Approximate subgraph count in community affiliation network

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Community affiliation network G on n vertices is a union of m independent Bernoulli random graphs $G(x_i, q_i)$ of various sizes x_i and edge densities q_i, $i = 1, \dots, m$. We are interested in counting small dense subgraphs of G in the parametric regime, where G admits an asymptotic degree distribution and nonvanishing clustering coefficient. Let F be a biconnected balanced graph on v vertices. Given integer s, we sample s vertices uniformly at random. Let t be the number of copies of F incident to the set of sampled vertices. We show that $tn/(vs)$ is a consistent estimator of the total number of copies of F in G as m, n, s tend to infinity. We also show the asymptotic normality and discuss the consistency of the sample variance.