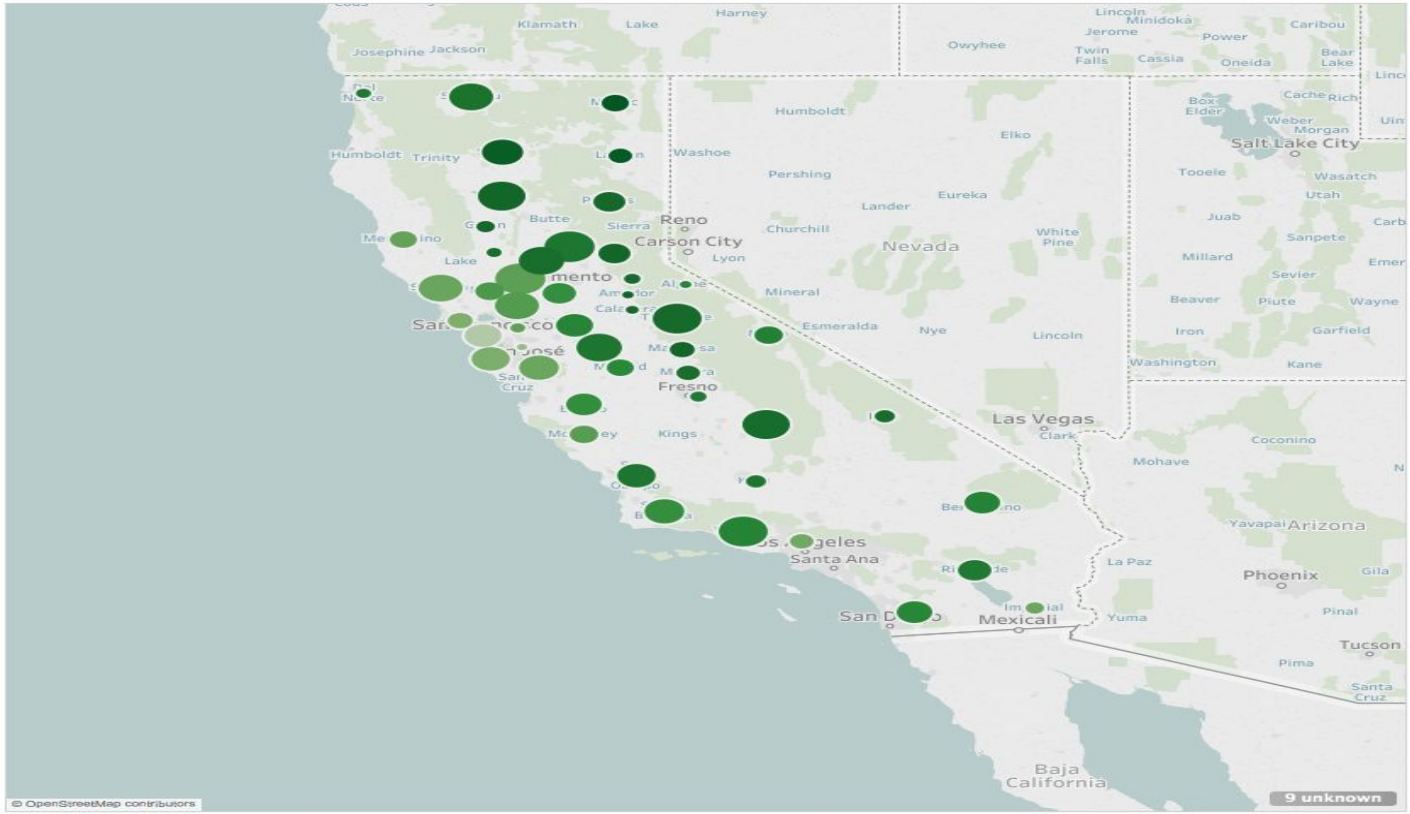
CHALLENGES

- Data Ingest: file format compatibility, dataset size
- Data Cleaning: duplicates, missing data
- Processing and Serving: OpenRefine, Hadoop
- Structuring queries: Complex SQL to handle state/county comparisons

CALFORNIA ELECTORAL LANDSCAPE
A TABLEAU STORY BOARD

California Electoral Landscape

Party Proportion - Republican | In which counties is the mix of party registrations most | In which counties was turnout (number who voted as a % of | How did statewide turnout (numbers of votes cast compard | What is the breakdown by party affiliation of "first-time | What is the gender breakdown of registrants by party? | Wh ba reg



