Metropolitan Futures Initiative (MFI) Quarterly Report:

Business Relocations in Southern California:
Moves within and across cities and neighborhoods

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Business Relocations in Southern California: Moves within and across cities and neighborhoods

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UCI School of Social Ecology

Metropolitan Futures Initiative (MFI) • Quarterly Report
Business Relocations in Southern California: Moves within and across cities and neighborhoods

About the Metropolitan Futures Initiative (MFI)

The Metropolitan Futures Initiative (MFI) in the School of Social Ecology at the University of California, Irvine aims to develop an improved understanding of communities and their potential for integrative and collaborative planning and action to ensure a bright future for the region. It approaches these goals by bringing together an interdisciplinary research team along with the insights and techniques of "big data" research.

By combining various large longitudinal and spatial data sources, and then employing cutting edge statistical analyses, the goal is to come to a better understanding of how the various dimensions of the social ecology of a region move together to produce the outcomes observed within our neighborhoods.

With initial focus on Orange County and its location within the larger Southern California area, The Metropolitan Futures Initiative is a commitment to build communities that are economically vibrant, environmentally sustainable, and socially just by partnering the School of Social Ecology's world class, boundary-crossing scholarship with expertise throughout Southern California.

The *MFI Quarterly Report* series presents cutting edge research focusing on different dimensions of the Southern California region, and the consequences for neighborhoods in the region. Reports released each quarter focus on issues of interest to the public as well as policymakers in the region. In addition, the MFI webpage (mfi.soceco.uci.edu) provides interactive mapping applications that allow policymakers and the public to explore more deeply the data from each Quarterly Report.

The MFI gratefully acknowledges the Heritage Fields El Toro, LLC for their funding support.

The MFI Research Team:

John R. Hipp is the Director of the Metropolitan Futures Initiative (MFI). He is a professor in the Department of Criminology, Law and Society, the Department of Policy, Planning, and Design, and the Department of Sociology, at the University of California, Irvine. He is also co-director of the Irvine Lab for the Study of Space and Crime (ILSSC). His research interests focus on how neighborhoods change over time, how that change both affects and is affected by neighborhood crime, and the role networks and institutions play in that change. He approaches these questions using quantitative methods as well as social network analysis.

Jae Hong Kim is a member of the MFI Executive Committee and a faculty member in the Department of Planning, Policy, and Design at the University of California, Irvine. His research focuses on urban economic development, land use change, and the nexus between these two critical processes. His academic interests also lie in institutional environments — how institutional environments shape urban development processes — and urban system modeling. His scholarship attempts to advance our knowledge about the complex mechanisms of contemporary urban development and to develop innovative urban planning strategies/tools for both academics and practitioners.

Kevin Kane is a postdoctoral research fellow in the Department of Planning, Policy and Design at the University of California, Irvine. He is an economic geographer interested in the quantitative spatial analysis of urban land-use change and urban development patterns, municipal governance, institutions, and economic development. His research uses land change as an outcome measure – in the form of changes to the built environment, shifting patterns of employment, or the socioeconomic composition of places – and links these to drivers of change including policy, structural economic shifts, or preferences for how we use and travel across urban space.

Young-An Kim is a Ph.D. student in the department of Criminology, Law and Society, at the University of California, Irvine. His research interests focus on crime patterns at micro places, effects of structural characteristics of street segments on crime, and immigration and crime. Besides criminology, he is interested in sociology of health, urban sociology, and quantitative research methods.

