Trade 2010 (Host: Japan)

United States (20) Japan (29)
Australia (13)
Philippines (4)
China (6)

Trade 2011 (Host: United States)

China (25) United States (25)
Viet Nam (7) Russia (8)
Japan (17)

Trade 2014 (Host: China)

Viet Nam (18)
China (23) Korea (11)
Australia (15)
Hong Kong, China (5)
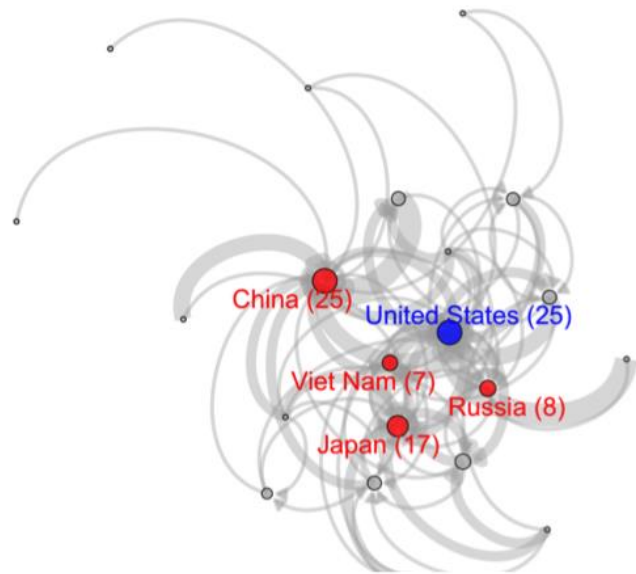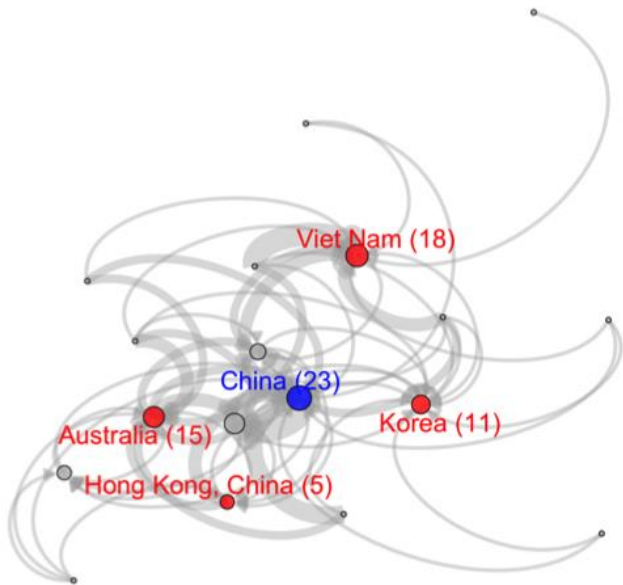
Trade 2015 (Host: Philippines)

Philippines (7) Japan (25)
Peru (32)
Viet Nam (20)
Korea (7)
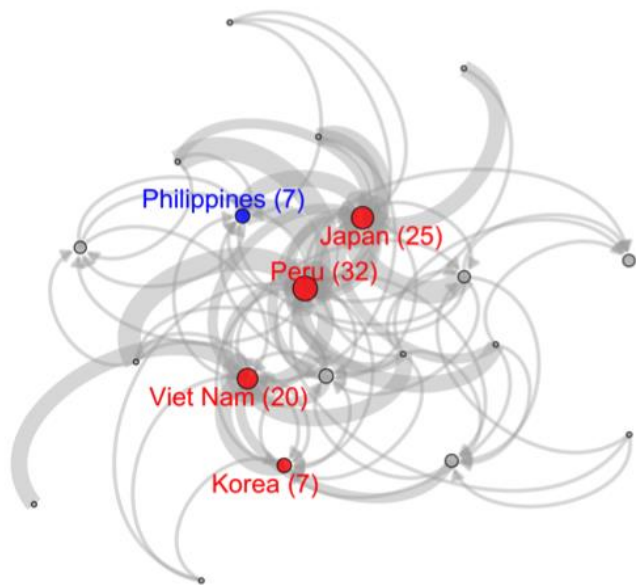
Concert of Europe Alliance in 1815 (Balancing Alignment)