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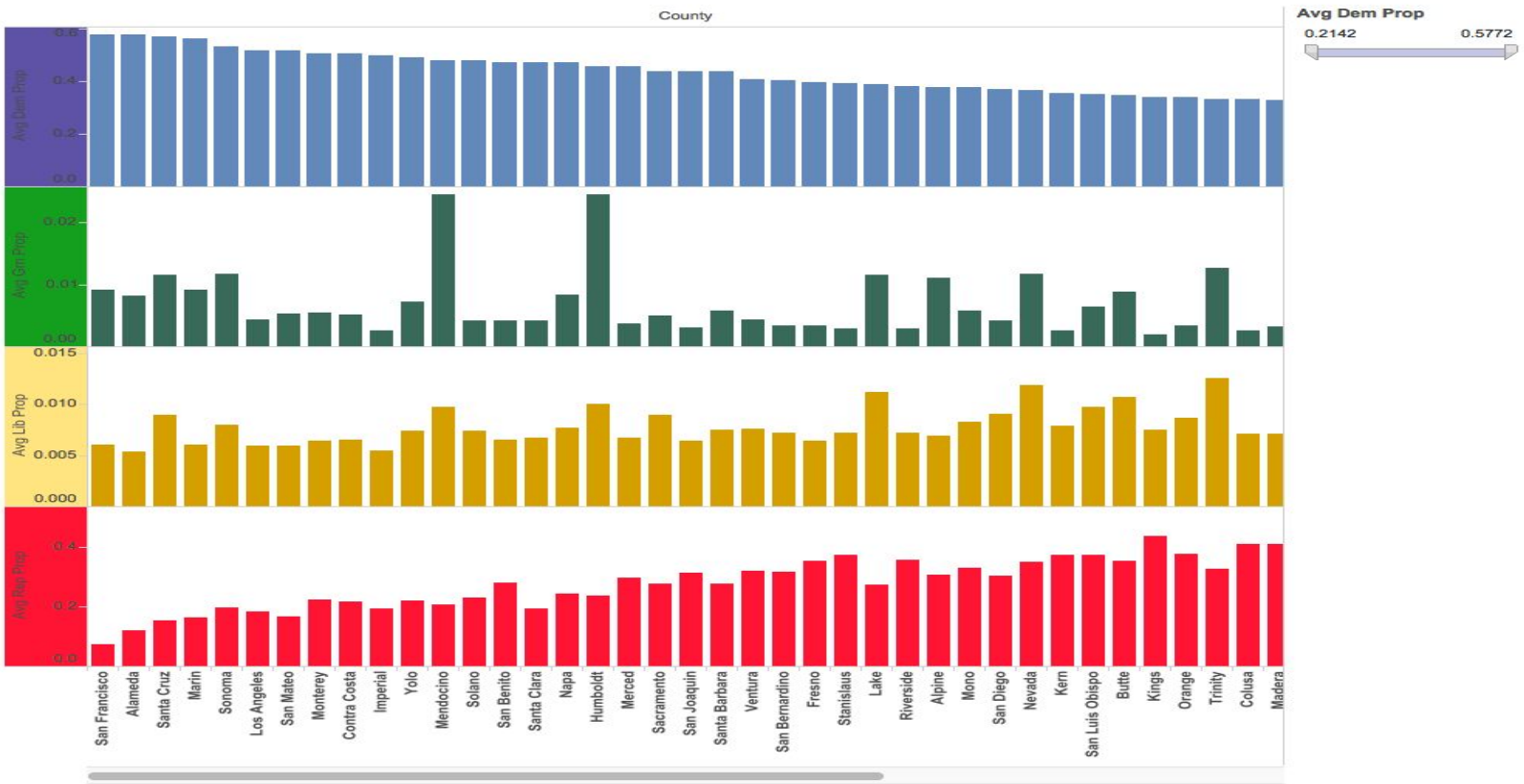

