



## ΚΥΚΛΟΣ ΣΕΜΙΝΑΡΙΩΝ ΣΤΑΤΙΣΤΙΚΗΣ ΜΑΪΟΣ 2018

**Nial Friel**

*School of Mathematics and Statistics, University College Dublin*

### **Interlocking directorates in Irish companies using a latent space model for bipartite networks**

ΠΕΜΠΤΗ 10/5/2018  
13:15

**ΑΙΘΟΥΣΑ T103, 1ος ΟΡΟΦΟΣ,  
ΝΕΟ ΚΤΙΡΙΟ ΟΠΑ (ΤΡΟΙΑΣ 2)**

#### **ΠΕΡΙΛΗΨΗ**

We analyze the temporal bipartite network of the leading Irish companies and their directors from 2003 to 2013, encompassing the end of the Celtic Tiger boom and the ensuing financial crisis in 2008. We focus on the evolution of company interlocks, whereby a company director simultaneously sits on two or more boards. We develop a statistical model for this dataset by embedding the positions of companies and directors in a latent space. The temporal evolution of the network is modeled through three levels of Markovian dependence: one on the model parameters, one on the companies' latent positions, and one on the edges themselves. The model is estimated using Bayesian inference. Our analysis reveals that the level of interlocking, as measured by a contraction of the latent space, increased before and during the crisis, reaching a peak in 2009, and has generally stabilized since then.



## **AUEB STATISTICS SEMINAR SERIES MAY 2018**

**Nial Friel**

*School of Mathematics and Statistics, University College Dublin*

### **Interlocking directorates in Irish companies using a latent space model for bipartite networks**

**THURSDAY 3/5/2018  
13:15**

**ROOM T103, 1<sup>st</sup> FLOOR,  
NEW AUEB BUILDING (TROIAS 2)**

#### **ABSTRACT**

We analyze the temporal bipartite network of the leading Irish companies and their directors from 2003 to 2013, encompassing the end of the Celtic Tiger boom and the ensuing financial crisis in 2008. We focus on the evolution of company interlocks, whereby a company director simultaneously sits on two or more boards. We develop a statistical model for this dataset by embedding the positions of companies and directors in a latent space. The temporal evolution of the network is modeled through three levels of Markovian dependence: one on the model parameters, one on the companies' latent positions, and one on the edges themselves. The model is estimated using Bayesian inference. Our analysis reveals that the level of interlocking, as measured by a contraction of the latent space, increased before and during the crisis, reaching a peak in 2009, and has generally stabilized since then.