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Results in Brief

- **The share of businesses that relocate in a year ranges from 3.2% - 4.7% over our study period of 1997-2014.**
- Relocations in most sectors dropped during the recessionary period of 2006-2010
- Among the six sectors examined, retail businesses show the lowest relocation rates – about 3.0% - while industrial and professional business establishments show the highest rates at roughly 5.0%
- On average, firms that relocate are larger than those which stay put (14.4 vs. 11.1 employees), though the "gap" in firm size between movers and stayers was more than twice as wide in 2010-2014 than over our entire period
- **Only a small share of relocations within Southern California take place across city borders (about 1/3) or county borders (about 6%).**
- Nearly 25% of business relocations are less than ½-mile away from a business' original location:
  - » These "local moves" were substantially higher during the boom years of 2003-2006 and the recovery years of 2010-2014, indicating that short moves likely follow commercial building cycles
- Case studies of Irvine and Riverside since 2010 show that:
  - » A high percentage of moves are within the city, though this can vary: 50% of Irvine's business relocations occur within the city, while this is true for 70% of business relocations involving Riverside
  - » Nearly all business relocations involving other cities are to cities that are adjacent or very nearby.
  - » Our web mapping application at http://shiny.datascience.uci.edu/uciMetropolitanFutures/relocations shows these data for all Southern California cities
- Comparing the neighborhood around a business before it moves to the neighborhood it's in after it moves, we find:
  - » **Businesses tend to relocate to less pedestrian friendly neighborhoods, and less dense neighborhoods – contrary to recent "Smart Growth" trends**
  - » On average, businesses move to higher income neighborhoods, in particular retail and finance, insurance, and real estate (FIRE) businesses since 2006
  - » There is no substantial difference in the education level, share of young adults, or share of seniors surrounding relocating businesses, despite these being indicators of recent "urban inversion" trends
  - » Businesses which relocate overwhelmingly move to areas with fewer surrounding businesses, suggesting that Greenfield development might remain a prevailing trend.

Background

Business recruitment: competition between states and cities

For decades, states and local governments have dedicated vast resources to attracting businesses from outside their borders. Ad campaigns touting low taxes, a skilled workforce, and good connectivity have long been used to lure businesses, in addition to actual relocation incentives such as tax abatements and waived development impact fees. Despite criticism that this is a "zero-sum game," business recruitment has long been one of the most popular strategies for state and local economic development in the US[1].

This process has been particularly notable in California. Former Governor Arnold Schwarzenegger engaged in a number of billboard and other media campaigns to encourage relocation to California, touting its natural advantages such as its climate, skilled workforce, and international shipping options. This was arguably due in part to a spate of interstate relocations away from California by businesses seeking lower living costs for workers and tax advantages available elsewhere. At a local level, Proposition 13's ceiling on property tax rates and assessment increases have led to competition between cities for shopping malls – and their sales tax revenue. In the 1990s, the cities of Oxnard, Ventura, and Camarillo fiercely competed to lure key shopping mall tenants to service the growing suburbs of Ventura County, in some cases making substantial tax concessions to developers and retail tenants in order to do so[2].

Regional economic development

Beyond just luring businesses, regional economists have long considered innovation, or knowledge-oriented businesses, as a key to advancing a region's economic base, employment, and wealth. In particular, states, localities, and universities have often fostered "research parks," "technopoles," or similar spaces in which nascent, knowledge and technology-oriented businesses can be promoted. Of course, this involves not just relocation of businesses but the creation of new ones as well.

Neighborhood change

Finally, it is important to note that the dynamic of business relocation in an area can be indicative of neighborhood change. In many growing metropolitan areas, older industrial neighborhoods near the urban core such as New York's Meatpacking District, Chicago's River North, and Los Angeles' Arts District have been experiencing adaptive re-use of the industrial building stock. While residential inflow is well understood, such neighborhoods also undergo business changes, usually a shift away from manufacturing and wholesaling and toward restaurants, retail, and service-based rather than production-based employment[3]. Related trends such as back-to-the-city movements and urban inversion have similar consequences,

1 For a more thorough discussion, see Loveridge, S. (1996). On the continuing popularity of industrial recruitment. Economic Development Quarterly, 10(2), 151-158.

2 For a more thorough discussion, see Fulton, W. (1996) *The Reluctant Metropolis: The Politics of Urban Growth in Los Angeles.* Solano Press: Point Arena, CA.

3 For an excellent study on the employment impacts of gentrification and neighborhood change, see Lester, T.W. and Hartley, D.A. "The long term employment impacts of gentrification in the 1990s." Regional Science and Urban Economics 45: 80-89.

while a number of high-profile moves of business headquarters suggest that certain business types may increasingly drawn to areas with denser resident populations, better transit service, walkability, or higher income workers nearby[4].

