Discussion of "Spatial Implications of Telecommuting" by Delventhal and Parkhomenko

Vadim Elenev
Johns Hopkins Carey
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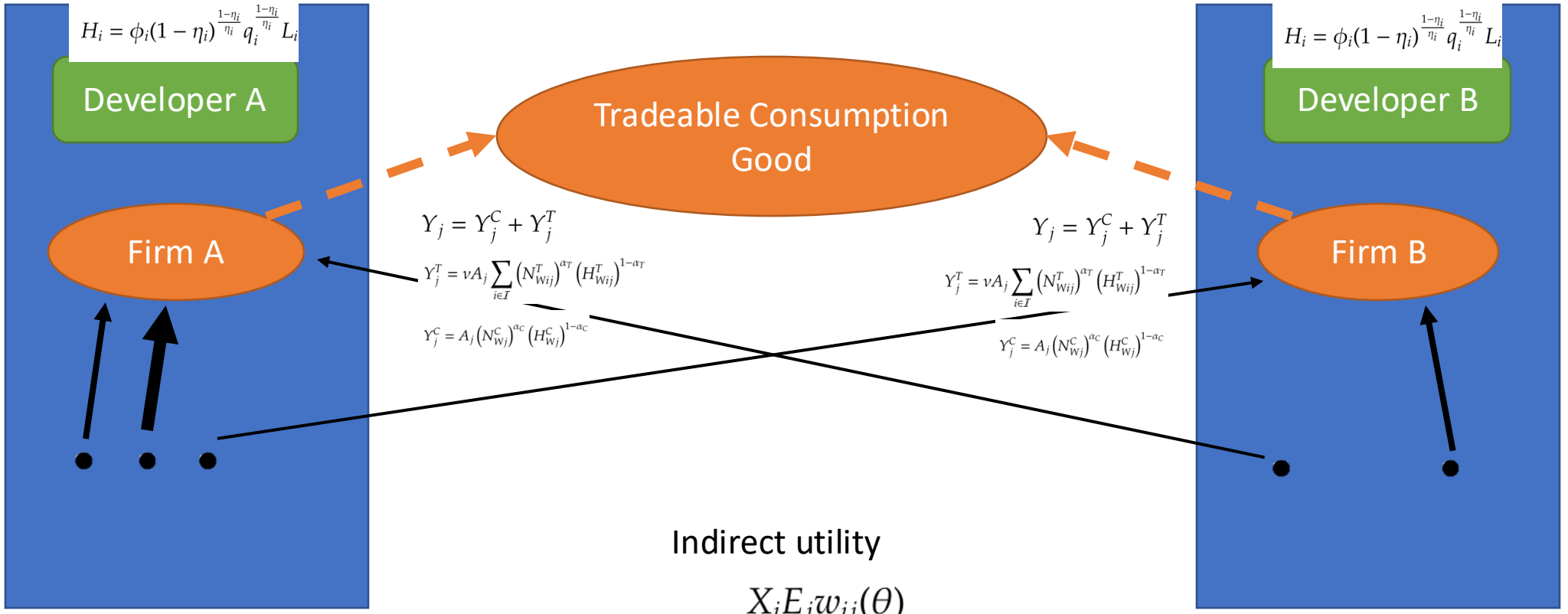
What this paper does

- Estimates a rich spatial equilibrium model where workers don't have to live where they work
  - All lower 48 states + DC!
- Shock the onsite vs. remote distribution of workers
- Study consequences for
  - Density of residents and jobs
  - Rents
  - Labor allocative efficiency and wages
  - Welfare
- My plan
  - Recap the model
  - 1 big comment, a few small comments