Nodes: 16 | Ties: 140 | Density: 0.583 | Clustering: 0.879 | Centralization: 0.817
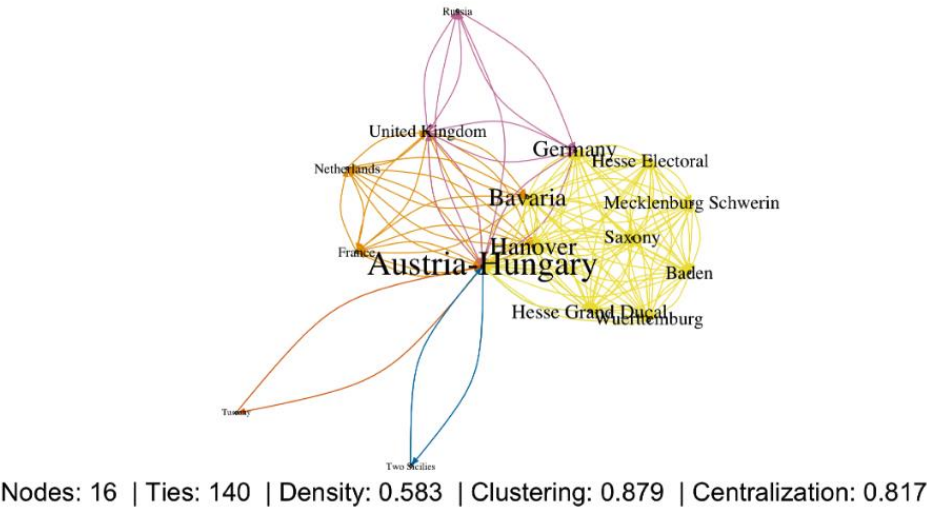
(a) Concert of Europe, 1815

Cold War Alliances in 1955 (Bandwagoning Alignment)

Nodes: 70 | Ties: 1454 | Density: 0.301 | Clustering: 0.882 | Centralization: 0.67
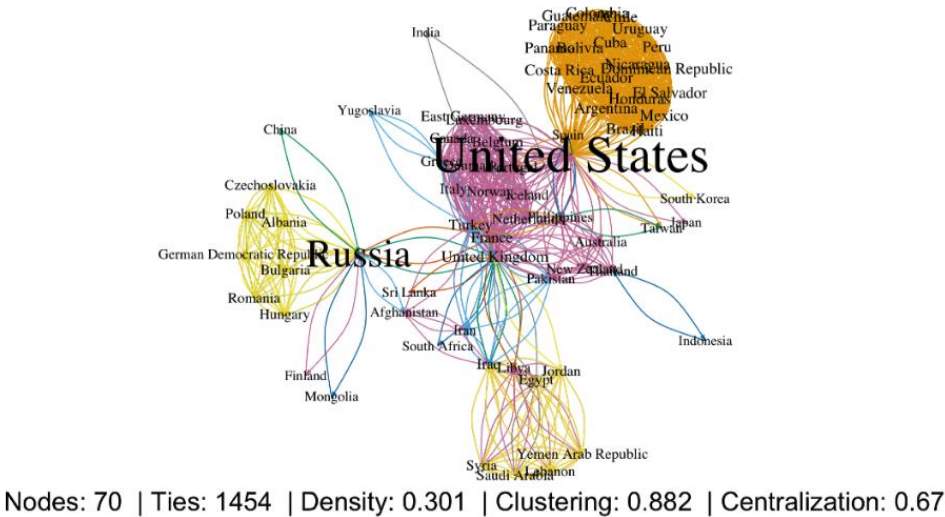
(b) Cold War, 1955

Strategic Hedging: ASEAN, China & US Treaty Network (1991–2001)

