



Agglomeration and Innovation: Across Industries and Geographical Scales



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Introduction

This research compares the effect of agglomeration on innovation across **34 groups of interrelated industries** as defined by Delgado, Porter, and Stern (2014) and searches for their **optimal spatial scales** that maximize such effect.

Focusing on the state of Maryland, 2004-2013, I find that

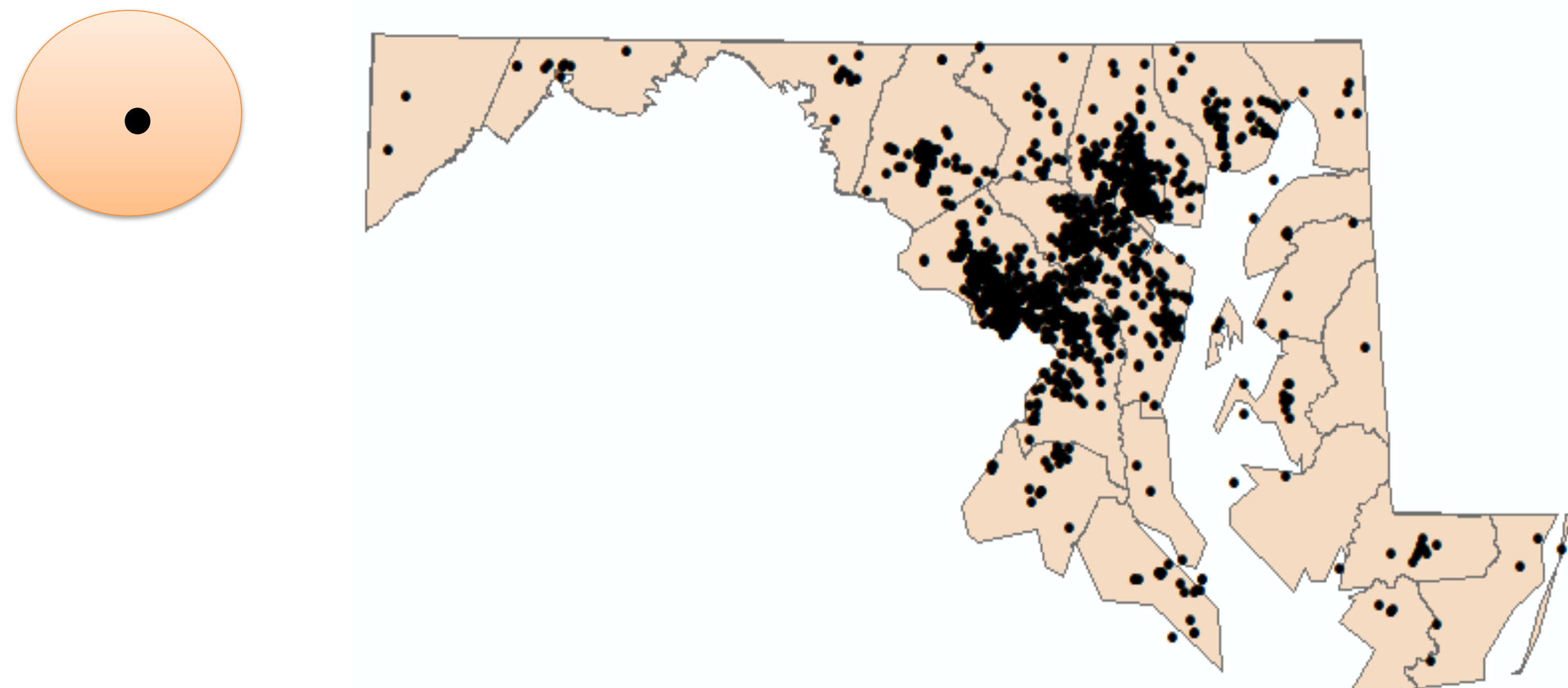
- The effect of agglomeration on innovation varies significantly across industries.
- The optimal scale of agglomeration is one mile in radius for most industries.

