Genre complexes and cultural globalization: A network approach

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Inequality and globalization in cultural markets

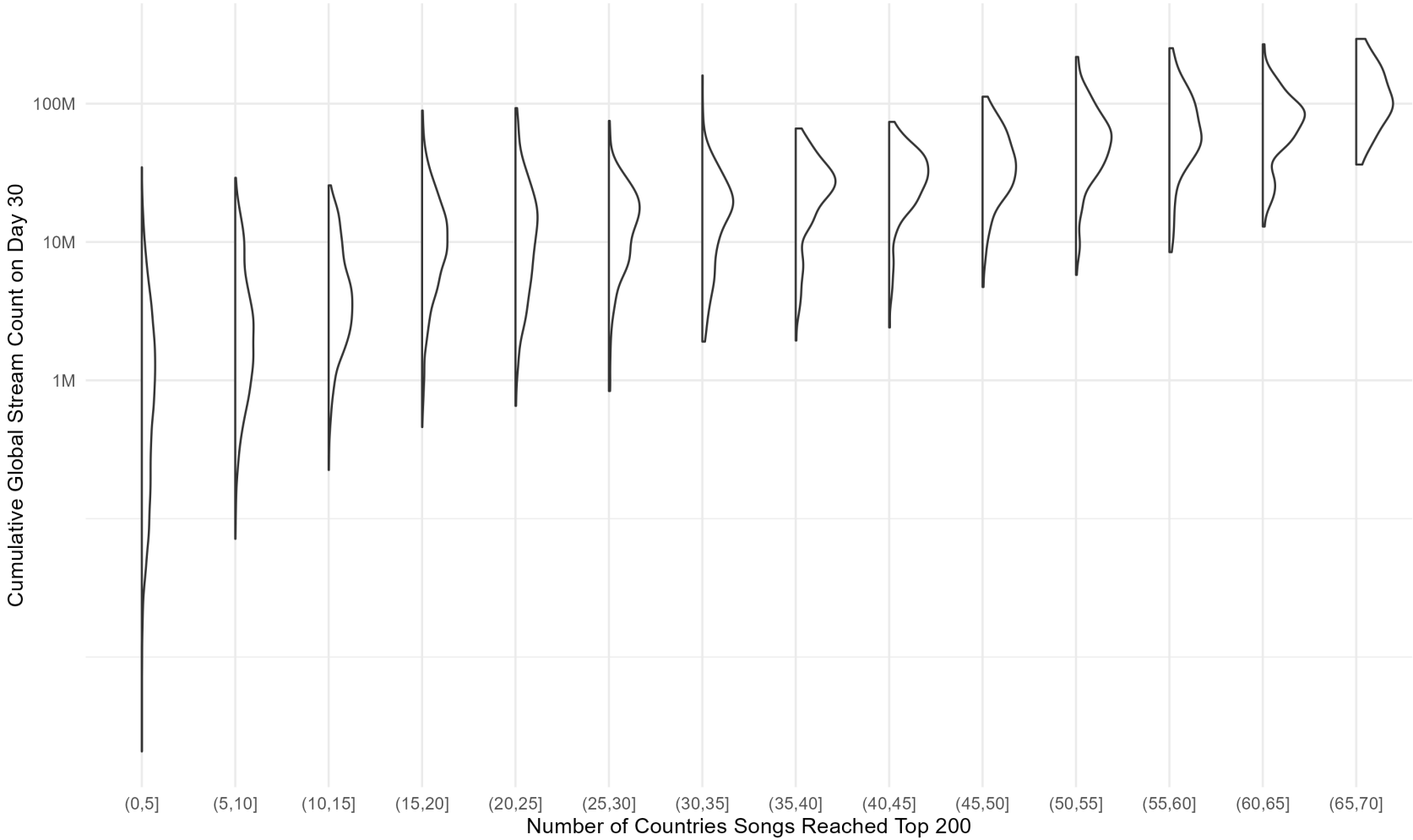
Cultural markets are 'winner-take-all:' measures of material success are very unequally distributed (Watts and Salganik 2011).

- e.g. ticket and book sales, auction prices, download and stream counts, etc.

Global dimension: in many contemporary markets, the highest levels of success can be achieved only by reaching global audiences.

Watts, Duncan J., and Matthew J. Salganik. 2011. "Social Influence: The Puzzling Nature of Success in Cultural Markets." Oxford Handbook of Analytical Sociology.

If you want to be really big, you must be global



Based on daily national top 200 from Spotify in 68 countries; data described below

Research context: music streaming

Music streaming platforms such as Spotify create a unified cultural marketplace with (near-) global reach.

- compare to pre-streaming world of radio play and physical album sales

Equalizing potential: platforms enable consumer choice, potentially giving artists opportunities to reach new audiences.