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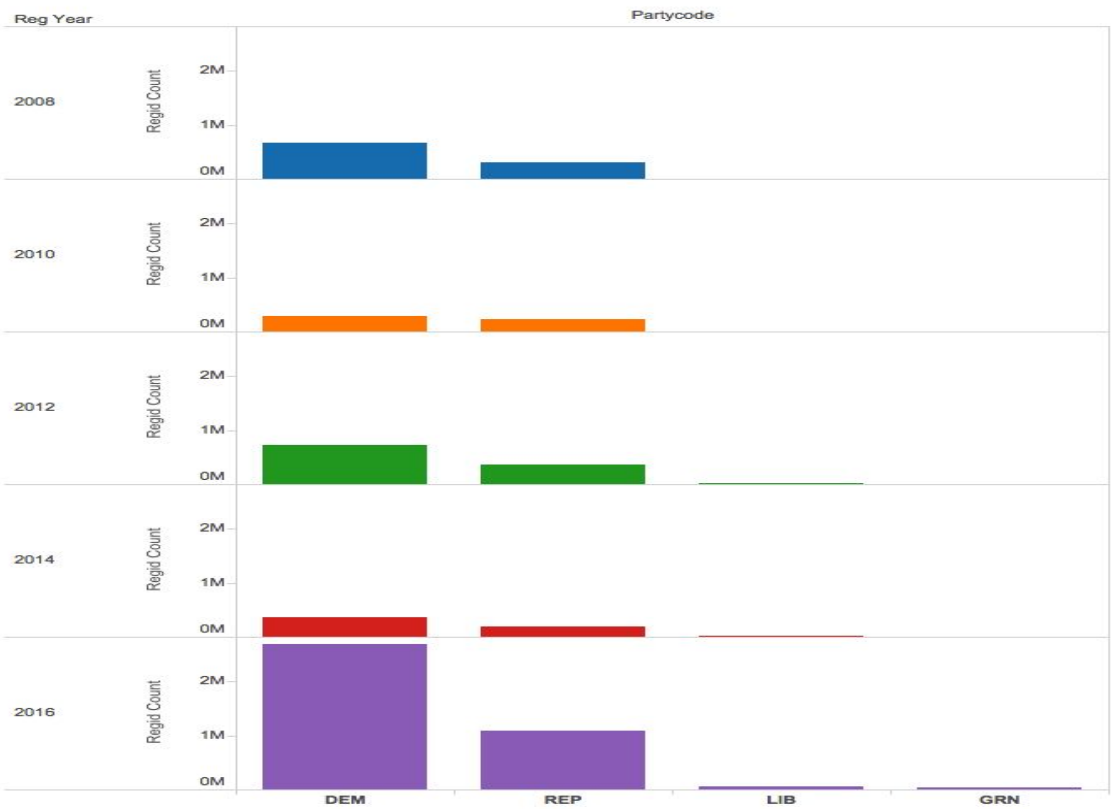

Trade-Offs

- Which research questions yield the best insights
  - Turnout: Registrants v Voters by county
  - Party Mix: by county, gender, first-time voters
  - Party Mix/Turnout: where parties “lost” votes
  - Contested counties
- Which demographic characteristics best highlight outlier counties?
  - Novel insights: Lassen County & prison population
  - Home ownership leads to rightward shift?
  - Likewise high vacancy. Home price appreciation theory for party support?

Conclusions & Looking Forward

- Project could easily be scale to look at county-level detail in other states
- Outcome of subsequent elections can be used to test & refine theses

THANK YOU!

