



Introduction to Clusters

Presentation for Tech Policy

Andy Hira

Simon Fraser University

Why Clusters? Foundations

- Observations: Milan, NY, Silicon Valley
 - Marshallian Districts
- Lindert trade
- Collective goods
- Flexible Specialization “hierarchies vs. networks”
 - Horizontal vs. vertical agglomeration
- SIS
- Regional policies
- Creative class
- Soc K
- VCs, Angels

Cluster configurations

- Hub spoke (Detroit)
- Horizontal (Silicon Valley) “Italianate”
- Node-network (Napa)
- Satellite (maquiladoras)
- What does Iбата-Arens find in terms of hubs?
 - “Who, where, how”
- Methods: GIS, surveys, resource measures
 - *What types of q.s would you ask?
 - What could these types of methods tell you?
 - What would they miss? *Canada survey

Cluster Life-cycle

- Birth & death of clusters historically observed (shoes, textiles, steel in various parts of N America)
- Many experiments in trying to foster clusters
- Can clusters stifle entrepreneurship and flexibility?
- Do clusters increase vulnerability?

Greater Washington Bioscience Resources

Colleges and Universities with Medical or Bioscience Programs

- 1 American University
- 2 Bowie State University
- 3 The Catholic University of America
- 4 Eastern Virginia Medical School
- 5 Gallaudet University
- 6 George Mason University
- 7 George Mason University Center for Biodefense and Biocontainment Lab
- 8 The George Washington University Medical Center
- 9 The George Washington University - Virginia Campus
- 10 Georgetown University Medical Center
- 11 Hood College
- 12 Howard University Medical School
- 13 Johns Hopkins University Applied Physics Lab
- 14 Johns Hopkins University Montgomery County Campus
- 15 Johns Hopkins University School of Medicine
- 16 Marion duPont Scott Equine Medical Center
- 17 Shenandoah University, Dept. of Pharmacogenomics
- 18 St. Mary's College of Maryland
- 19 University of Maryland at College Park
- 20 University of Maryland Biotechnology Institute

Federal Laboratories

- 21 Defense Advanced Research Projects Agency (DARPA)
- 22 Food and Drug Administration
- 23 Ft. Detrick
- 24 NASA Goddard
- 25 National Institute for Standards in Technology
- 26 National Institute of Human Genome Research
- 27 National Institutes of Health
- 28 National Science Foundation
- 29 Naval Medical Research Center
- 30 Office of Naval Research
- 31 U.S. Department of Defense: Research & Engineering
- 32 U.S. Department of Energy
- 33 USDA Agricultural Research Service
- 34 Virginia Department of Forensic Science
- 35 Walter Reed Army Institute of Research
- 36 Walter Reed Army Medical Center

Largest Bioscience Companies

- 37 Advanis Pharmaceutical
- 38 Cambrex BioScience
- 39 Celera Genomics
- 40 Digene
- 41 DyniPort Vaccine Company
- 43 Fisher Scientific
- 44 Gene Logic
- 45 Human Genome Sciences
- 46 Invitrogen
- 47 Martek Biosciences
- 48 Mediatech, Inc.
- 49 Medimmune
- 50 Meso Scale Diagnostics
- 51 Nabi Biopharmaceuticals
- 52 Otsuka American Pharmaceutical, Inc.
- 53 Glogen