Goals of this report

This Report takes a spatially precise approach toward analyzing business relocations in the seven-county Southern California region from 1997-2014 (covering Los Angeles, Orange, San Bernardino, Riverside, Ventura, Imperial, and San Diego counties). We use point-based data on individual business establishments, which allows us to identify businesses that moved even a very short distance, e.g. to another shopping center nearby. We then compare this approach to moves across ZIP code, city, or county borders, and analyze trends overall and in six key industries: retail, FIRE (finance, insurance, and real estate), education and healthcare, white-collar/professional, service-based, and industrial. We then look at two cities in more detail – Irvine and Riverside – to investigate the dynamics of businesses entering and leaving these cities, as well as moves within them, to provide an example of how this approach to studying business relocations can be meaningful for local planners. Finally, we analyze systematic, region-wide trends in the *neighborhoods* surrounding relocating businesses, comparing their neighborhoods before and after the move based on pedestrian accessibility, population density, income, population age structure, racial/ethnic composition, and employment density.

Defining a business relocation

While attracting headquarters or manufacturing plants may be the goal of a state business relocation policy and as a result attract headlines, many more business relocations are far more local in nature. Leasing brokers are continually advertising and selling new office space in downtown office markets[5], and the lease terms for small and mid-size professional firms are often short enough so that they can re-evaluate their needs for physical space every few years. The same is true for retailers and others in income-producing property, who may expand to a larger or higher classified location, or contract to a lower-rent space depending on market trends. Given this – and the role that local businesses play in neighborhood change – a much finer-grained definition of business relocations other than just those that cross state, county, or city borders is needed.

We use point data – that is to say, the specific latitude and longitude of each business establishment – rather than an aggregated count of businesses or employments, such as totals by ZIP code. We use a commercial dataset from *Infogroup* that allows us identify a relocation as whenever a business' physical location, **using a threshold of 0.1 miles of location change from one year to the next.** Thus, this method allows us to capture very short-distance moves that were often ignored in existing studies, and to compare the amount of business relocation taking place at the neighborhood, city, and county scale. Technical Appendix B provides further detail about our procedure to capture business relocations.

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4 A 2015 report by CBRE and Smart Growth America details these trends. "Core Values: Why American Companies are Moving Downtown." (2015). Washington, DC: Smart Growth America.

5 For an excellent discussion of this process in Chicago in light of the recent Global Financial Crisis, see Weber, Rachel. (2015). From Boom to Bubble. University of Chicago Press: Chicago.

Identifying key economic sectors

In addition to analyzing total businesses, we analyze six key industries segmented by North American Industry Classification System (NAICS) codes shown in Table 1 below. Totals span the seven county area.[6]

Table 1

Category	Businesses / Employment (2014)	NAICS Code	NAICS Description
Retail	198,426 / 2,207,765	44-45	Retail Trade
		72	Accommodation and Food Services
FIRE	117,168 / 723,791	52	Finance and Insurance
		53	Real Estate and Rental and Leasing
Education and Healthcare	159,345 / 2,004,256	61	Educational Services
		62	Health Care and Social Assistance
Professional	134,890 / 1,058,398	51	Information
		54	Professional, Scientific, and Technical Services
		55	Management of Companies and Enterprises
Services	141,144 / 867,828	56	Administrative and Support and Waste Management and Remediation Services
Industrial	98,063 / 1,520,012	81	Other Services (except Public Administration)
		22	Utilities
		31-33	Manufacturing
		42	Wholesale Trade
		48-49	Transportation and Warehousing
Total (includes industries not listed above)	979,864 / 9,723,637		

6 Business establishment data typically result in higher employment figures than official statistics, such as those aggregated by the Bureau of Labor Statistics or state agencies. By counting the number of individuals working in business establishments rather than the number of people working, additional part-time jobs, home-based employment, and other "second jobs" are counted. For more discussion, see Kane and Clark (2017). Home-based businesses and the built environment. Under Review or Neumark, D., Zhang, J., & Wall, B. (2005). Business Establishment Dynamics and Employment Growth. SSRN Electronic Journal.

Which businesses move in Southern California?

Annual births, deaths, and relocations

In this section of the Report, we show the percentage of firms that relocate in any given year, using the definition from the previous section that defines a relocation as any change in a business establishment's location of over 0.1 miles. While we are investigating annual relocations (e.g., a business that moved between 1997 and 1998 would be considered as having "relocated" in 1998), the figures below examine changes that occur in any of the years within each of five time periods in order to better identify trends. Time periods were chosen to roughly correspond to business cycles as determined by unemployment rates. Thus, the 1997-2000 period captures the dot-com boom period; the 2000-03 period is the contraction period after the bust of the dot-com bubble; 2003-06 captures the housing price bubble period; 2006-10 is the period of contraction after the bursting of the housing bubble/Global Financial Crisis; and 2010-14 is the beginning of the subsequent economic recovery.