An illustration



Indirect utility

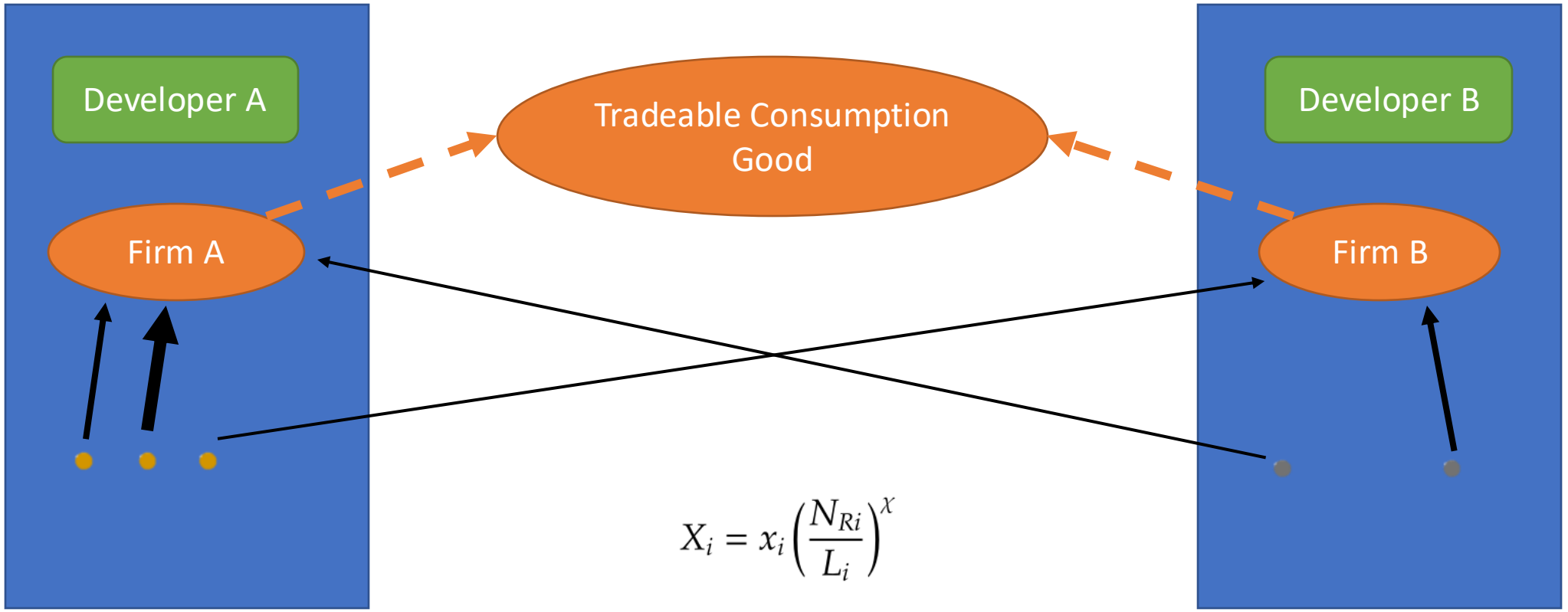
$$v_{ij}(\theta) \equiv \frac{X_i E_j w_{ij}(\theta)}{d_{ij}(\theta) q_i^{\gamma}}$$

