

Should I Stay or Should I Grow?

Lhuillier (2024)

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Big Q: Why are average nominal wages higher in bigger cities?

Standard model (Combes and Gobillon, 2015):

$$w_{lt} = \left(p_{lt} \frac{A_{lt}}{r_{lt}^{1-\alpha}} \right)^{\frac{1}{\alpha}} s_{lt} \equiv T_{lt} s_{lt}$$

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Can allow for...

- local fundamentals
- agglomeration (static + dynamic)
- worker and/or firm heterogeneity
 - sorting
 - matching
 - selection
- multiple factors, goods, industries
- ...

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Ex. 1: local fund. + static agglom.

$$w_{\ell t} = \bar{A}_{\ell} L_{\ell t}^{\sigma}$$

Ex. 2: sorting (\max_{ℓ}) + dynamic agglom.

$$w_{\ell t}^i = T_{\ell t} s_{\ell t}^i \text{ with } s_{\ell t+1}^i = g(s_{\ell t}^i, \mathcal{S}_{\ell t})$$

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Researcher chooses **mechanisms** to include ...

- dictated by which **causal effect(s)** the researcher wants to identify
- then, standard model gives ...
 1. estimating equation(s)

$$\ln w_{\ell t}^i = FE_{\ell} + FE_i + \dots$$

2. identifying assumptions

Why does it matter?

- credibility of estimates
- determines policy motives and tradeoffs

What do we already know?

1. Combes, Duranton, and Gobillon (2008)

+ Combes et al. (2012b)

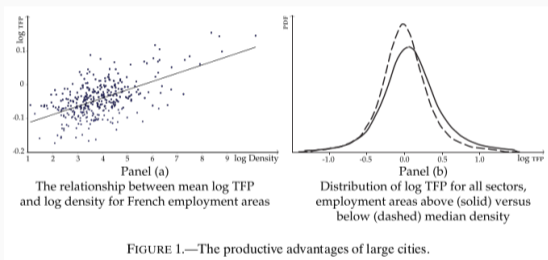
- model: $w_t^i = T_{\ell(i,t),k(i,t)} s_t^i$
- results:
 - **sorting** → **40-50% of spatial wage disparities**
 - static agglom. elasticity $\approx 3\%$ → important, but lower than old lit.
 - weak role for fundamentals

2. Combes et al. (2012a)

3. De la Roca and Puga (2017)

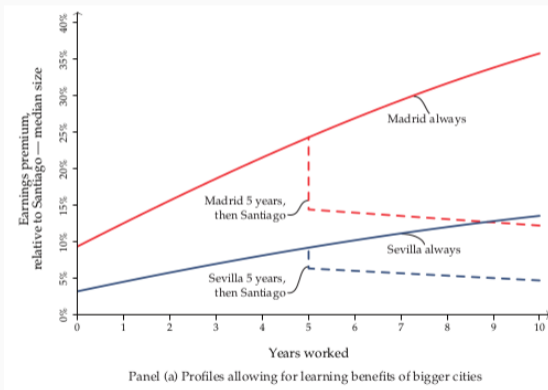
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2. Combes et al. (2012a)
 - model: firm selection + static agglom.
 - results: **firm selection** \ll **agglom.**
3. De la Roca and Puga (2017)



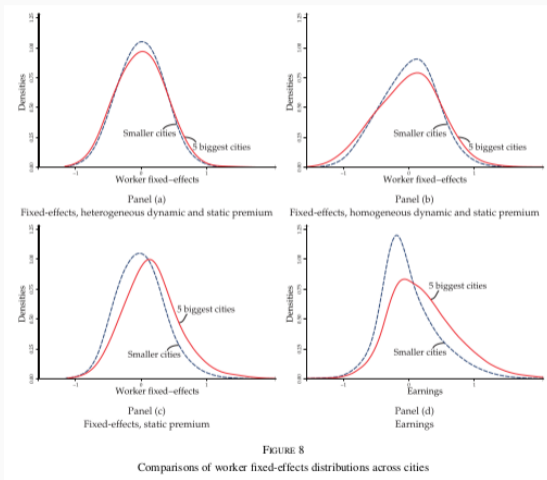
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 - model: CDG08 + city-specific value of experience → **dynamic agglom.**
 - results:
 - **city size wage premium** = higher wage level + **faster wage growth** w/ permanent value
 - dynamic effect **stronger** if initially **more skilled**



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 - dynamic effect **stronger** if initially **more skilled**
 - negligible sorting on unobservables



What this paper does

1. **(simplified) theory:** young sort according to...