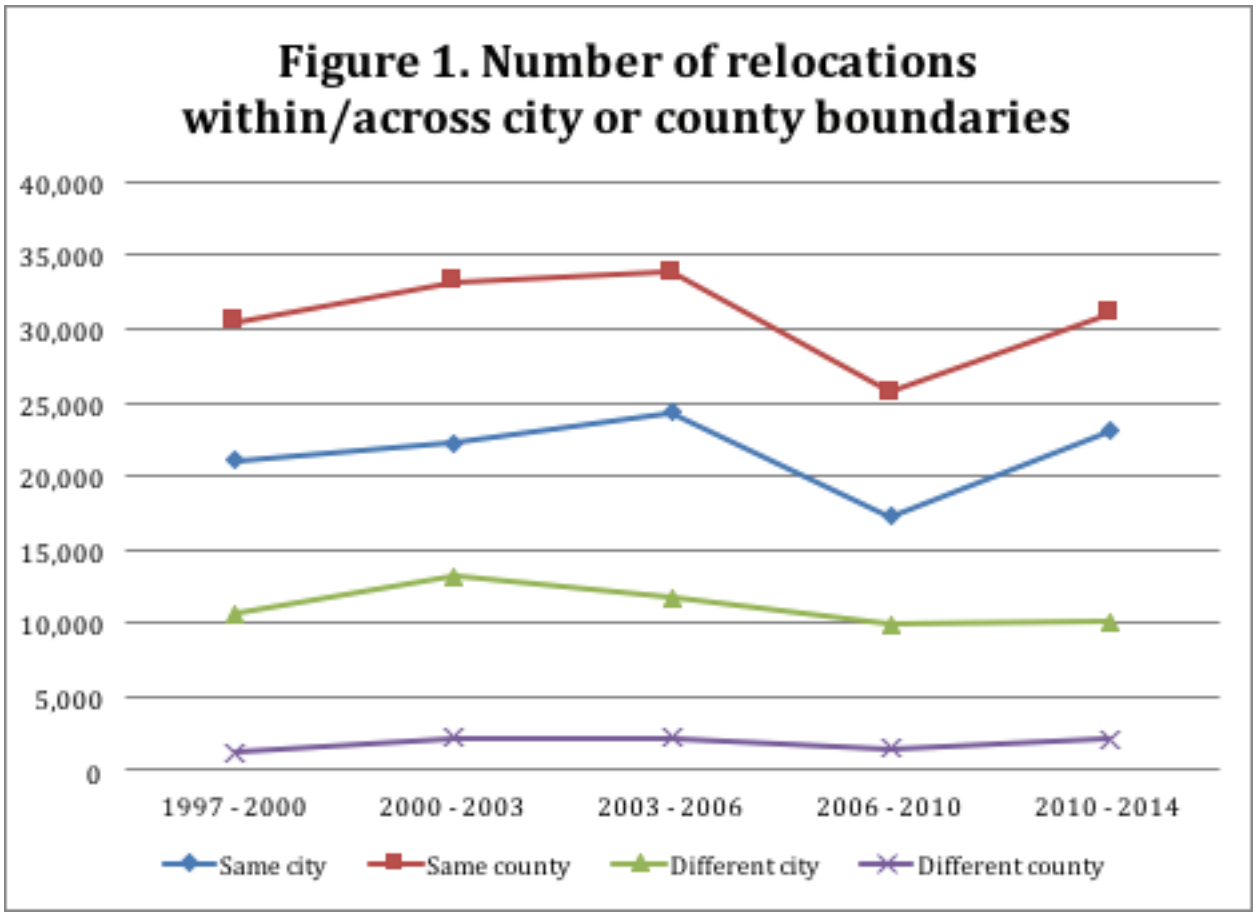