Please see more slides below for additional tableau visualizations

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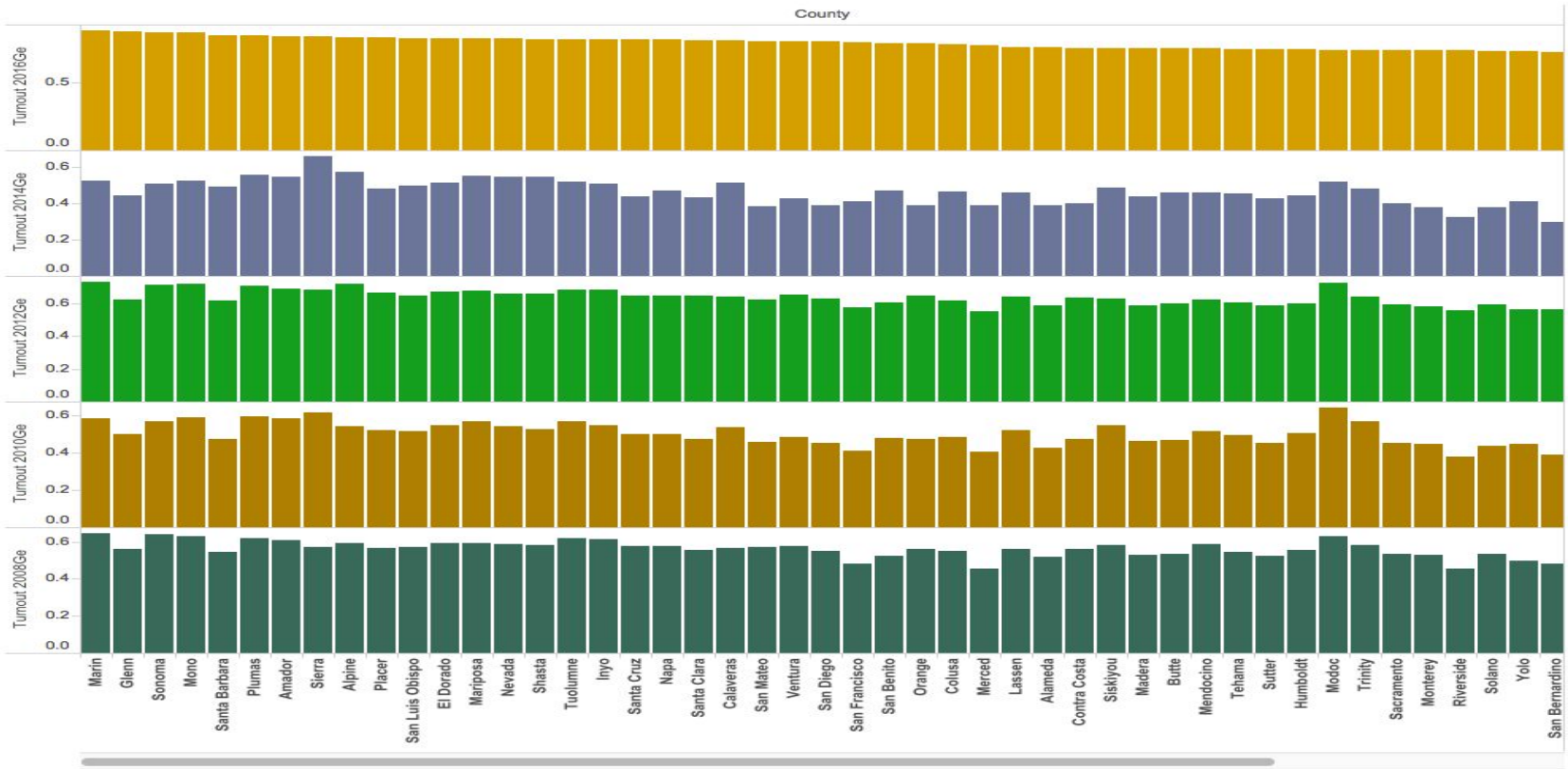