Nodes: 12 | Ties: 106 | Density: 0.803 | Clustering: 0.939 | Centralization: 0.379
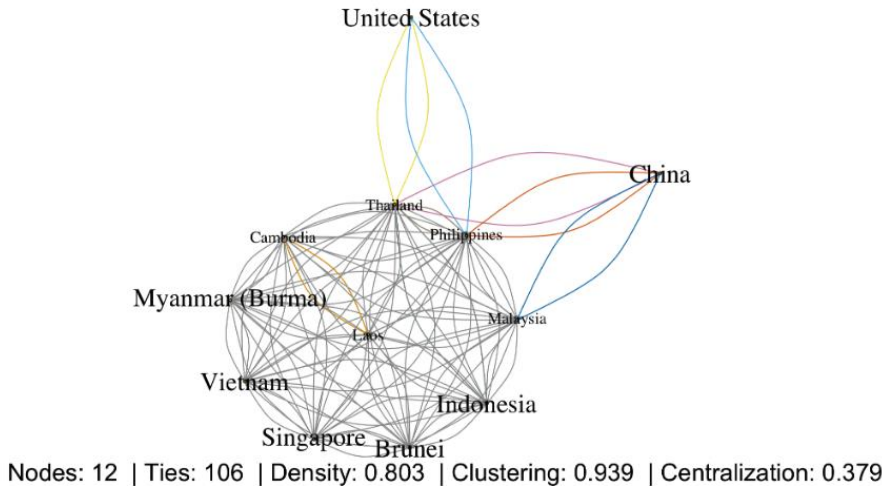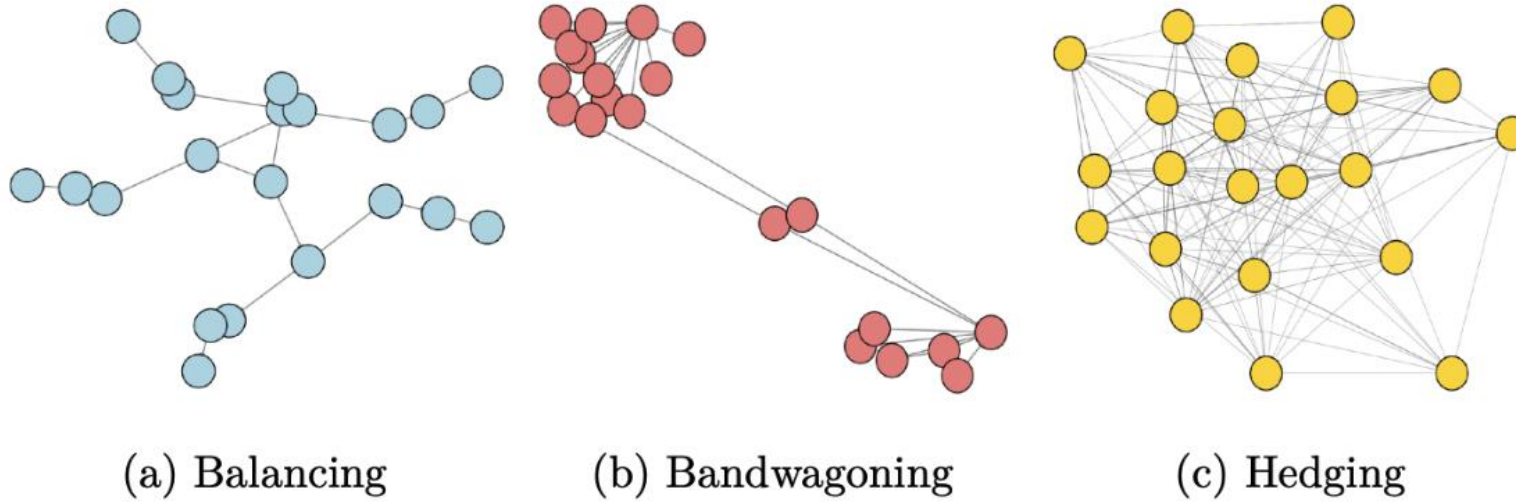
(c) ASEAN–US–China, 1991–2001

Table 2: Network Properties of Strategic Alignment Strategies

Strategy	Density	Clustering	Centralization
Balancing	→	↑	↓
Bandwagoning	↓	↓/→	↑
Hedging	↑	↓/→	→

Note: ↑ = high, → = moderate, ↓ = low.

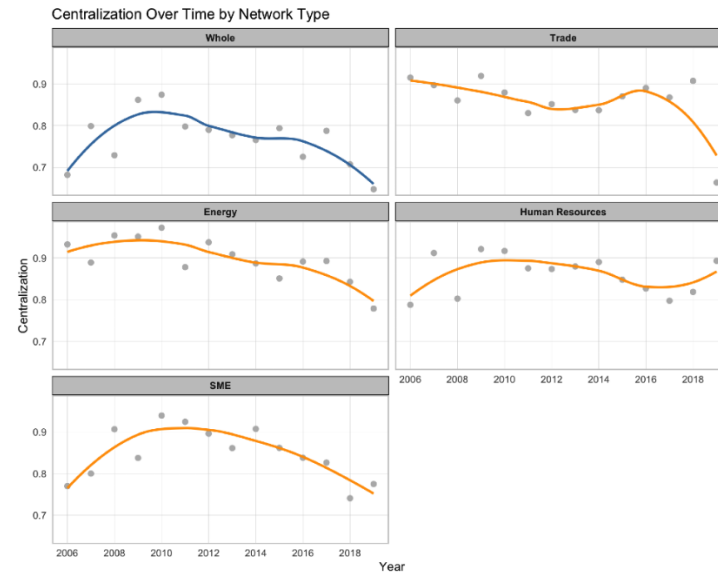(a) Balancing   (b) Bandwagoning   (c) Hedging