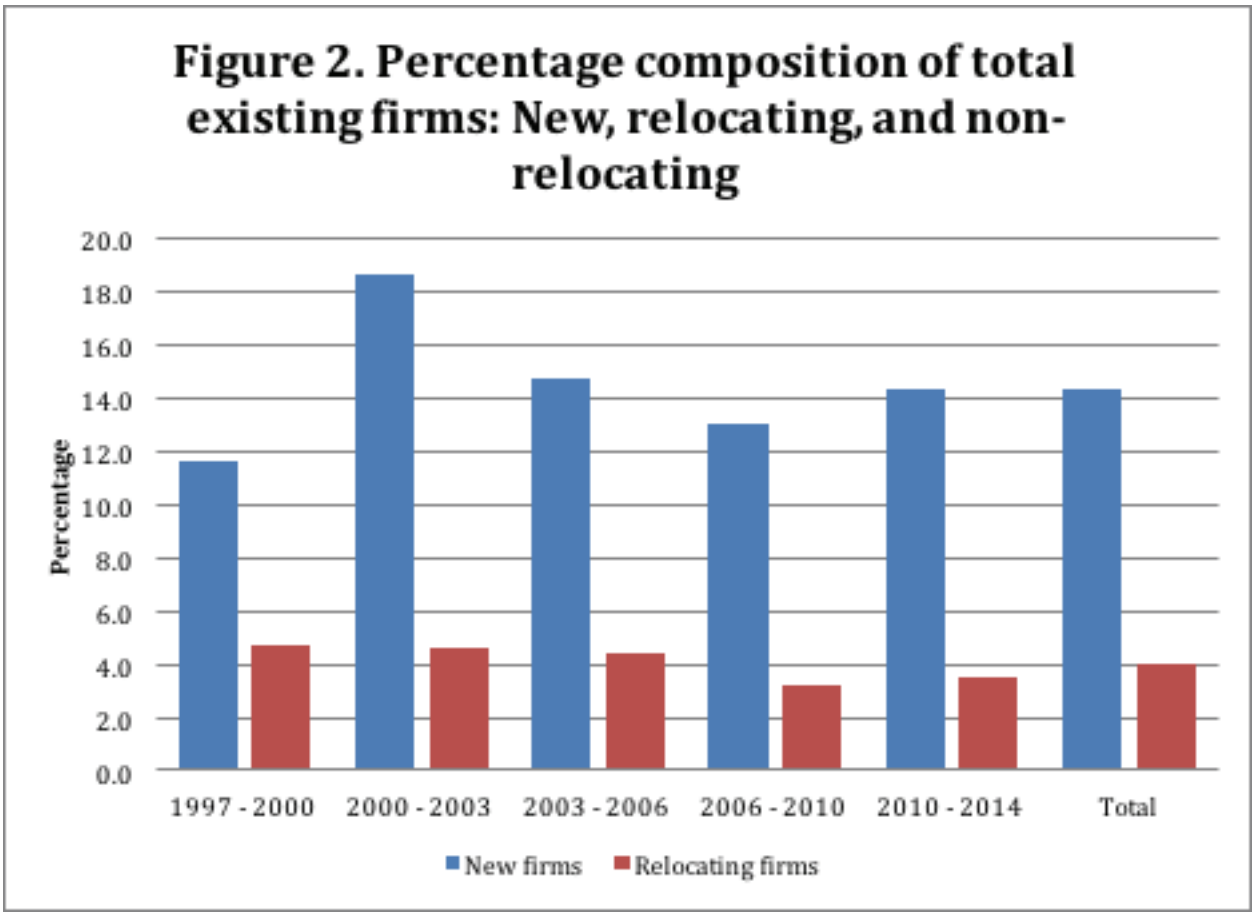