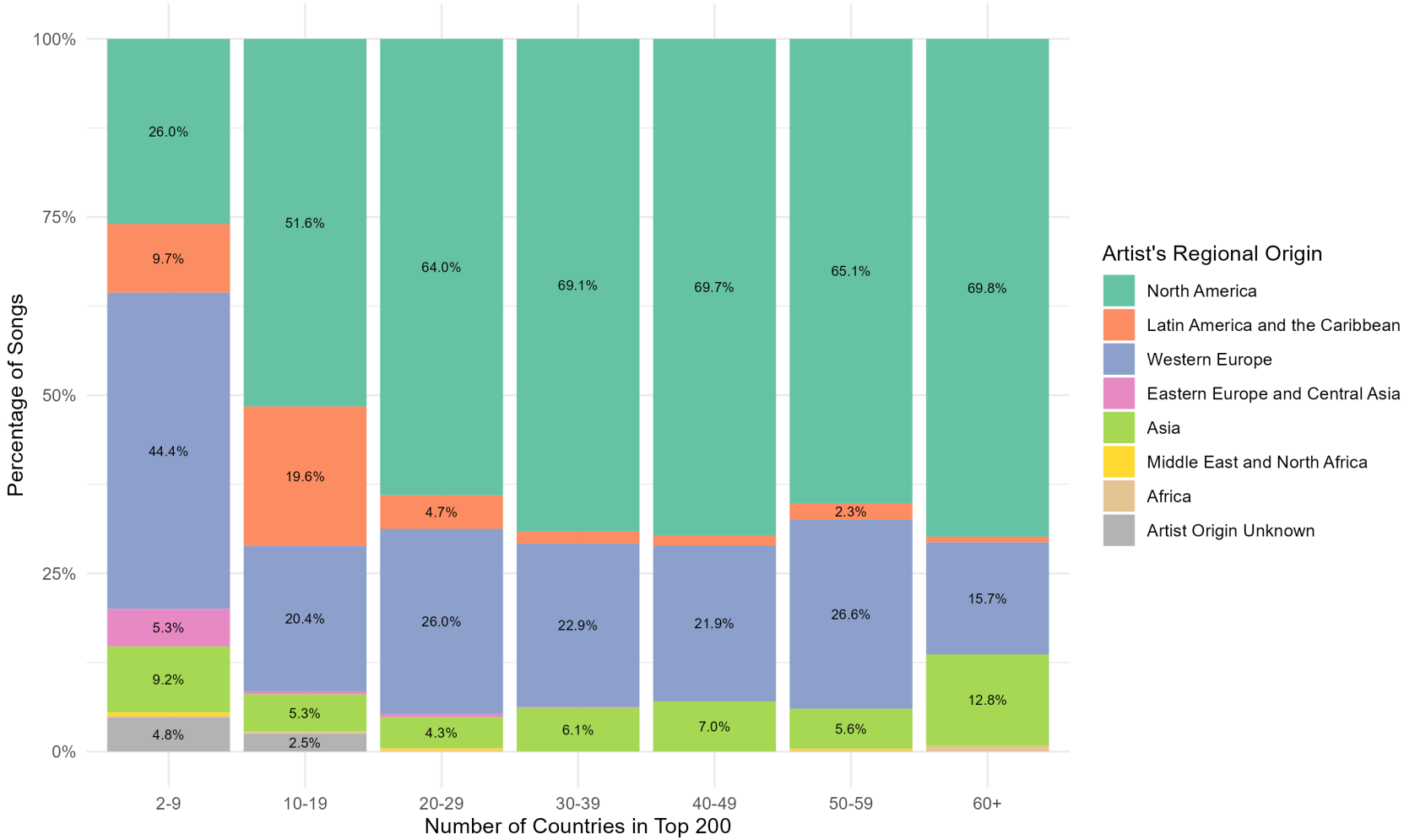
- evidence of increasing diversity of music consumption (Bello and Garcia 2021)

Or, consumption patterns on platforms may re-create inequalities.

- algorithmic curation, playlists, social media, etc.

Bello, Pablo, and David Garcia. 2021. "Cultural Divergence in Popular Music: The Increasing Diversity of Music Consumption on Spotify across Countries." Humanities and Social Sciences Communications 8(1):182. doi: 10.1057/s41599-021-00855-1.

Songs by North American and Western European artists are most globally successful



Note: Artists with missing country/region excluded. Non-core artists may be under-represented

Models of cultural globalization

Hierarchical convergence: homogenization of cultural consumption based on forms produced in core/wealthy/powerful countries ('McDonaldsization')

- implies high inequality of material cultural success, with producers in central countries highly advantaged

Polycentric diffusion: less hierarchical, heterogeneous spread of cultural forms within different domains (Wimmer 2021)

- implies less inequality and multiple channels for regional and global success.
- supporting evidence from diffusion of Google search terms (Bail et. al. 2019) and music videos on Youtube (Dueñas and Mandel 2023).

Wimmer, Andreas. 2021. "Domains of Diffusion" AJS 126(6). doi: 10.1086/714273; Dueñas, Marco, and Antoine Mandel. 2023. "The Structure of Global Cultural Networks" 18(11). doi: 10.1371/journal.pone.0294149.

Research questions

1. Which countries' artists are most (dis-) advantaged in global competition for listeners?
2. What explains these differences in advantage?
3. In particular, to what extent is uneven global success due to:
   - 3.1 Cumulative advantage
   - 3.2 Resources, e.g. major record labels (incomplete)
   - 3.3 Genre

Near-future plans:

- Cumulative advantage within genres
- Boundary-spanning across genres
- Genre hierarchy?

Data: Spotify rankings

Daily stream counts for 200 most streamed songs in 68 countries between 2017 and 2021

- About 100k songs, 38k artists
- Artist genre collected from Spotify API
- Artist country (home market) collected from MusicBrainz database

Advantages: music streaming platform with largest market share

Limitations:

- Music consumption on Spotify is likely more global than all music consumption.
- Spotify not available in all countries (e.g. most African music consumption excluded from this dataset).
- Open data ended in late 2021 and Spotify is reducing API access

Genre complexes

Genres are **not** neutral descriptors of musical style.

Genres are systems of classification through which cultural producers and consumers establish relations of similarity and difference between cultural objects.

We can think of the genre space as a network linking artists and genres through relations of perceived similarity.

In this network, we can identify communities/clusters of artists and genres that share similarity at higher level of abstraction.

Silver, Daniel, Monica Lee, and C. Clayton Childress. 2016. "Genre Complexes in Popular Music" PLOS ONE 11(5):e0155471. doi: 10.1371/journal.pone.0155471.

Classifying artists' genre

Spotify assigns up to three genre labels to each artist

- ∼3000 unique genre descriptors
- Origin unclear (artist or platform)
- substantial redundancy: e.g. 'K-pop' and 'K-pop boy band'
- Genres do not appear consistently nested

Previous research (Silver et. al. 2016):

- Fixed universe of 122 genre labels from MySpace data
- genre overlap network = frequency with which genres are co-mentioned by artists.
- Recursive Greedy community detection
- 3 high-level genre "worlds", 16 nested genre communities

Silver, Daniel, Monica Lee, and C. Clayton Childress. 2016. "Genre Complexes in Popular Music" PLOS ONE 11(5):e0155471. doi: 10.1371/journal.pone.0155471.