**Figure 11:** *Illustration of three network topologies.*
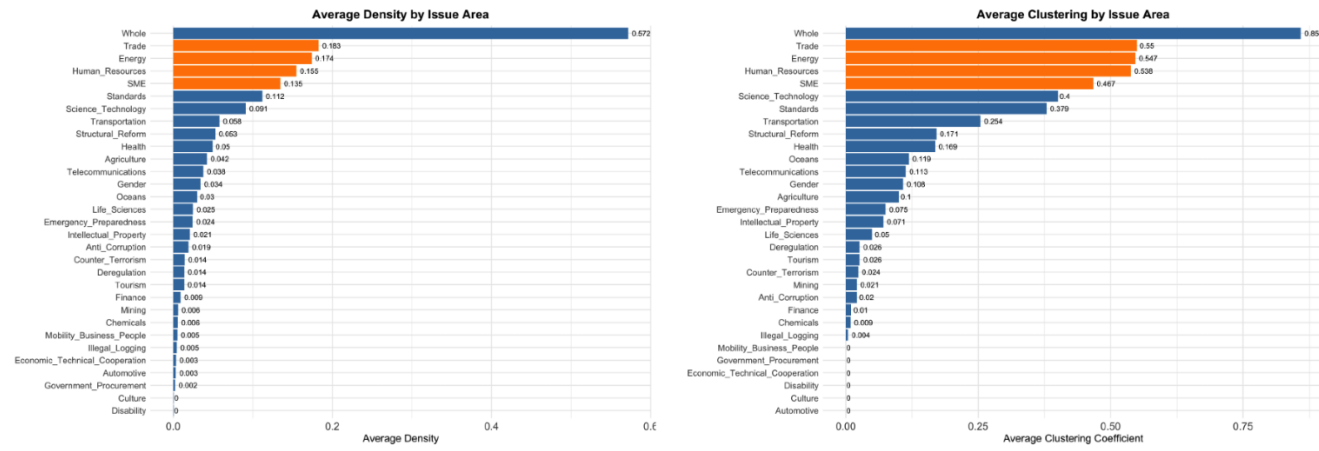
(a) Density

(b) Clustering
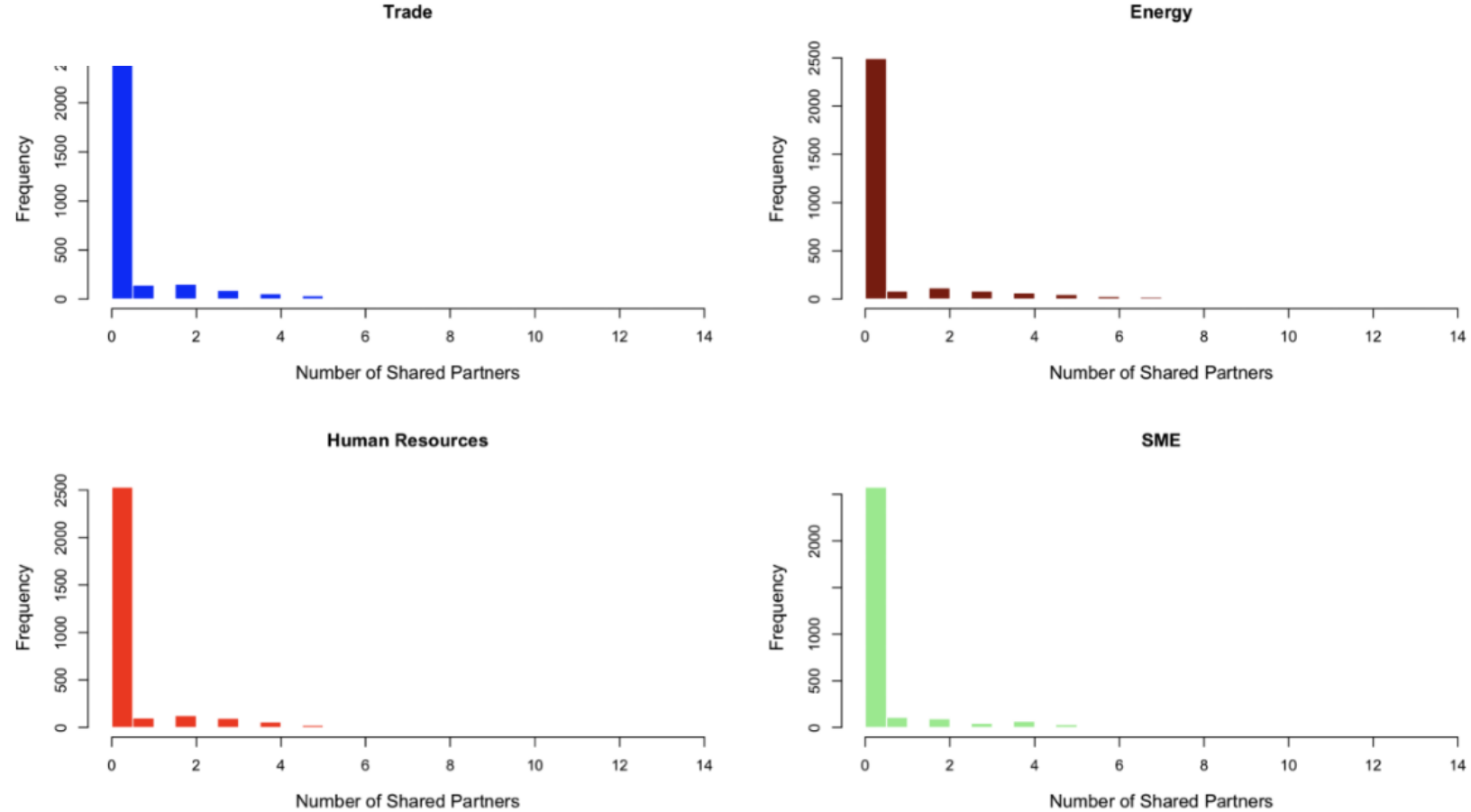
(c) Centralization

Figure 12: *Summary of APEC's structural properties across four major issue areas. Panels (a) and (b) show consistently* **low density** *and* **moderate clustering***, while