Data

Match two datasets for the state of Maryland, 2004-2013:

- 1.5m establishment data from Quarterly Census of Employment and Wages
- 10,355 Patent data (with citation) from United States Patent and Trademark Office

A firm is defined as locating in agglomerations if employment density in related industries is above median in a buffer around this firm.



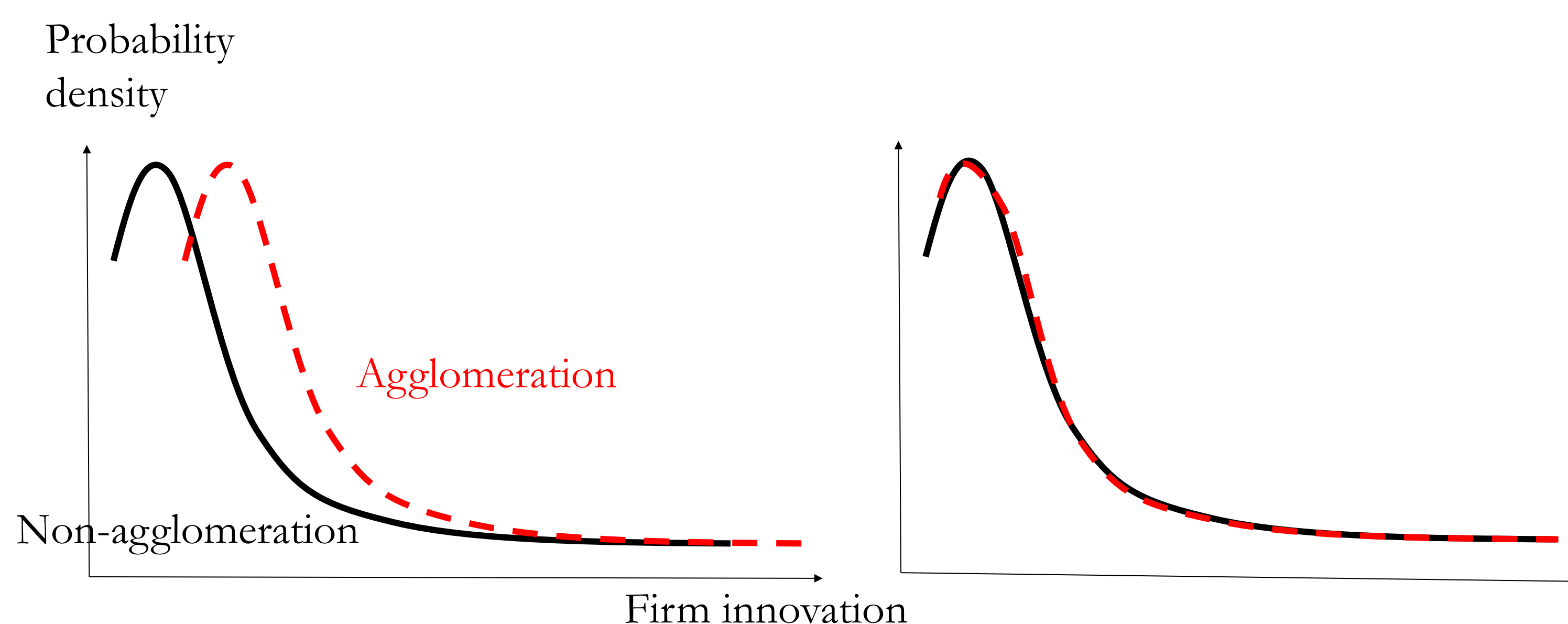
Agglomerations in Education and Knowledge Creation Industries