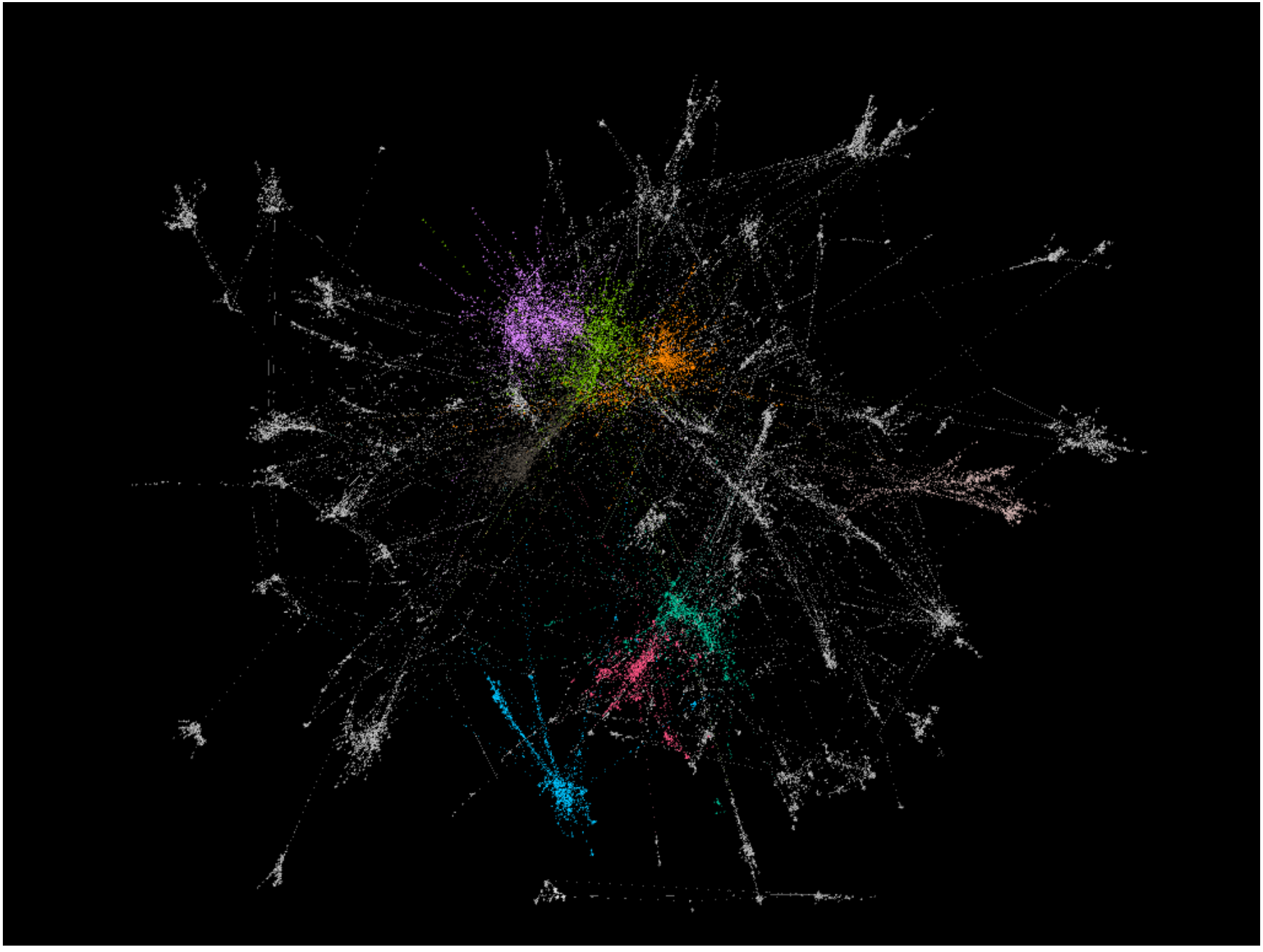
From genre overlap to bipartite network

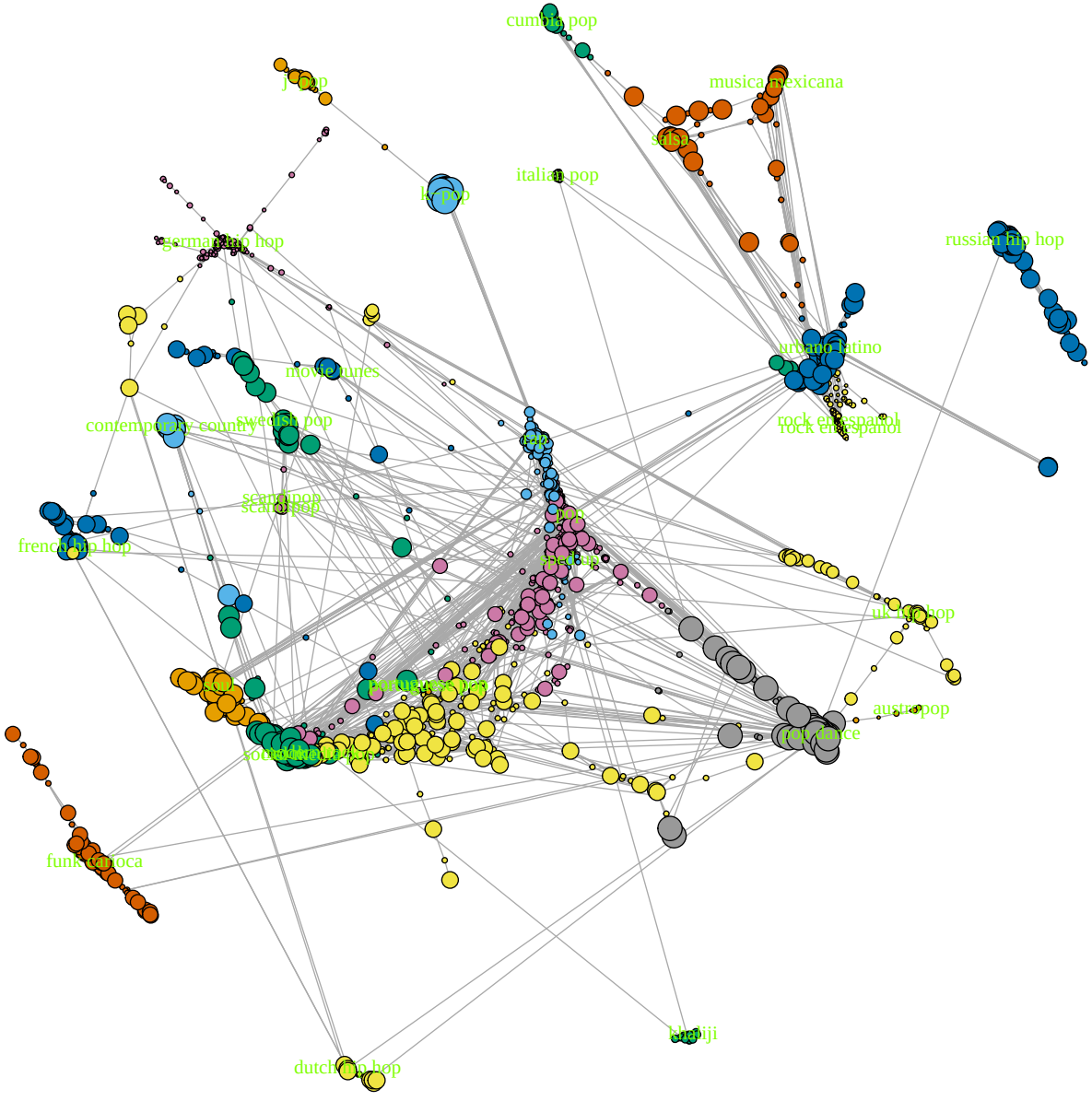
With ∼3000 genre labels from Spotify API:

- Does not (quasi-) uniquely classify artists into a single genre cluster/'world'
- Discards information about artist similarity
- Fails to distinguish between rock and hip-hop clusters

Alternative approach: bipartite artist-genre network

- artists linked to genres if an artist is labelled by that genre
- Leiden community detection in main results
- also tested Greedy community detection and Leiden with lower resolution




cumbia pop
musica mexicana
salsa
italian pop
latin pop
russian hip hop
urbano latino
movie tunes
swedish pop
rock en espanol
rock en espanol
contemporary country
scandipop
scandipop
french hip hop
uk hip hop
austria pop
funk carioca
dutch hip hop

Community detection results

- 349 clusters
- 110 non-trivial clusters (clusters with more than 1 genre)
- 46 clusters with more than 50 artists
- Distinguishes between 'rock' and 'rap/hip-hop' clusters
- Many medium-small clusters are subgroups of sonically diverse national genres (e.g. Finnish pop)

Notes:

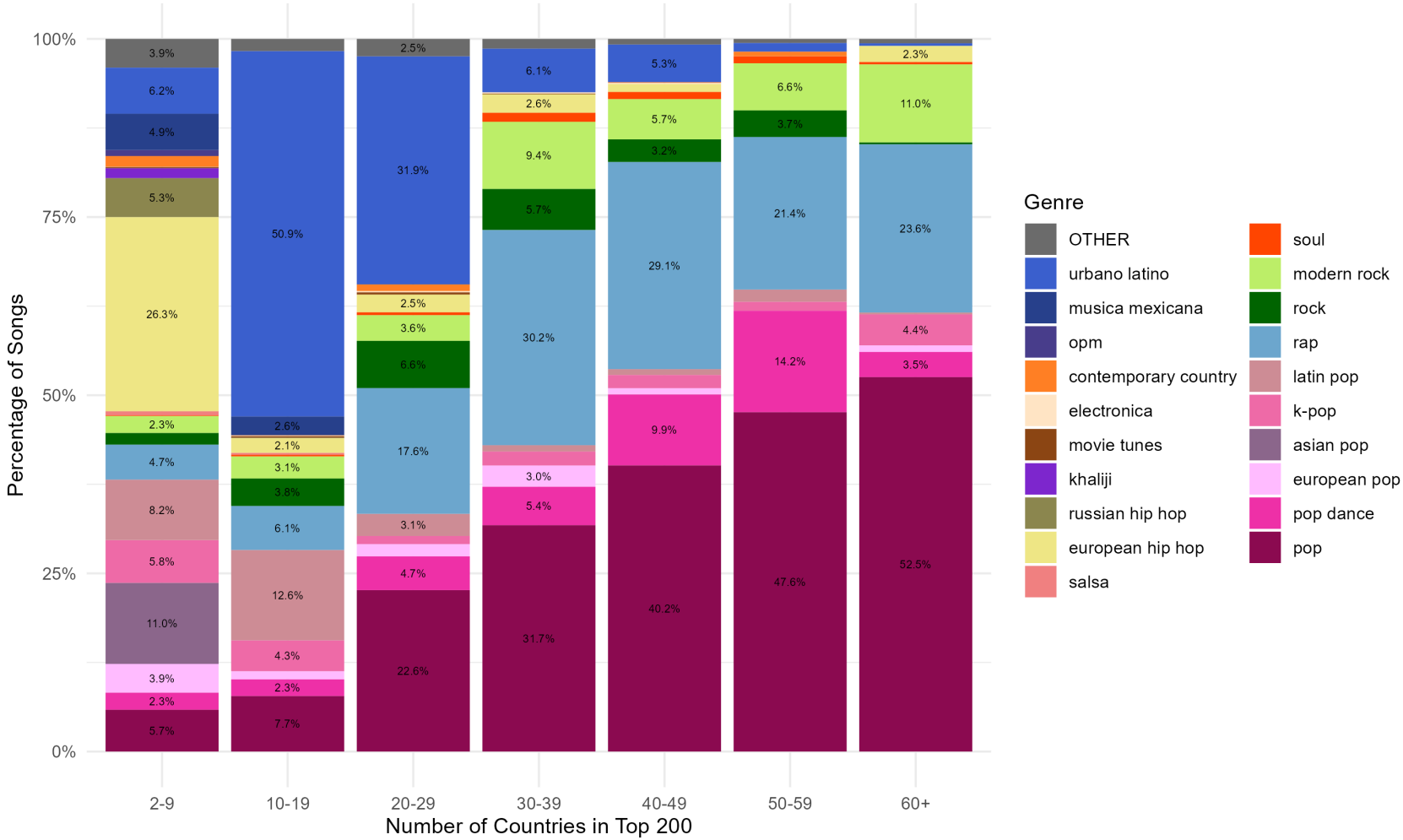
- Some trivial clusters cannot be reduced because genres were chosen by only one artist
- Cluster names are arbitrarily assigned the name of the most common constituent genre

