1 Introduction

Behavior in economic games is not only noisy. One has reason to believe that heterogeneity is patterned. However, the composition of the type space is neither theoretically nor empirically settled. We use simulation to understand what can be achieved with clustering. Subsequently, we apply the approach to a large (n = 12,414) set of experimental data points from public good games.

2 The Public Good Game

3 Simulation

- types t: short-, and far-sighted freerider, conditional cooperator, hump shaped, altruist
- 70 group combinations N
- sample size s
- individual specific error η
- 6s × N · 4η · 4σ · 3ω · 3γ · 16k = 4608 variations

4 Clustering

- bivariate time-series input:
  - residual error σ
  - time warping window μ
  - dtw smoothing parameter γ
- number of clusters k
- 25<ssw<10, averaging 7 cluster validation indices

5 Clustering

- bivariate time-series input:
  - algorithm α: partitioning
  - distance measure d: sDTW
  - centroid ζ: DBA

6 Clusters are not Types

The algorithm clusters patterns of observed contributions, combined with patterns of observed. There is no one-to-one mapping of 5 patterns to 5 types.

7 Experimental Data

<table>
<thead>
<tr>
<th>Study</th>
<th>Periods</th>
<th>Endowment</th>
<th>Group Size</th>
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<tbody>
<tr>
<td>Diederich et al. (2016)</td>
<td>7</td>
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<td>Nikiforakis et al. (2008)</td>
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<td>Engel et al. (2020)</td>
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<td>Kosfeld et al. (2009)</td>
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8 Results

The prototypes differ profoundly between the subsets by period. The typespace is not only richer than extant behavioral theory; it is also conditional on the context defined by the respective experimental protocol.

References