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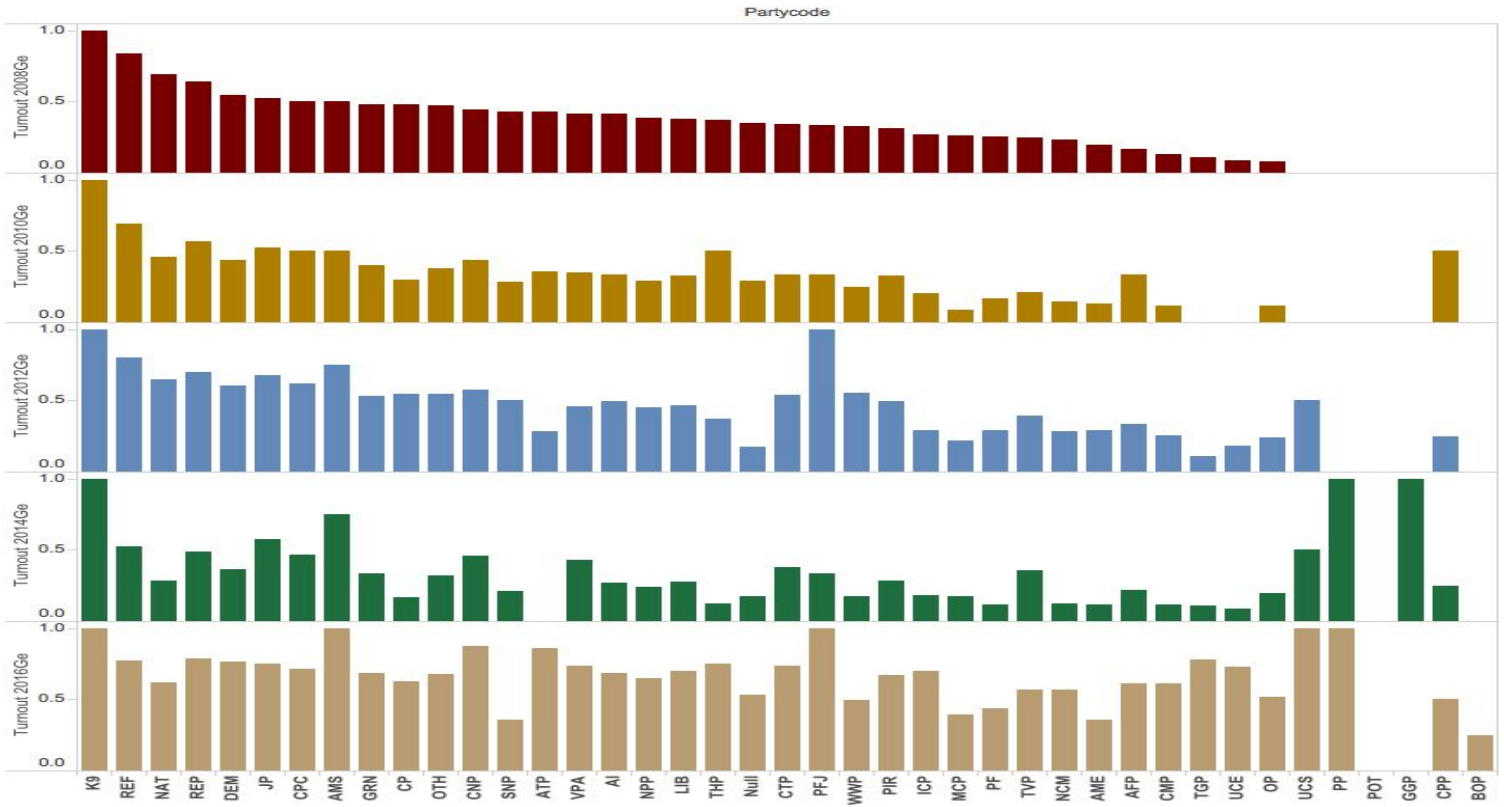