Location A

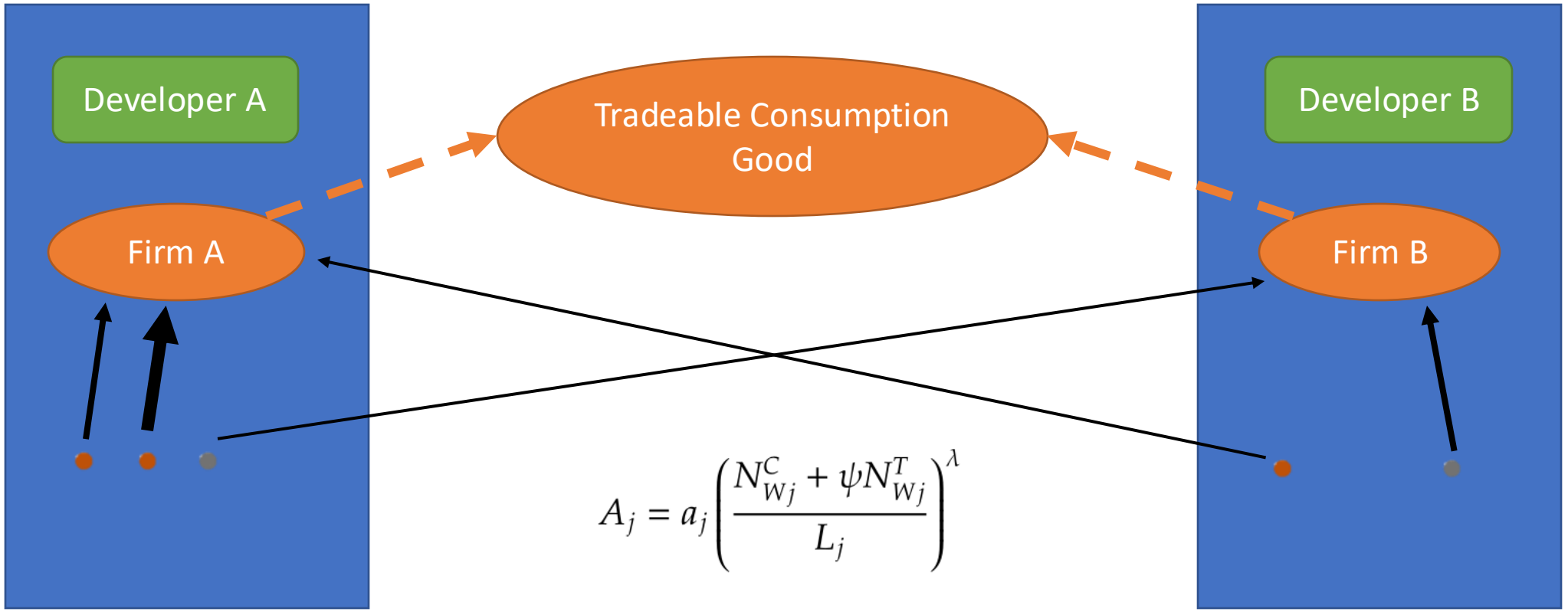
Location B

Arrow thickness θ – fraction of time I need to work from the office – is my type, not a function of where I live or work.