10 largest genre clusters

Cluster	Size	Sample genres
rock	342	modern rock, surf punk, irish country, anthem emo, grunge, slowcore, british singer-songwriter, okc indie, experimental rock, art rock
rap	138	plugg, pop rap, new orleans rap, dirty south rap, irish hip hop, portland hip hop, canadian hip hop, buffalo hip hop, irish drill, escape room
pop dance	132	miami bass, speed house, dutch edm, australian surf rock, tropical house, progressive electro house, deep tech house, house, classic dubstep, vocal house
latin pop	126	indonesian black metal, mexican pop, musica canaria, concurso de talentos argentino, rumba, folklore argentino, rock nacional, copla, uruguayan indie, spanish pop
funk carioca	93	musica alagoana, belo horizonte indie, pop teen brasileiro, brazilian gospel, forro, trap funk, rap feminino nacional, funk mtg, sertanejo pop, trap baiano
j-pop	75	j-acoustic, japanese indie folk, japanese garage rock, japanese soundtrack, japanese alternative rock, japanese teen pop, japanese underground rap, j-punk, idol kayo, japanese folk
pop	73	canadian pop, boy pop, hmong pop, popping, nyc pop, canadian latin, isle of wight indie, dark r&b, electropop, christian a cappella
finnish pop	70	finnish jazz, finnish pop, finnish blues, finnish new wave, crossover thrash, finnish post-punk, finnish hard rock, hel, rautalanka, iskelma
south african pop	70	bolobedu house, zim urban groove, cape verdean folk, soukous, naija worship, musique urbaine kinshasa, twoubadou, malawian hip hop, afro soul, south african r&b
urbano latino	69	drill espanol, reggaeton chileno, emo trap en espanol, rap catala, trap argentino, bases de freestyle, r&b en espanol, trap dominicano, electro latino, hip hop cubano

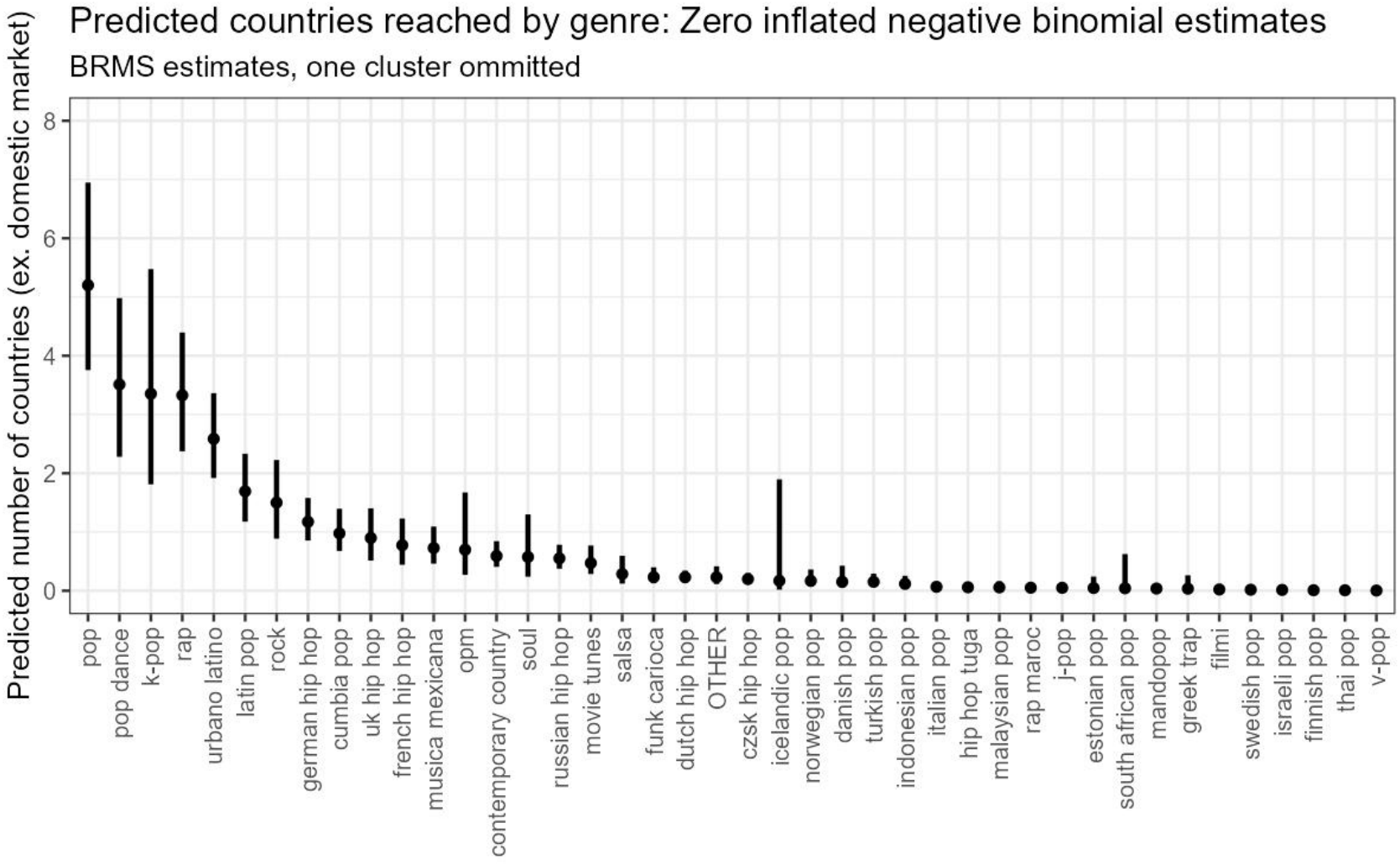
Table: Top 10 genre clusters: Leiden (resolution = 1)