Methods

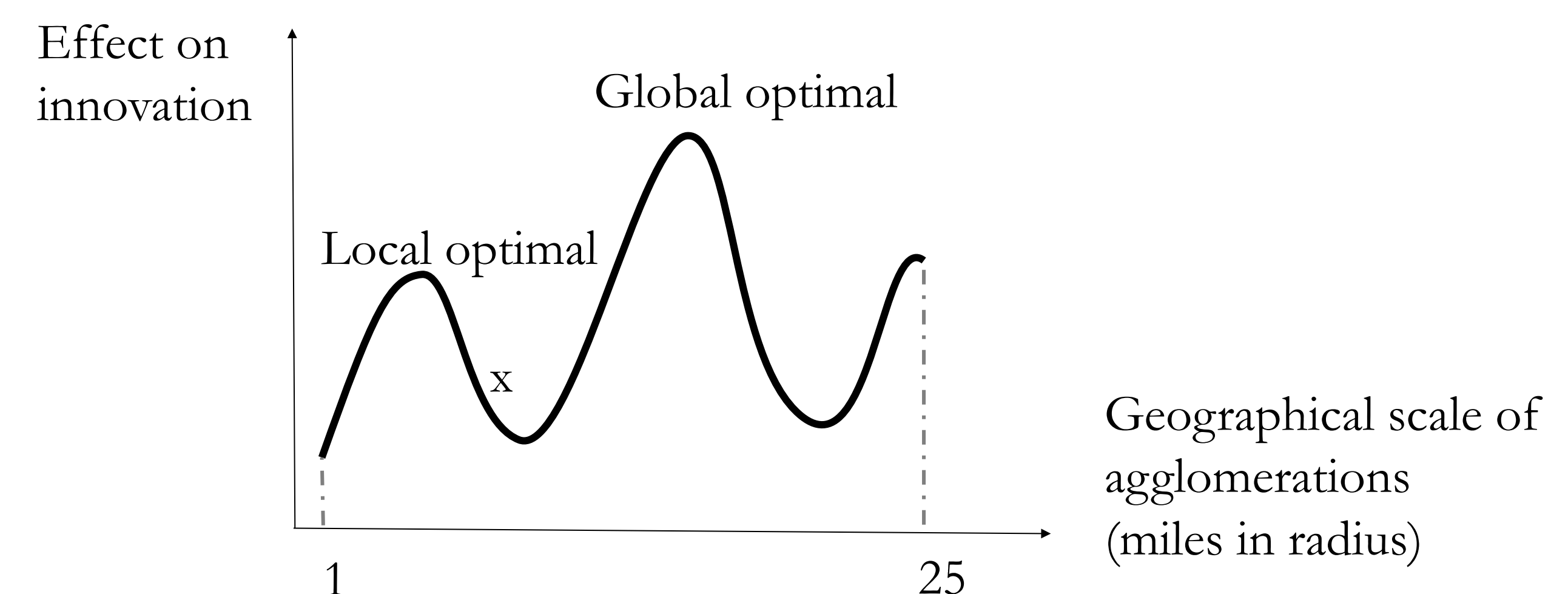
- Estimate the effect of agglomeration on innovation with continuous quantile estimator (Combes et al., 2012)