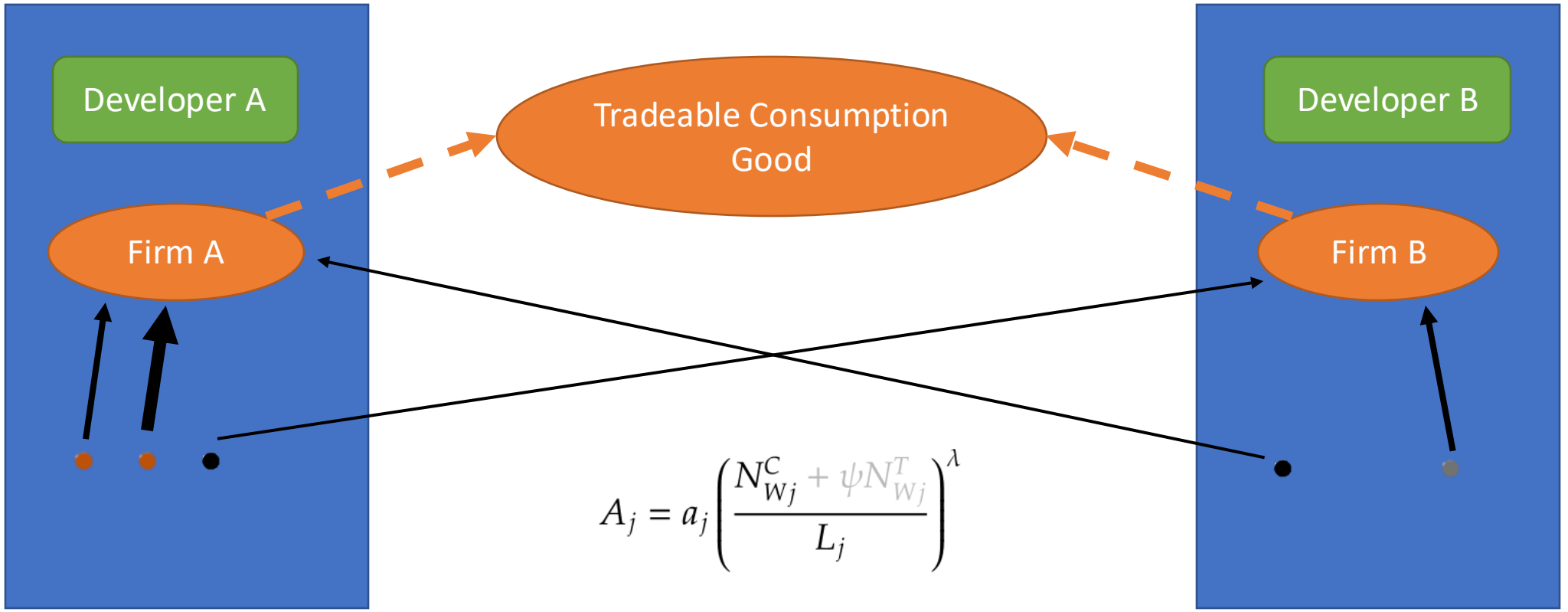
Residential agglomeration externalities



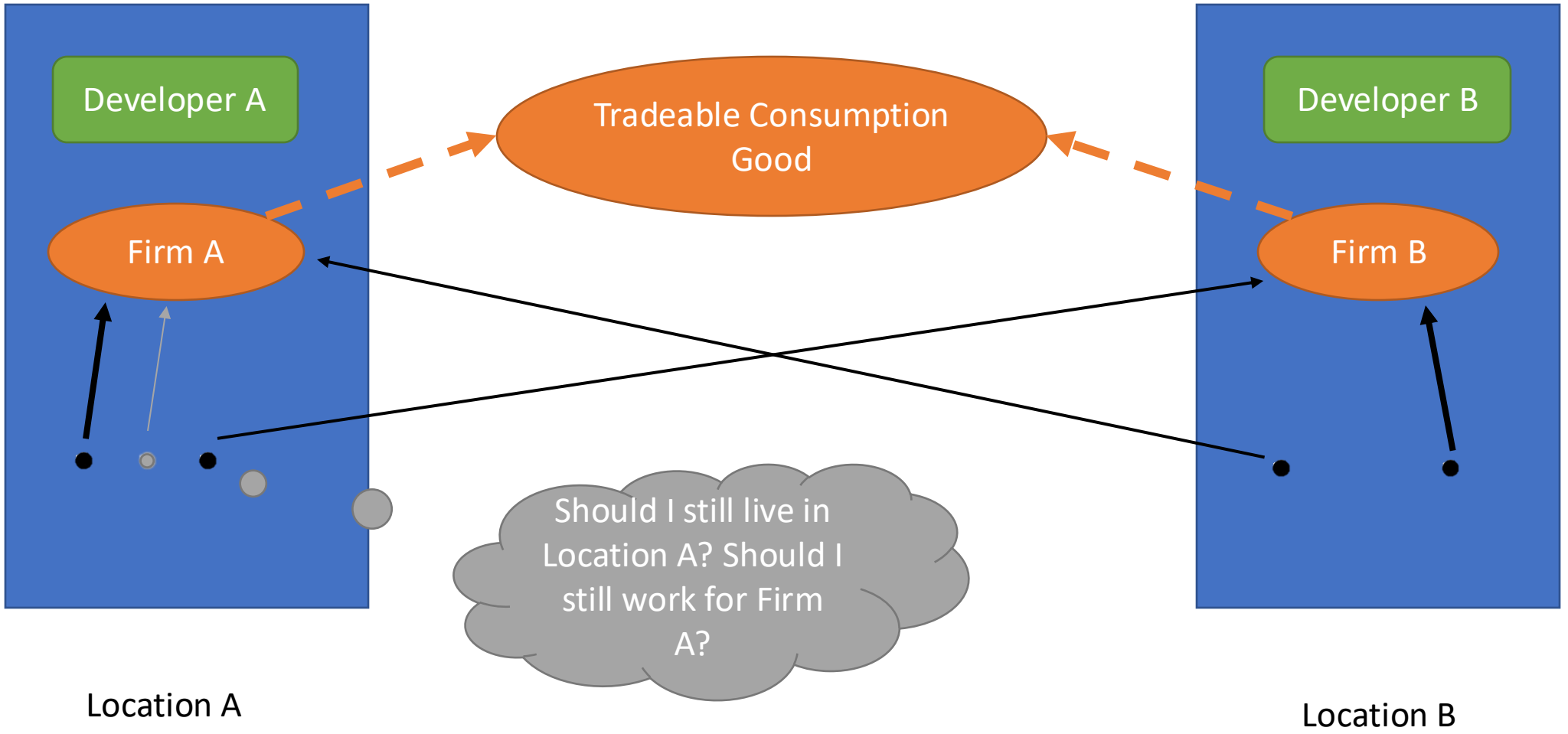