Figure 1 shows the number of relocations that occurred on average each year within each time period. This figure also distinguishes between moves that occurred within the same city (or county) and those that crossed city (or county) boundaries. We see:

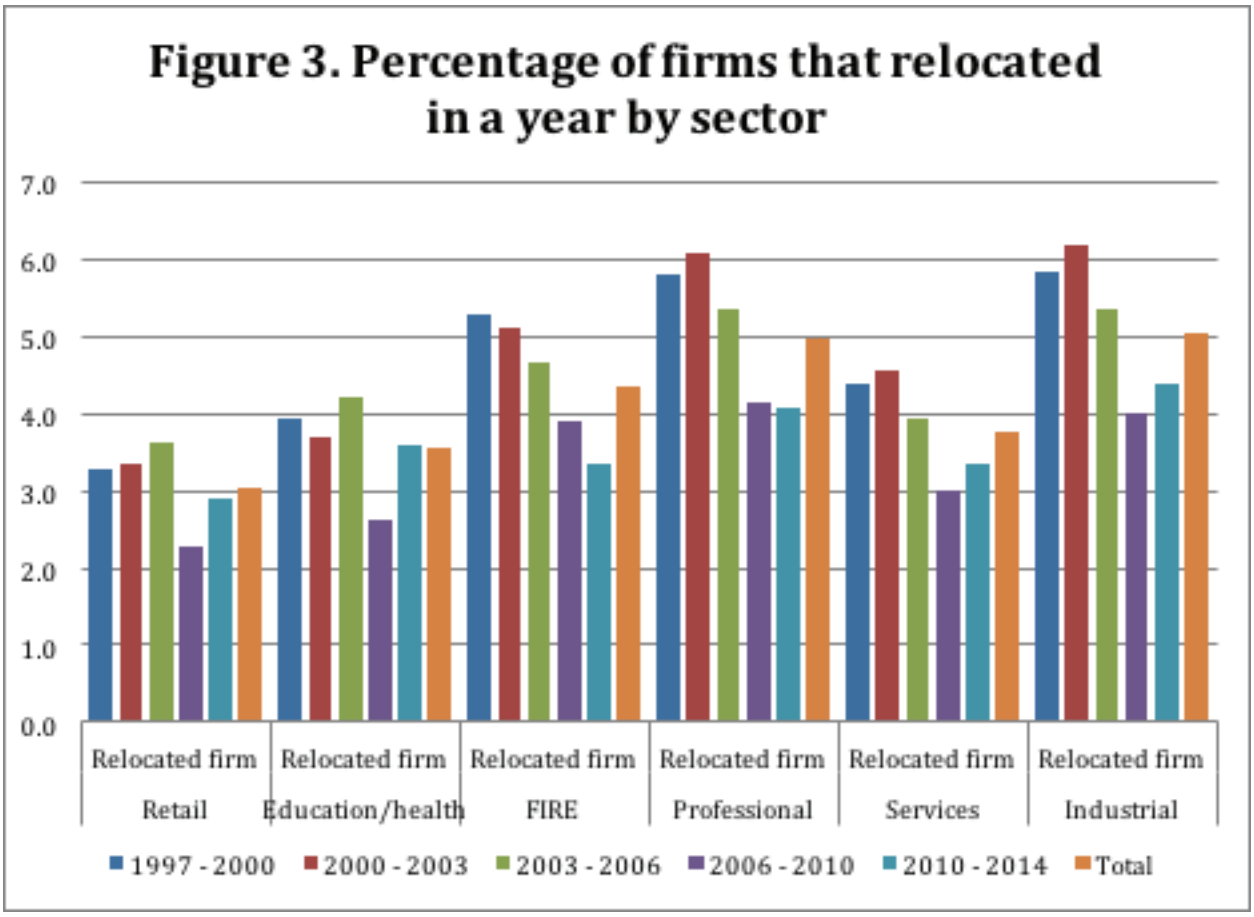
- Most relocations occur within the same county – on average about 30,000 businesses per year
- Far fewer relocations cross county boundaries
- Typically, just over 20,000 relocations per year occur within city boundaries, whereas just about 10,000 per year cross city boundaries
- In the contraction period of 2006-10, we see a noticeable drop in within-city or within-county relocations; however, the number of cross-city or cross-county relocations did not change much in that period



As another way of viewing the number of relocations, Figure 2 compares the percentage of firms that were new in that year, changed location, or saw no change (this third category is 100% minus the other two categories).