panel (c) shows persistently* **high centralization***. Together, these features match a* **bandwagoning alignment***, with cooperation concentrated around a small set of influential economies.*
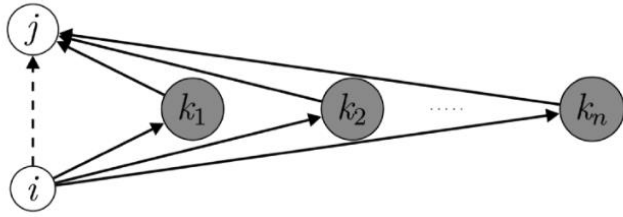
Figure 14: *Distribution of transitive shared partners across APEC issue areas. Most dyads exhibit zero or very few intermediaries forming closed triads, indicating sparse transitive clustering and selective, hierarchical cooperation centered on influential members rather than broad multilateral coordination.*
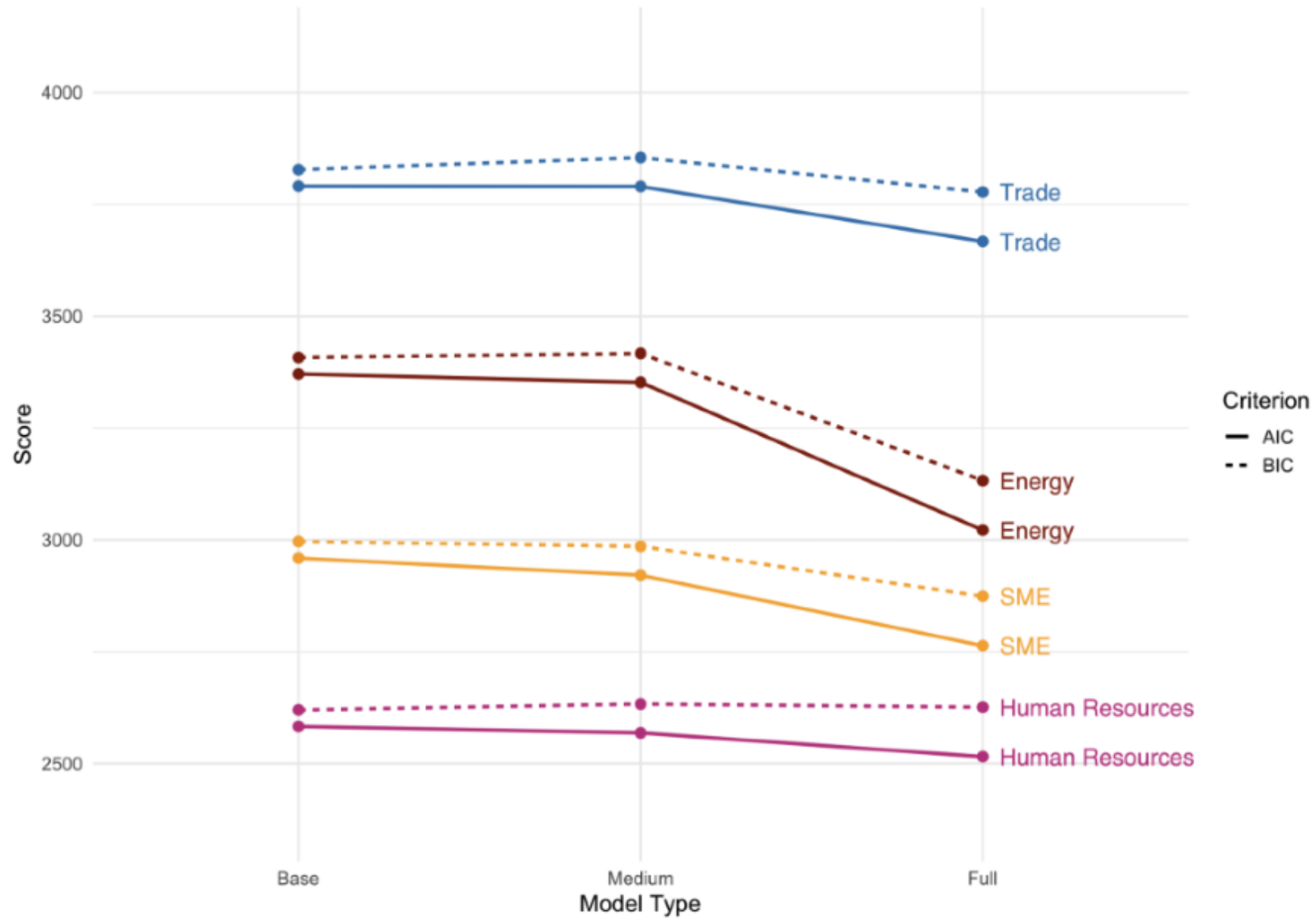
TERGM Results
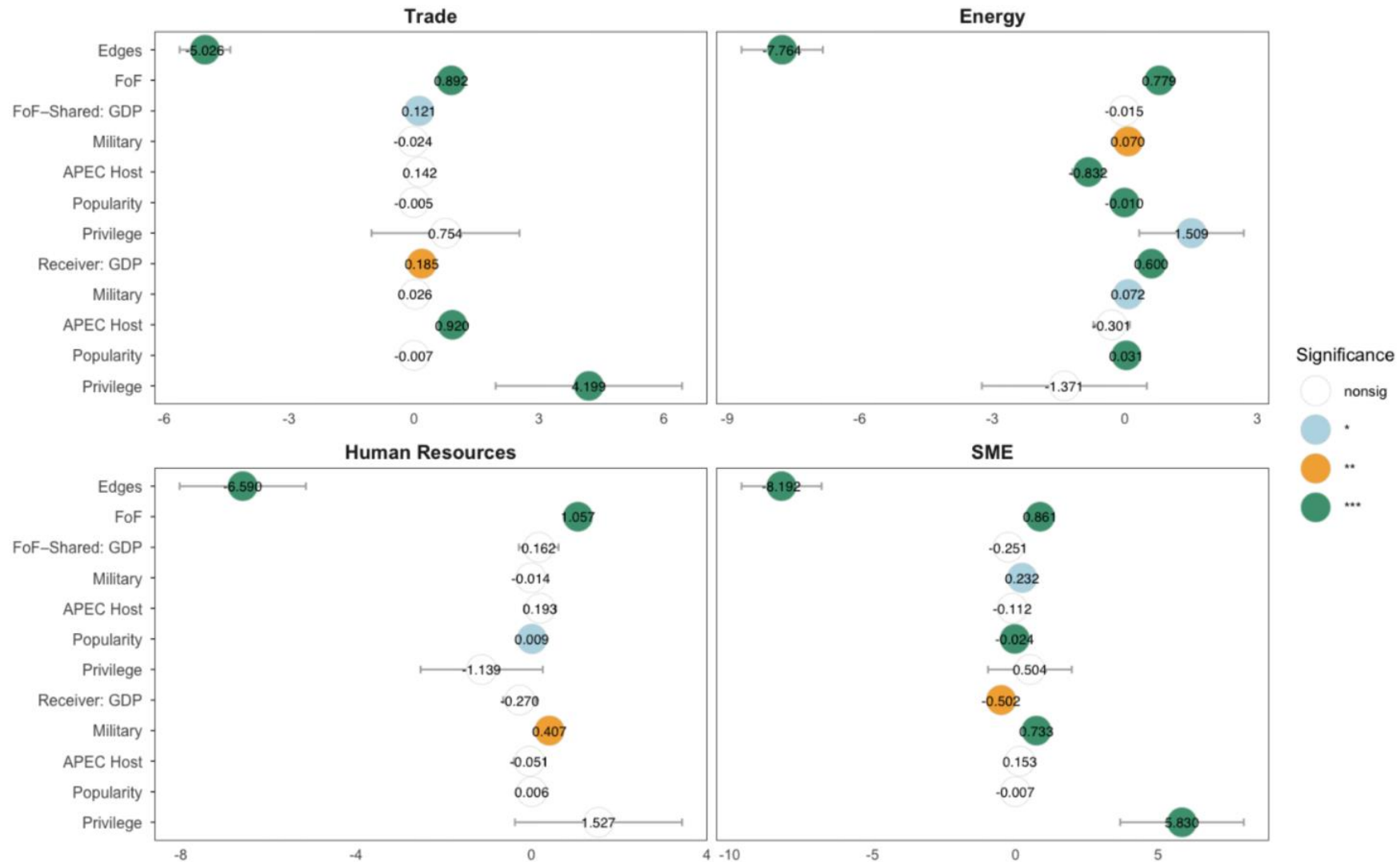
Table S3.1: Summary of All TERGM Model Specifications