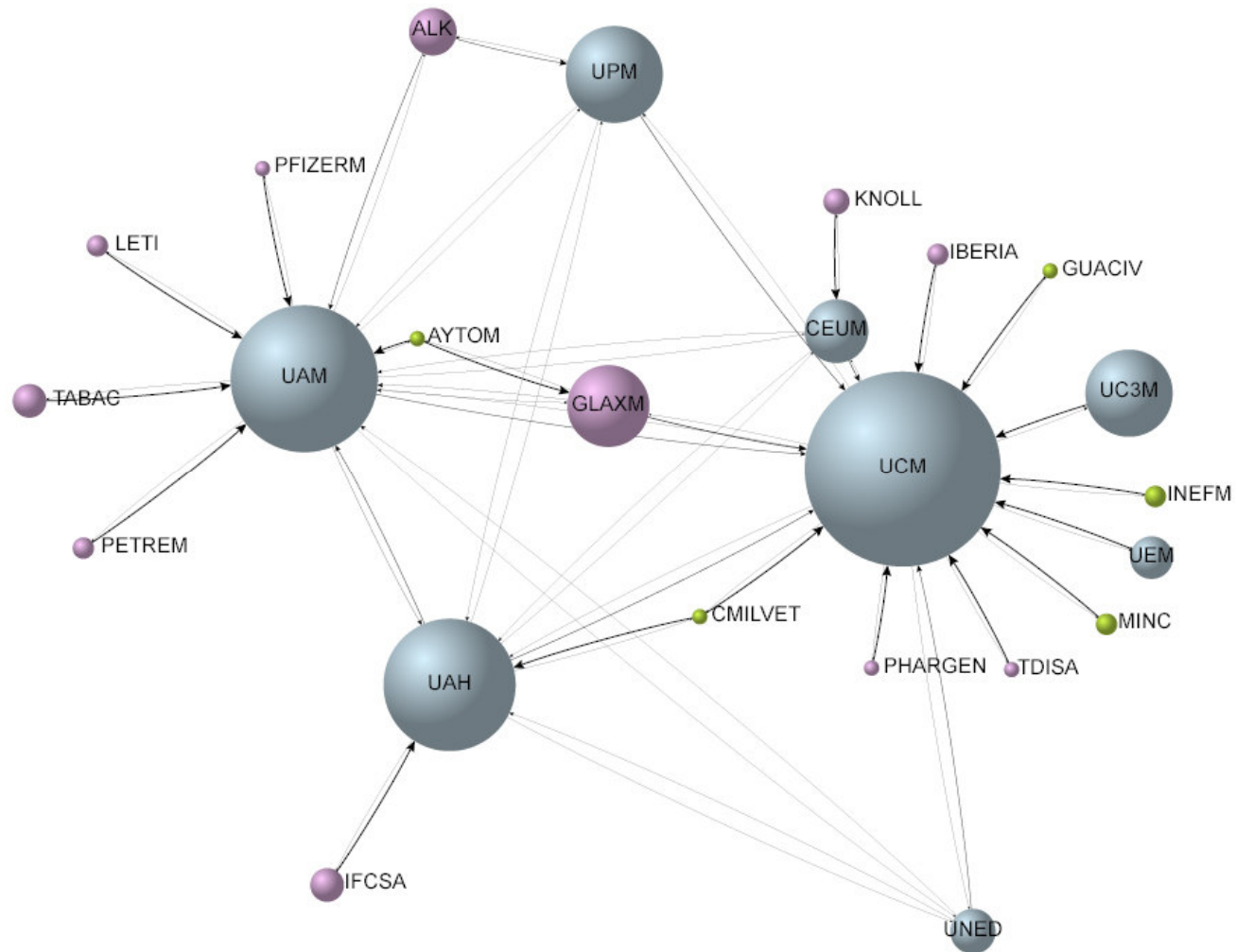
Nonprofit Research Facilities

- 54 American Red Cross Holland Laboratory
- 55 American Type Culture Collection
- 56 Draper Laboratory
- 57 Henry M. Jackson Foundation for the Advancement of Military Medicine
- 58 Howard Hughes Medical Institute
- 59 Howard Hughes Medical Institute, Janella Farm Research Campus
- 60 Inova Institute of Research and Education
- 61 National Cancer Institute
- 62 RAND Corporation
- 63 The Institute for Genomic Research
- 64 U.S. Pharmacopeia

