

# Identification and Efficiency Bounds for Social Interaction Models with Network Structures

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## Abstract

This paper derives efficiency bounds for linear social interaction models with network structures under incomplete information, where an agent's outcome is affected by the predicted outcomes of others rather than the realized outcomes. While existing studies assume non-singularity of the information matrix appearing in the efficiency bound, primitive conditions ensuring this property have not been established. We show that the identification condition is sufficient to guarantee non-singularity. Because the identification condition is verified based on the observed network structures, non-singularity is easily verified in practice.

**Keywords:** efficiency bounds, social interactions, network structures, identification  
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