| Model	Model Components	Description
Base	`edges, mutual` `gwesp(0.5, fixed=TRUE)` `edgecov(''shared_k_gdp'')`, `edgecov(''shared_k_military'')`	Including structural dependencies, reciprocity, friend-of-friend clustering (`gwesp` term in ERGM), and shared partner attributes capturing material power (*GDP* and *Military Expenditure*). Baseline test of attribute-conditioned transitivity.
Medium	- All components of the Base Model `edgecov(''shared_k_host'')` `edgecov(''shared_k_strength'')` `edgecov(''shared_k_pagerank'')`	Adding shared partner covariates of friend-of-friend alignment capturing network institutional power (APEC host), popularity (`in-degree strength`), and privilege (`PageRank`) to assess relational forms of power in transitive closure.
Full	- All components of the Medium Model `nodeicov(''gdp'')` `nodeicov(''military'')` `nodeifactor(''host'')` `nodeicov(''strength.in'')` `nodeicov(''pageRank'')`	Incorporating actor-level attributes effects to evaluate how material, institutional, and network centrality power at the receiver level influence co-sponsorship. Comprehensive operationalization of the theoretical model.

Figure S4.1: *Comparison of TERGM estimates across model specifications (base, medium, and full). The results show that the full model in all issue areas outperform the medium and baseline models.*
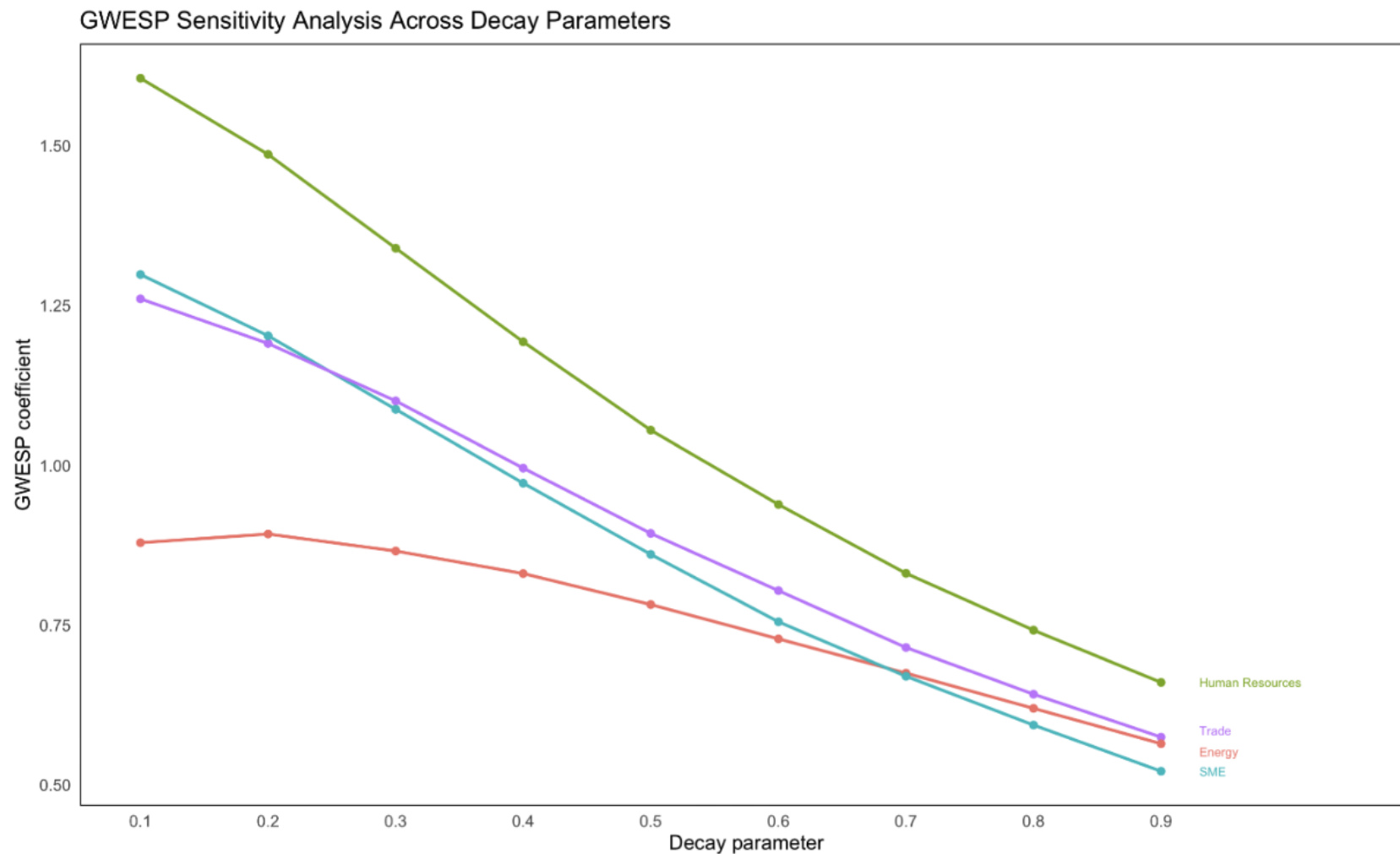