True agglomeration effect

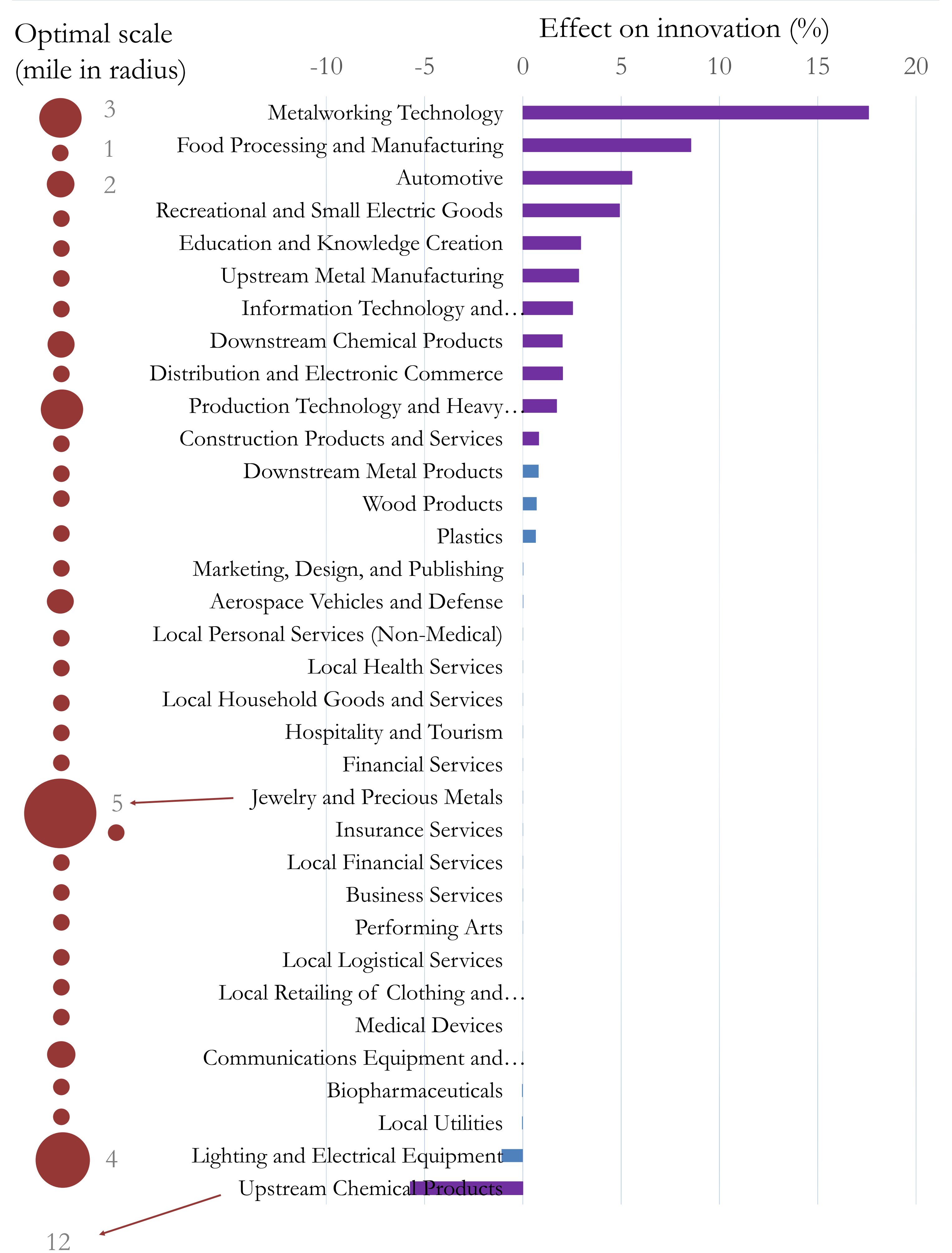
Selection effect



- Search for the optimal geographical scale of agglomeration to maximize its effect on innovation



Results



Discussion

- Face-to-face human interaction is what's important for innovation in agglomerations.
- Agglomerations do not encourage innovation in all industries.



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Selected publications:

Fang, L., Tian, C. Housing and Marital Matching: A Signaling Perspective. China Economic Review (Forthcoming).

Fang, L., Li, P. & Song, S. China's Development Policies and City Size Distribution. Urban Studies, 2017, 54(12): 2818-2834.

Knaap G., Avin, U., & Fang L. Driving and Compact Growth. Journal of the American Planning Association, 2017, 83(1): 32-35.

Fang, L. Do Clusters Encourage Innovation? A Meta-Analysis. Journal of Planning Literature, 2015, 30(3): 239-260.