$$\max_{\ell} \{ \bar{T}_{\ell} s_y + \epsilon_{\ell} + \beta \mathbb{E}[\mathcal{V}^o(eg(s_y, S_{\ell}^y))] \} \quad \text{with } g_1, g_2 \geq 0 \text{ but } g_{12} \geq 0$$

2. **quantification:** French matched employer-employee data to estimate

$$\ln s_{it+1} = \alpha_t + \beta \ln s_{it} + \gamma \overline{\ln s_{\ell it}} + \delta \ln s_{it} \overline{\ln s_{\ell it}} + u_{it}$$

within the structure of the extended model (+ housing, migration costs, old matter)

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3. **policy:** (simplified) optimality + moving vouchers cftl
 - “equity-efficiency tradeoff” when supermodular → planner wants sharper sorting
 - subsidize moves from bottom 1/4 cities to Paris, Lyon, Toulouse → lower spatial disparity (treated workers gain, non-treated workers lose), but also lower agg. human capital

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- old irrelevant, no migration costs \rightarrow same logic as static model (cf. [Davis and Dingel, 2019](#))
- $g_{12} \geq 0$ is new, but still assumes SPAM equil., so g_{12} never too negative
- all results for approximation around $\bar{T}_{\ell} \equiv \bar{T}, \forall \ell$

2. **quantification**: French matched employer-employee data to estimate

$$\ln s_{it+1} = \alpha_t + \beta \ln s_{it} + \gamma \overline{\ln s_{\ell_{it}}} + \delta \ln s_{it} \overline{\ln s_{\ell_{it}}} + u_{it} \quad (\star)$$

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Comment #1: quantitative effects of ignoring city size

- Estimating (\star) requires computing $s_{it} = w_{it}/\bar{T}_{\ell_{it}} \rightarrow$ **joint with estimating $\bar{T}_{\ell_{it}}$**
- **static:** $T_{\ell_{it}} = \bar{A}_{\ell_{it}} L_{\ell_{it}}^\sigma \rightarrow$ surprised by small dispersion in $\bar{T}_{\ell_{it}}$ (cf. [Combes et al., 2012a](#))
 - something about relative scale of \bar{T} vs. s ?
- **dynamic:** bigger city could lead to *more* interactions ([Glaeser, 1999](#))
 - Table 1, Col (2) estimates $(\star) + \sigma \ln L_{\ell t} \rightarrow$ effect of size is **OoM smaller** than avg. skill
 - **but, estimates are joint:** right test would be to specify full model with dynamic size effect, then estimate $(\star) + \sigma \ln L_{\ell t}$ and see if σ still small
 - **size vs. pure composition is important!** (see next slide)
- *cheap suggestion:* start by replicating [De la Roca and Puga \(2017\)](#) specification
 - is their dynamic size effect really just picking up pure composition?

Comment #2: normative effects of ignoring city size

- **static**: standard, independent of skill composition → *not my focus*
- **dynamic**: hardwired an extreme form of congestion
 - guaranteed to meet, so just want to live near Einstein → *all others bring down the avg.!*
 - $\Delta \bar{s}_{\text{Paris}} < 0 \iff \Delta \gamma_{\text{Paris}}(s, \cdot) < 0$ → vouchers just screw up composition
 - but city size may affect probability of meeting *anyone* → $\mathbb{E}[s_p | \text{meet}]$ vs. $\mathbb{P}(\text{meet})$
 - cf. [Crews \(2023\)](#): reduce land use regulations in NY and SF
 - NY and SF get bigger and more skilled, agg. growth ↑ 13bp
 - composition of movers don't change → primary channel is (skill-weighted) size
- could this dampen/eliminate the “equity-efficiency tradeoff”?

Comment #3: breaking open the learning technology $\gamma(s_y, S_\ell^y)$

I'm not sure **allowing for submodularity** is where the main value-added lies ...

- skill sorting + faster wage growth \rightarrow *could we have even found $g_{12} < 0$?*

Instead, with great matched employer-employee panel data ...

- disentangle relative importance of size vs. composition (cf. “vibrancy” in [Crews, 2023](#))
- engage with macro-labor literature on sources of wage inequality
 - need heterogeneous learning *ability* in [Ben-Porath \(1967\)](#) model to explain earnings distributions ([Huggett, Ventura, and Yaron, 2011](#)) \rightarrow maybe we actually need *spatially-segmented* learning
 - how does (*) do in matching observed life-cycle earnings distributions?
- learning ([this paper](#)) vs. job ladders ([Lhuillier, 2022](#))

Recap

- a nice + well-executed paper
- well-positioned to teach us more about relative importance of city size vs. composition
- would love to see continued work on the spatial sources of wage inequality

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thanks!

References

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