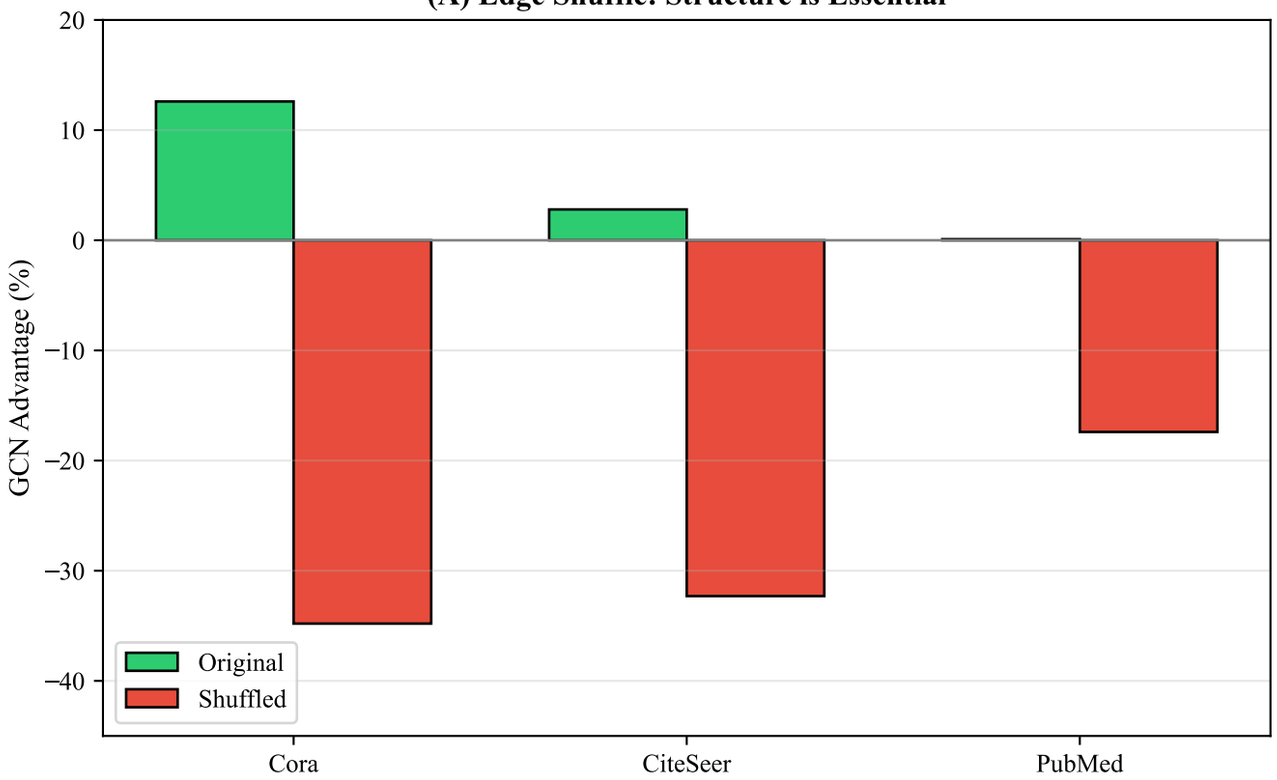

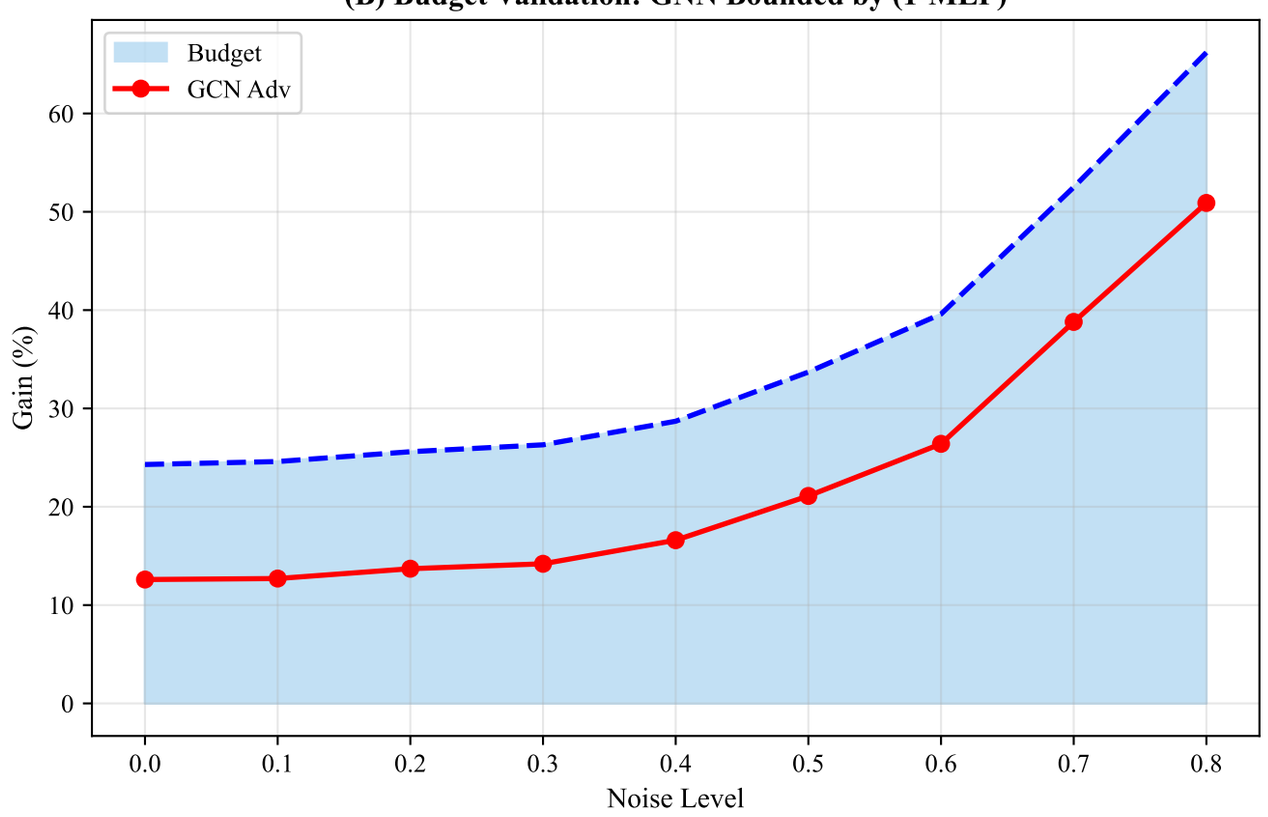

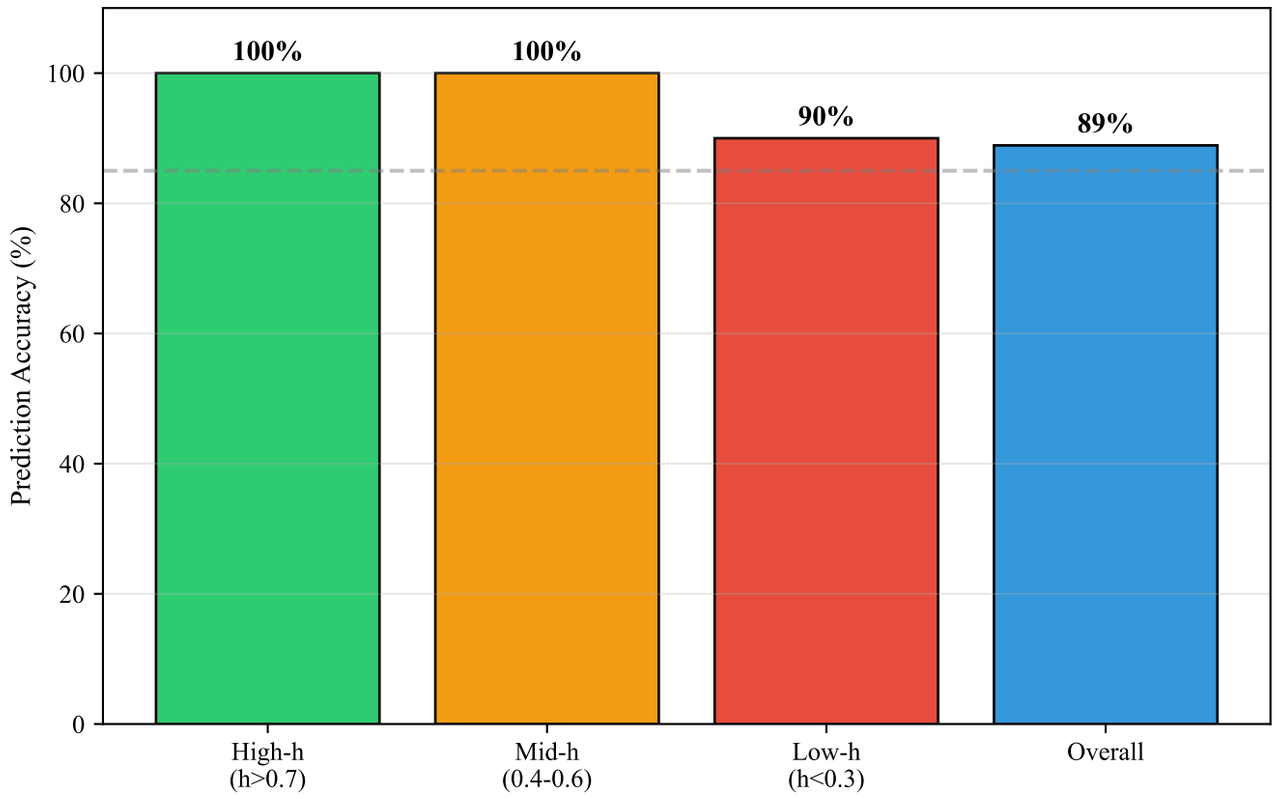


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INFORMATION BUDGET THEORY - EVIDENCE SUMMARY
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Core Principle:
  GNN_max_gain ≤ (1 - MLP_accuracy)

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EXPERIMENT RESULTS:

1. EDGE SHUFFLE
   ✓ Cora: +12.6% → -34.8% (structure essential)
   ✓ 3/3 datasets confirm causality

2. BUDGET VALIDATION
   ✓ 9/9 noise levels within budget
   ✓ No violations observed

3. SAME-h DIFFERENT-MLP
   ✓ 7/7 pairs support hypothesis
   ✓ Key: Cora vs Coauthor-CS (same h=0.81)

4. CSBM FALSIFIABLE PREDICTION
   ✓ 88.9% overall accuracy (32/36)
   ✓ 100% on high-h and mid-h regions

5. SYMMETRIC TUNING
   ✓ MLP gain: +1.4%, GNN gain: +1.8%
   ✓ Fair comparison confirmed

6. EXTERNAL VALIDATION
   ✓ 77.8% accuracy on 9 new datasets
   ✓ Generalizes beyond synthetic data

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CONCLUSION: Theory has predictive power,
not just post-hoc explanation.
```