Discussion of Hornbeck and Moretti's Estimating Who Benefits from Productivity Growth: Direct and Indirect Effects of City Manufacturing TFP Growth on Wages, Rents, and Inequality

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Roadmap

- Questions/contributions/praise
- How the identification strategies work
- Comment 1: Is the shift-share approach reasonable?
- Comment 2: What is a TFP shock?
- Comment 3: Do the results reflect reallocation?
- Comment 4: Mechanisms

Paper asks two first-order questions

• How does city productivity growth affect workers?

- Focus on manufacturing sector productivity
- Examine wages, employment, and housing costs/prices
- Distributional implications by education
- What are the spillover effects across cities?
 - Depend on worker mobility and housing price elasticity
 - Individual effects small, but aggregate effects large
 - Disproportionately affect high income (mobile) workers
- Paper is really well-written and clear
 - Authors open and candid about assumptions and limitations

Identification is a GIGANTIC challenge

- Shift share approach using distribution of industries across US
- Predict city TFP growth using
 - National TFP growth by industry
 - Patenting by technology class
 - Export market exposure by industry
 - Stock price changes by industry
- Need to assume separate local labor markets w/o spillovers
 - Mobility across regions will bias coefficients

Comment 1: Is the shift share approach reasonable?

Shocks not exogenous if each industry located in just 1 city

- National TFP growth exactly equals city TFP growth
- All TFP growth potentially driven by city-specific changes
- Authors drop own city when applying national growth
- Spatial specialization still potentially problematic
- "...in the US vacuum cleaner industry (SIC 3635), about 75% of the employees work in one of the four largest plants" (p. 890). Ellison and Glaeser (1997)

Distribution of manufacturing output in 1980

Panel D. Total Manufacturing Output by MSA



Distribution of manufacturing employment in 1980



Source: Eckert et al. (2019)

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Vacuum production is highly concetrated

Vacuums



Motor vehicles manufacturing

Motor Vehicles



Furniture manufacturing

Furniture



Electronic Computing Equipment

Electronic Computers



Comment 2: Are all productivity increases good?

- Revenue productivity (TFPR) is really profitability
 - Industry-level output and input price deflators
- Physical productivity (TFPQ) closer to production efficiency
 - Usually just have output unit values
 - Still cannot observe quality
- Sometimes the distinction matters
 - TFPR and TFPQ are correlated in the data
 - Young firms have high TFPQ but low TFPR (Foster et al. 2008)
 - Anti-dumping protection raises TFPR, lowers TFPQ (Pierce 2011)
- "Both sources of variation in TFP, from prices or physical productivity, have an equivalent effect on local labor markets and local housing markets because both sources of revenue productivity induce great firm labor demand" (p. 13)

Does TFP growth always increase labor demand?

- Technology may be a complement or substitute for labor
 - Acemoglu and Restrepo (2017)
 - Autor and Salomons (2018)
- Selection is a big component of productivity growth
 - The fraction of within-plant productivity growth to US TFP growth from 1977-1987 is 0.54 (Haltiwanger 1997)
 - Less productive plants exit









Does TFP growth always increase labor demand?

• So what is the relationship between TFP and emp growth?

TFP and employment growth over short term



TFP and employment growth over medium term



TFP and employment growth over long term



TFP and employment growth by detailed sector



TFP and employment growth over medium term



TFP and employment growth over long term



Estimates show relative manuf emp growth

	Medium-run Effect: Change from 1980 to 1990		Long-run Effect: Change from 1980 to 2000	
-	Manufacturing	Non-Manufacturing	Manufacturing	Non-Manufacturing
	(1)	(2)	(3)	(4)
Panel A. Log Employment	2.61***	2.17***	3.75***	4.13***
	(0.95)	(0.70)	(1.26)	(1.17)
Panel B. Implied Multiplier	1.62***		2.21***	
	(0.25)		(0.32)	
Panel C. Log Earnings	0.74**	0.83***	0.88**	1.45***
	(0.30)	(0.29)	(0.38)	(0.46)

Appendix Table 8. Direct Effects of Local TFP Growth, by Sector

Notes: In Panel A, columns 1 and 2 report estimates that correspond to those in column 1 of Table 2, but separately for the manufacturing sector (column 1) and non-manufacturing sectors (column 2). Columns 3 and 4 report analogous

Implied "multiplier effect" of 1.62 non-man jobs per man job

Comment 3: Do the results reflect reallocation?

- Manuf decline largely driven by the intensive margin
 - 75% of the net decline is in continuing firms
 - Manuf firms' non-manuf emp growth more than offsets manuf decline (Fort, Pierce, and Schott 2018)

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 - Duranton and Puga (2001) and (2005)
- Large cities have grown relatively faster (Rubinton 2019)



Manufacturing emp growth differs across regions



- NE and MA declining throughout
- Many regions grow in 1990s–all decline in 2000s

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Manufacturing firms reallocate into non-manuf



- Growth across regions in 1980s and 1990s
- Growth in 2000s in several regions

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Comment 4: More focus on the mechanisms

- Cities with manuf TFP growth have emp and wage growth
 - Results on this dimension are strong
 - Less clear that it's a labor demand story
 - Does initial industry mix facilitate reallocation?
- Spatial reallocation key element in responses
- More focus on the mechanisms can shed light on causes
 - Selection vs. within-plant TFP changes
 - Technology upgrading vs. demand shocks
 - * Note that export demand is both! (Bustos 2011)
 - Industry differences in elasticities to TFP
 - ★ labor share, bargaining power, other industry linkages