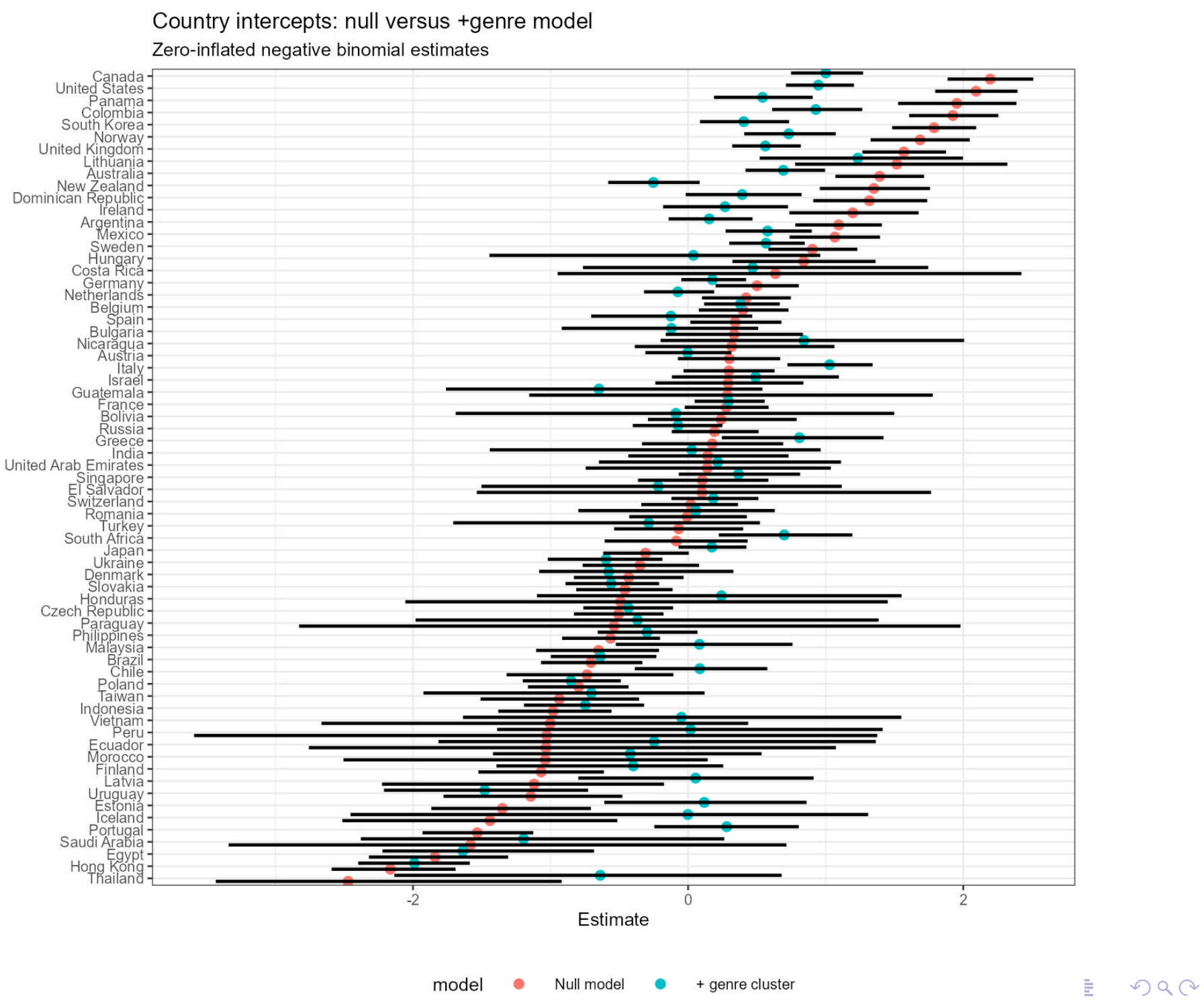
Pop and (North American) rap are most globally successful



Note: songs with missing genre excluded. Non-core genres may be under-represented.

Genres and globalization: Model results




Country intercepts: null versus +genre model
Zero-inflated negative binomial estimates
Canada
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Lithuania
Australia
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Dominican Republic
Ireland
Argentina
Mexico
Sweden
Hungary
Costa Rica
Germany
Netherlands
Belgium
Spain
Bulgaria
Nicaragua
Austria
Italy
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El Salvador
Switzerland
Romania
Turkey
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Saudi Arabia
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Estimate
model
Null model
+ genre cluster

Genre and cumulative advantage substantially explain variation in global success

Model	Country variance	Est.Error	Variance explained
Country	1.18	0.12	0.00
Country + prior hits	0.70	0.07	0.41
Country + genre cluster	0.78	0.10	0.34
Country + all	0.43	0.06	0.63

- Country variance is the standard deviation of the country random effect
- Variance explained is the reduction in country random effect variance relative to the country-only model in the first line

Conclusions

A bipartite artist-genre network approach produces meaningful genre clusters/communities

- In this case, performs better than one-mode projection
- Avoids ad hoc decisions like picking the most common genre

These genre clusters contribute substantially to explaining the uneven global success of artists from/based in different countries.

Results qualify Wimmer's domains of diffusion:

- North American/anglophone dominance still very strong
- Regional niches (Latin American genres, K-pop) exist, but the global music landscape is not made up of regional niches.