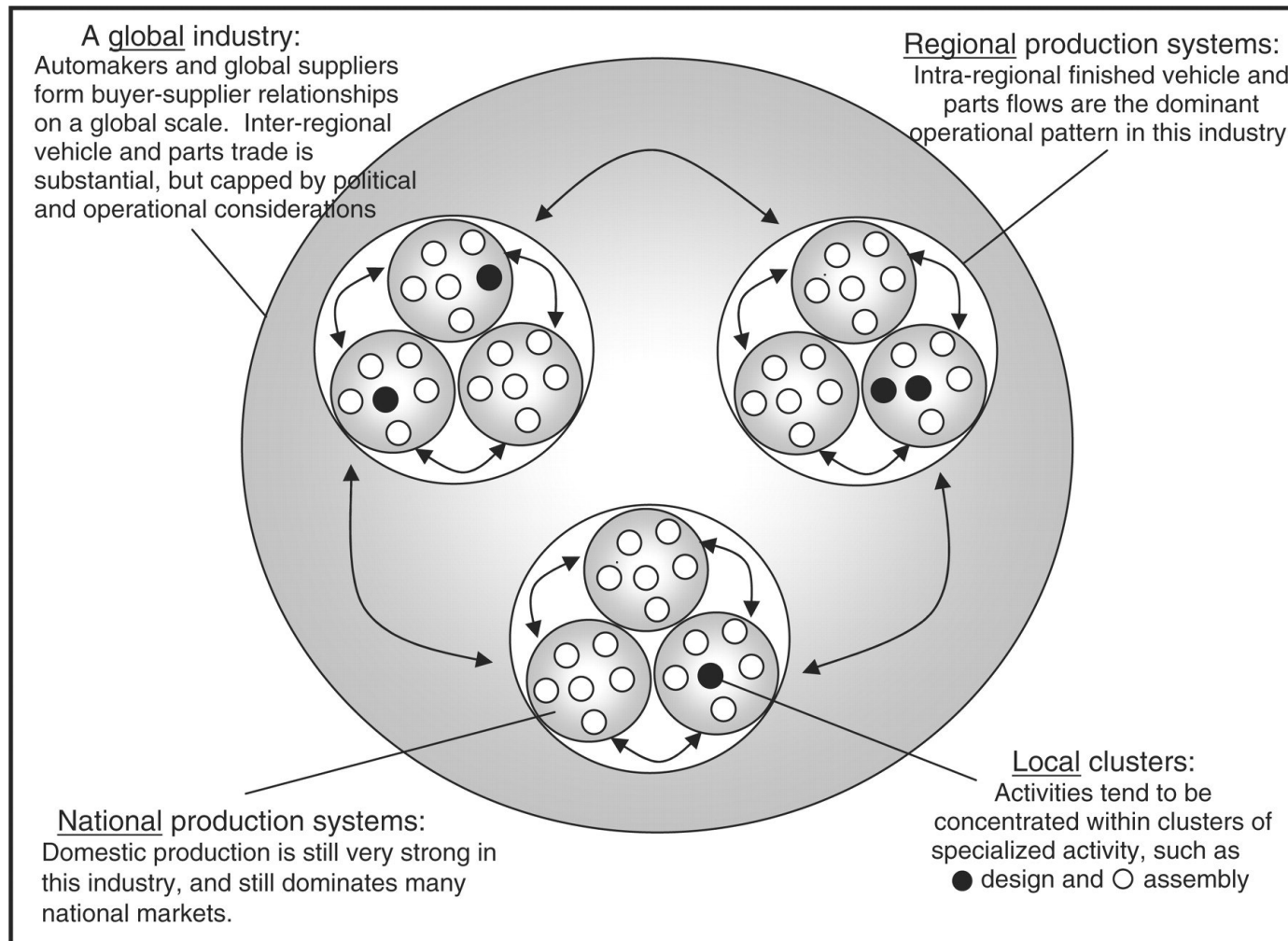


- University
- Enterprise
- Government

MOLECULAR, CELLULAR AND GENETIC BIOLOGY. COMMUNITY OF MADRID (1995-1999)
 Structure of the University-Government-Enterprise Asymmetric Cooperation Network



The nested geographic and organizational structure of the automotive industry



Sturgeon, T. et al. *J Econ Geogr* 2008 0:lbn007v1-7; doi:10.1093/jeg/lbn007

Qs for Discussion

- So, what really is a cluster?
 - Why would firms locate next to competitors?
 - Why are there clusters in some places but not others?
 - What kinds of products lend themselves to clustering? Which don't?
- What clusters should be targeted?
 - What are appropriate policy instruments and when should they be used? What determines success?
- Does globalization change this?