Workplace agglomeration externalities…



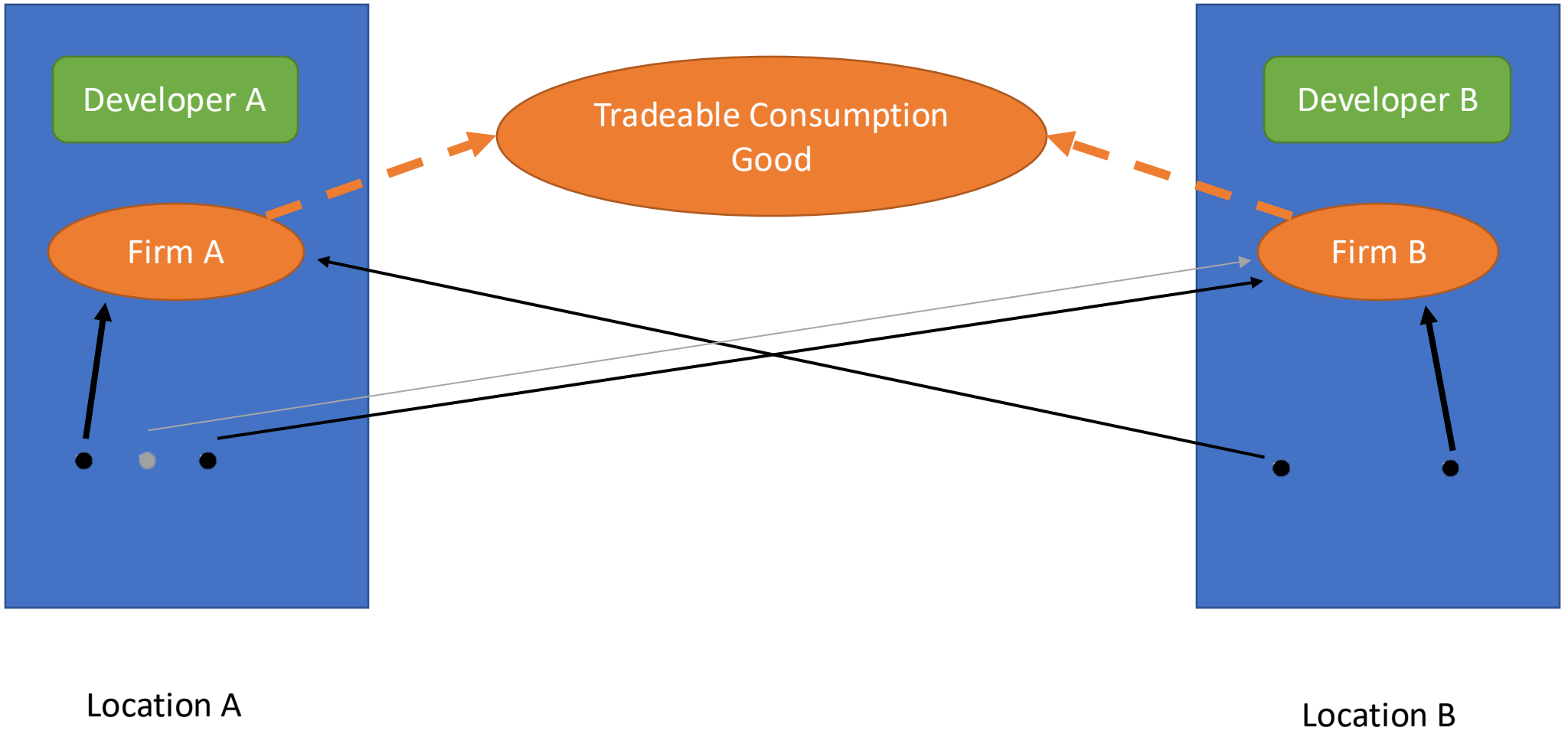
…may not include remote workers



