

DREXEL ANALYSIS SEMINAR

June 2, 2023

12-1 PM, Korman 245

Speaker: Austin Jacobs (University of Florida)

Title: The geometry of inconvenience and perverse equilibria in trade networks

Abstract: Why is the structure of international trade so often partitioned? What are the consequences of such trade structures? We consider the impact of the structure of international trade, drawing upon the freeness-of-trade matrix, which allows the modeling of N -state trade relationships. A freeness-of-trade matrix is the entrywise negative exponential of a pseudo-metric. Such matrices arose in an economics model analyzed by Krugman for two countries and Mossay and Tabuchi in general, where they essentially proved that if a freeness-of-trade matrix is positive definite, then the corresponding model admitted a unique equilibrium. (This is always true in the case of four countries.) We observe that Schoenberg's theorem on infinitely divisible kernels gives that if the underlying metric is of negative type, then the corresponding freeness-of-trade matrix is positive semi-definite. We prove that the Mossay-Tabuchi freeness-of-trade model often admits nonunique, perverse, equilibria. We provide a family of bipartite examples, with substantive applications to economic sanctions. In time allows, we draw upon the bargaining and contest over rent seeking literature to comment on how such structures may arise and persist.

This is joint work with Michael Coopman, Henry Pascoe and James Eldred.