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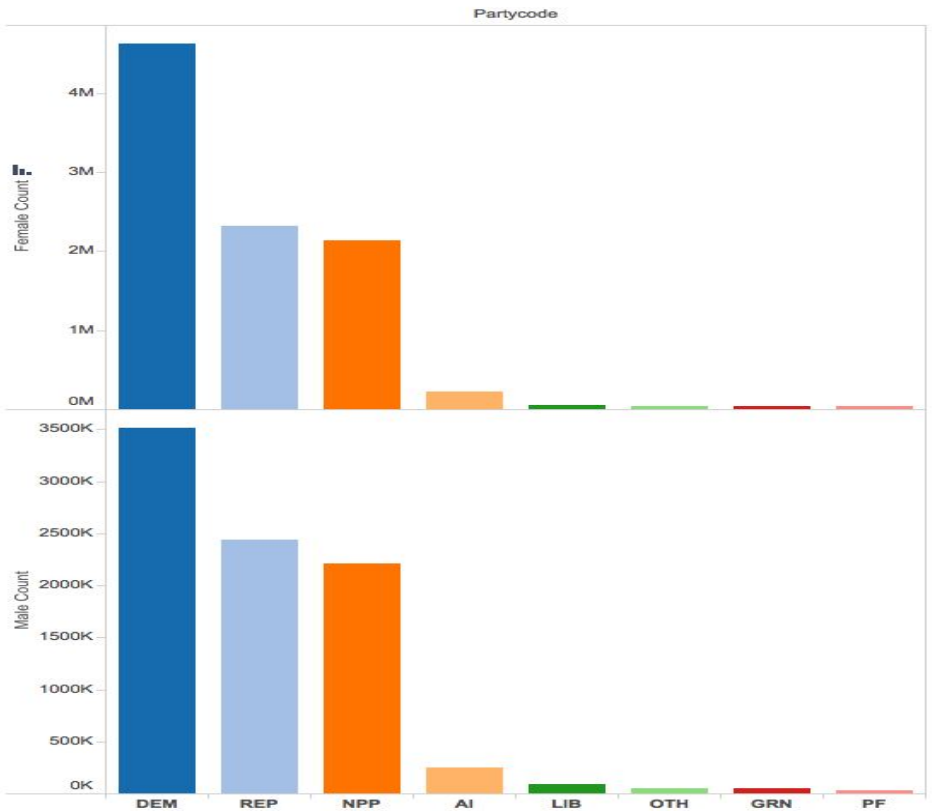
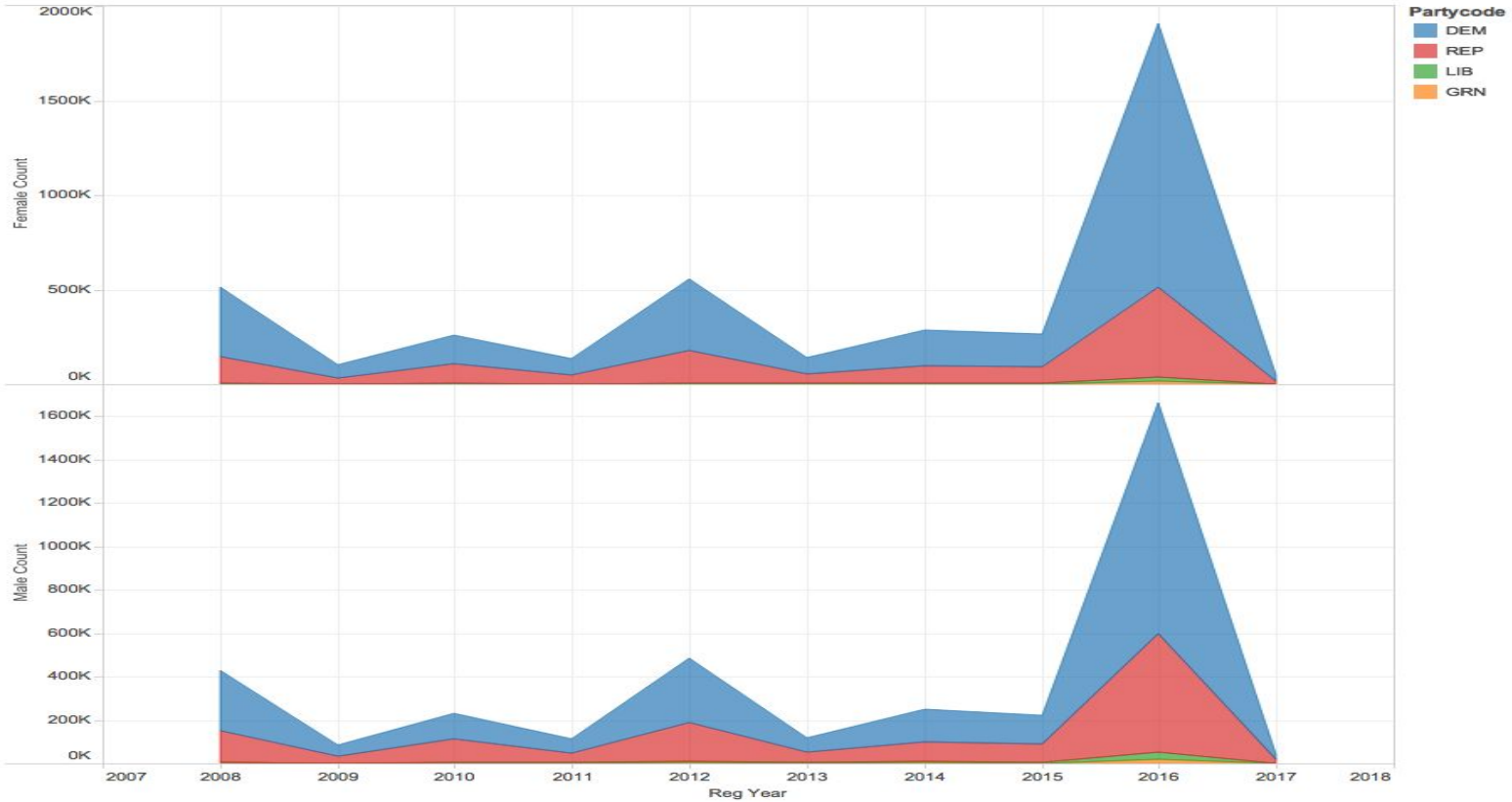
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