Figure S4.2: *Sensitivity analysis of the GWESP (friend-of-friend closure) term across decay parameters (0.1–0.9) for all four issue areas. Across domains, the GWESP coefficient remains positive and declines smoothly as decay increases, indicating that stronger weighting of higher-order shared partners (lower decay) produces larger FoF effects. The consistent positive values across the full decay range demonstrate the robustness of FoF clustering as a core structural mechanism in APEC's co-sponsorship networks.*
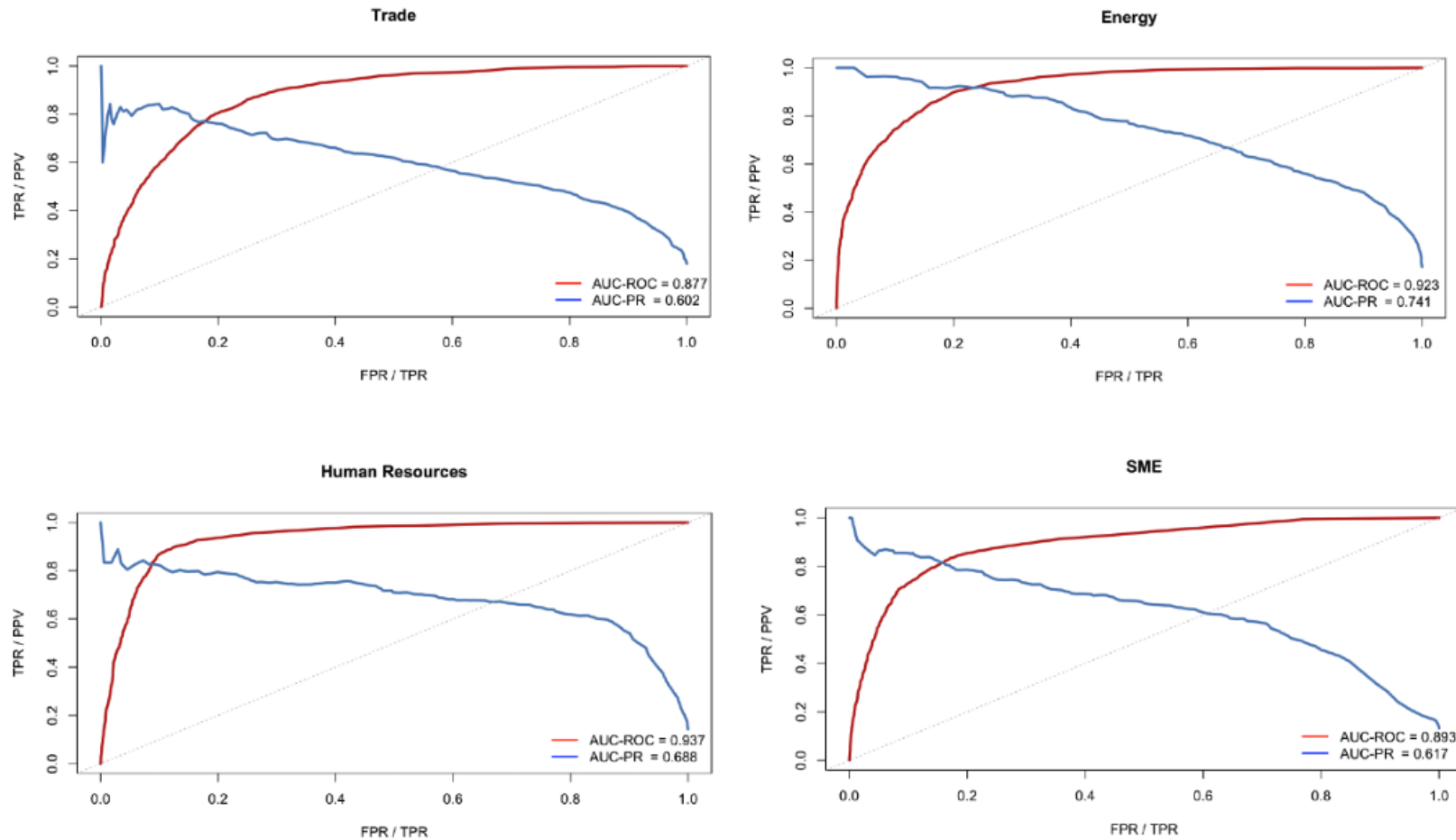
Figure S4.4: *Out-of-sample predictive performance of TERGM models via terminal-year predictive check (2019). Each subplot shows ROC curves (in red) and Precision–Recall (PR) curves (in blue) for one issue area, with models trained on 2007–2018 data. The ROC curve plots the true positive rate (TPR) against the false positive rate (FPR), providing an overall measure of discrimination, though it may overstate performance under class imbalance. In contrast, the PR curve plots precision against recall (TPR), offering a more sensitive evaluation in sparse networks where true ties are rare. All four issue areas exhibit high AUC-ROC scores (above 0.88), indicating strong general discriminative performance. Moreover, AUC-PR values exceed 0.61 across all domains, substantially outperforming the expected baselines implied by low network density (below 0.2), confirming the model's predictive validity under imbalanced conditions.*