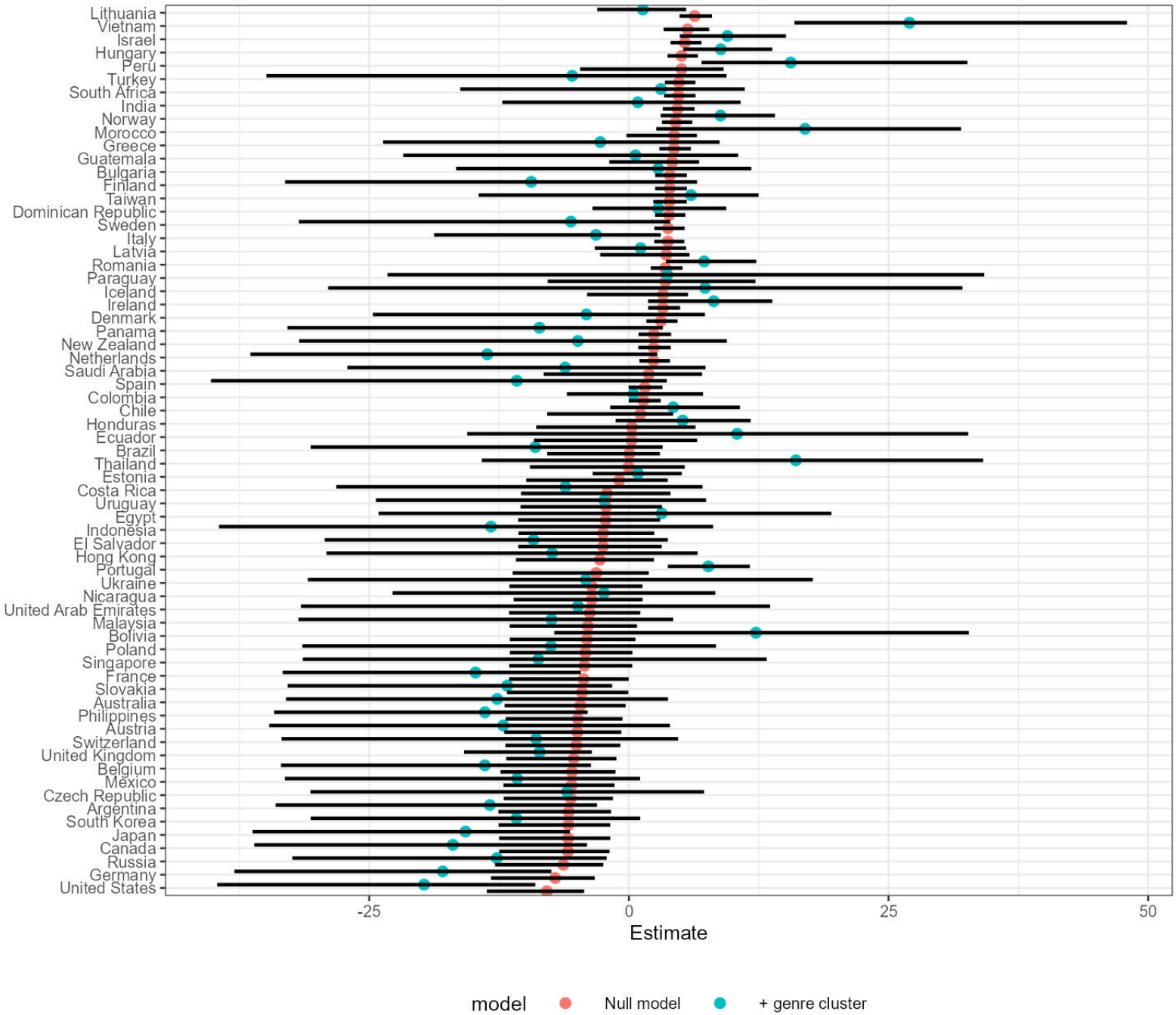
Thank you!

Questions/suggestions: tod.van.gunten@ed.ac.uk

Research supported by the Creative Informatics Programme (University of Edinburgh and Edinburgh Napier University): `creativeinformatics.org/`

And the Centre for Data, Culture and Society: `cdcs.ed.ac.uk/`

supplementary slides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Vietnam
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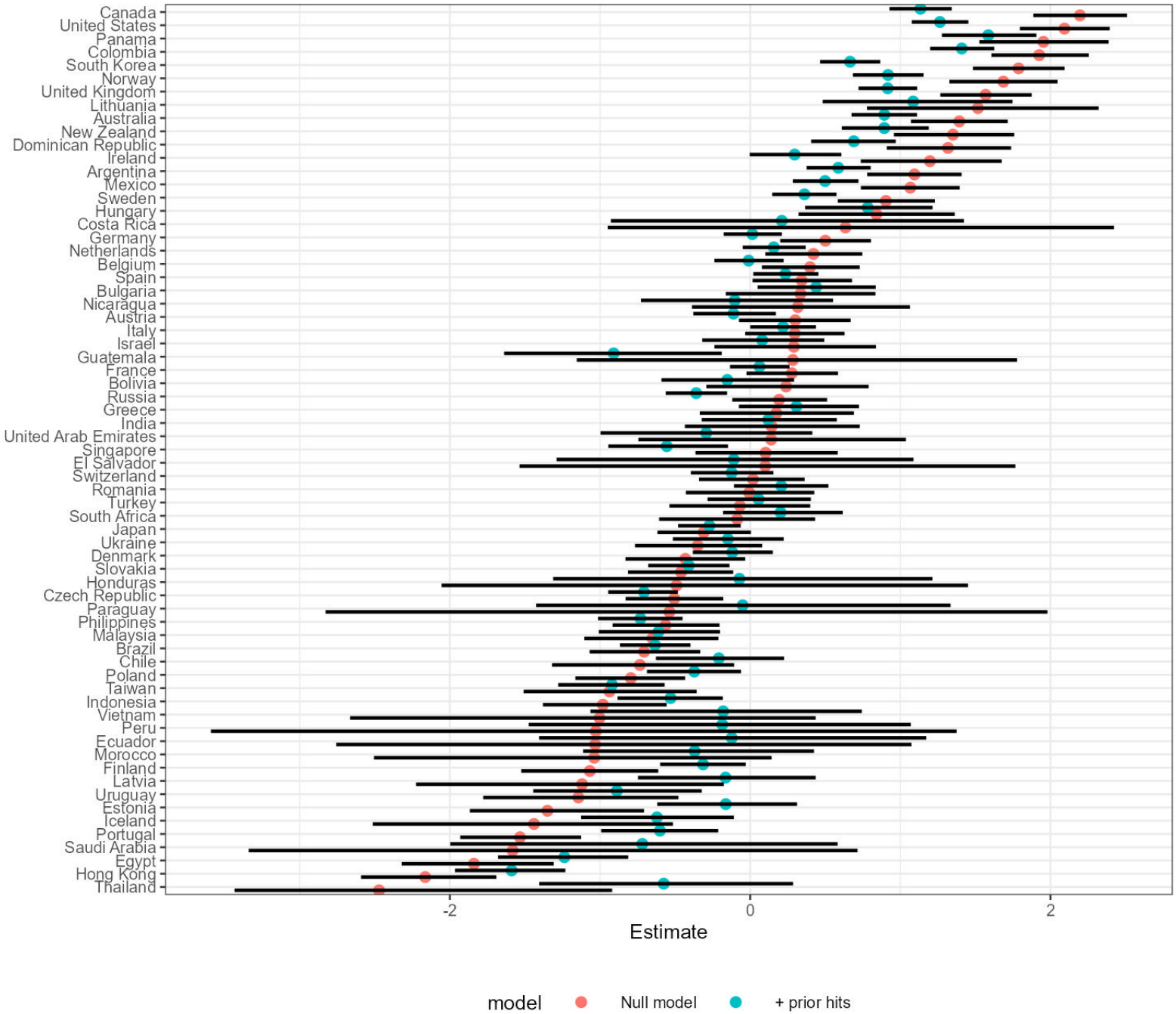
Estimate
model
Null model
+ genre cluster