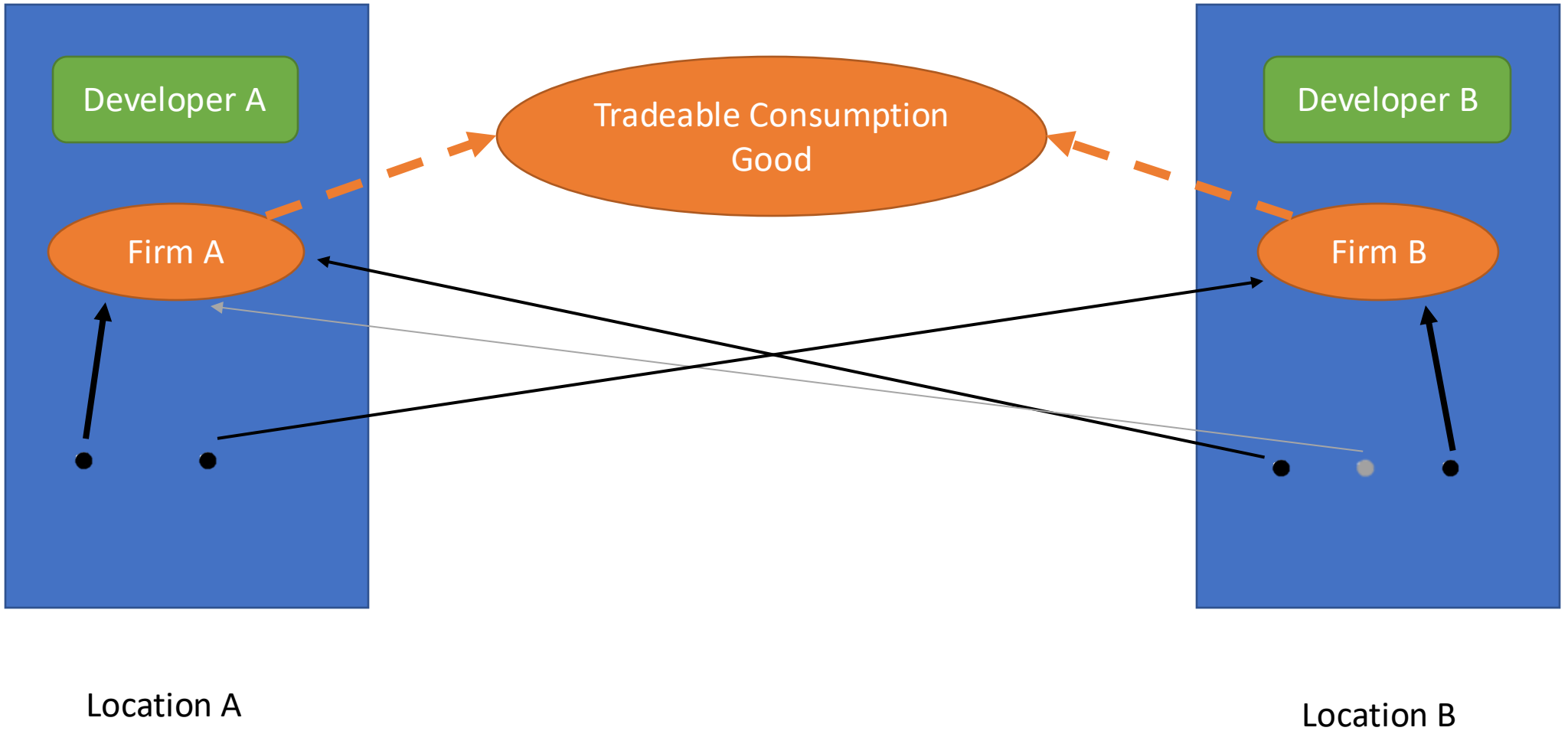
Main experiment: left shift in $\mathbf{F}(\theta)$



Do I get a job at Firm B?