Country intercepts, count: null versus cumulative advantage model
Zero-inflated negative binomial estimates
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Estimate
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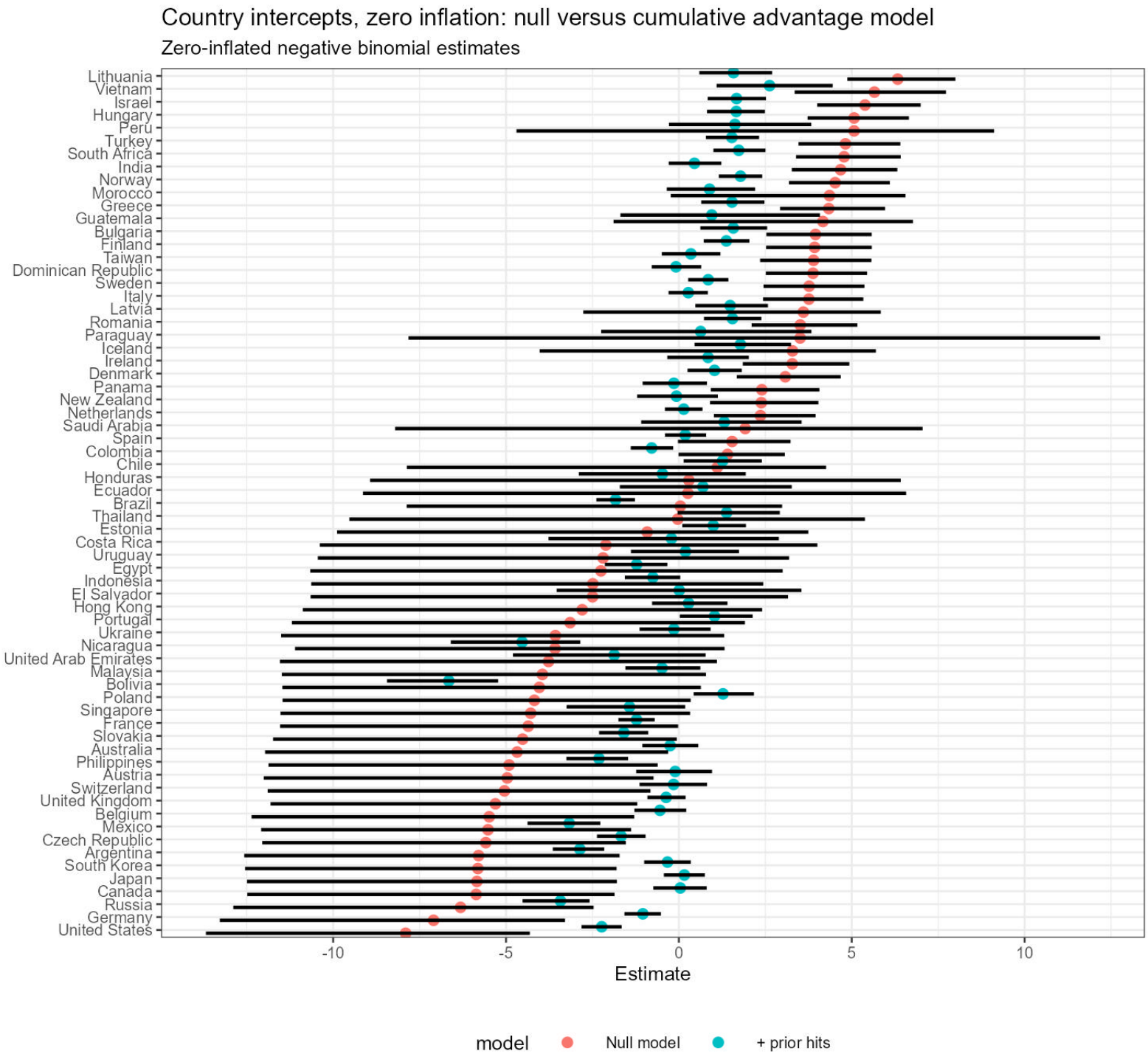
Null model
+ prior hits


Country intercepts, zero inflation: null versus cumulative advantage model
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