Do I move to Location B?



Welfare channels

1. Partial equilibrium: just going remote
   1. Lower commuting costs d_{ij}
   2. Labor income (b/c remote MPL = / = onsite MPL)
2. Partial equilibrium: moving or switching jobs
   1. higher-amenity location x_i or a higher-amenity job overall E_j
   2. idiosyncratically better-matched location & job z_{ijn}
   3. Labor income: can now work for higher productivity firm
   4. Housing costs: can now live in a cheaper place
3. General equilibrium absent agglomeration externalities
   1. Labor income: reallocation of labor changes MPLs, MPFloorspaces
   2. Housing costs: reallocation changes floorspace prices everywhere

Welfare by source, % chg	
consumption only	0.68
+ commuting	4.39
+ amenities	5.59
+ Frèchet shocks	34.27

Welfare channels

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   4. Housing costs: can now live in a cheaper place
3. General equilibrium absent agglomeration externalities
   1. Labor income: reallocation of labor changes wages, floorspace requirements everywhere
   2. Housing costs: reallocation changes floorspace prices everywhere
4. Including externalities
   1. Residential amenities
   2. Workplace productivity of onsite workers

Welfare by source, % chg	
consumption only	-0.58
+ commuting	2.72
+ amenities	5.13
+ Frèchet shocks	34.42

Welfare channels

1. Partial equilibrium: just going remote
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   2. Labor income (b/c remote MPL = / = onsite MPL)
2. Partial equilibrium: moving or switching jobs
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4. Including externalities
   1. Residential amenities
   2. Workplace productivity of onsite workers
   3. Workplace productivity of remote workers

Welfare by source, % chg	
consumption only	0.60
+ commuting	3.84
+ amenities	6.19
+ Frèchet shocks	36.35

Main comment: is $F(\theta)$ exogenous?

- Model
  - Draw my remote workability as a type
  - Choose where to live and work
  - Primitive that triggers the shift to remote work is $F(\theta)$
- Data
  - Employer and worker decide how often the worker needs to come in
  - Both have outside options…
- Alternative model
  - Endogenous element of the labor contract $\theta, w_j(\theta)$
  - Competitively determined or outcome of bargaining
  - Primitive that triggers the shift to remote work is ν (relative productivity of remote labor)

Why this matters?

Productive externalities ($\lambda > 0$):	no	no	yes	yes
Amenity externalities ($\chi > 0$):	no	yes	no	yes
Remote labor adds to productive externalities ($\psi = 1$):	no	no	no	no
	(1)	(2)	(3)	(4)
Welfare by source, % chg				
consumption only	0.68	0.73	-0.53	-0.58
+ commuting	4.39	4.12	3.13	2.72
+ amenities	5.59	6.30	4.31	5.13
+ Frèchet shocks	34.27	35.79	32.64	34.42

- Shift to remote work imposed on firms exogenously
- Loss of synergies between onsite workers leads to net drop in aggregate output (even though labor reallocated to more productive firms)!
- But this is (mostly) a private cost for firms – they don't have to let people go remote, become less productive, and cut wages. They can just keep people in the office.

Other comments / Extension suggestions

- Where are the immobile landowners in the social welfare function?
  - Drop in land values as urban cores de-densify isn't good news for them.
- Moving is costly
  - Boring effect: all the reallocations in the model are dampened.
  - Interesting effect: initial endowments of land matter. Where prices fall, agents less willing to move.
- How much output is tradable vs. local?
  - Interesting and counter-intuitive result in the paper: many locations lose residents but gain (remote) workers
    - Makes sense if they're producing software
    - Doesn't make sense if they're producing lattes
  - Some implications
    - The barista must move to the suburbs, ends up with a worse amenity match
    - Creates + correlation between residential and commercial floorspace demand and amplifies floorspace price effects
- How do welfare results change if you require remote workers to live in the same state as where they work?
  - State income tax withholding keeps many firms from approving out-of-state remote work in "new" states