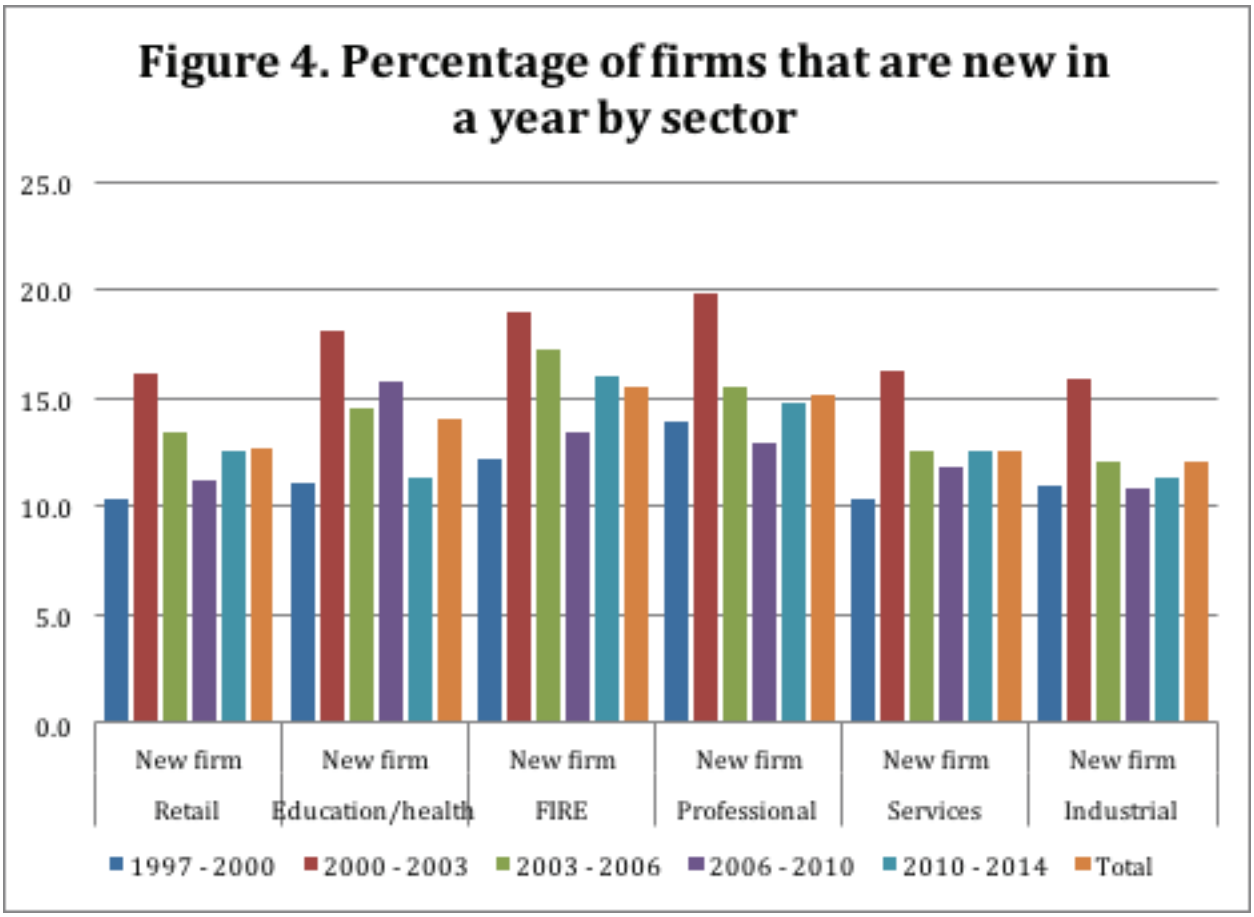
- The number of businesses that relocate each year is fairly small, ranging from a low of 3.2% per year between 2006-2010 and a high of 4.7% per year between 1997-2000. This contrasts with previous studies which find closer to 1% of businesses tend to relocate in a given year, but only count relocations if they are to other ZIP codes[7].
- Between 11.6% and 18.7% of business establishments in each year are newly created
- Typically, between 77% and 84% of firms in a given year existed in the same location the prior year

7 These studies include Neumark et al. (2005), and Conroy, Deller, and Tsvetkova (2017). "Interstate relocation of manufacturers and business climate." Review of Urban and Regional Development Studies. 29:1.



In Figures 3 and 4, we break relocations and new businesses down by sector and time period:

- For most types of businesses, relocations were at their highest from 2000-2003, during which time 6.2% of industrial businesses, 6.1% of professional businesses, and 4.6% of service business relocated.
  - » FIRE relocations were highest in 1997-2000 (5.3%), while 2003-2006 witnessed the most retail relocations (3.6% of total firms) and education/healthcare relocations (3.9%)
- For all sectors other than FIRE, the period with the lowest rate of relocation was 2006-2010, when only 2.3% of retail businesses, 2.6% of education/health businesses, and 3.0% of service businesses moved.
  - » FIRE firm relocation was at its lowest over 2010-2014
- Economic cycles appear to be reflected in relocation rates, with the lowest level of relocation occurring during or immediately following the Global Financial Crisis of the late 2000s.
- Despite recent concerns about retail chain bankruptcies and store closures, retail businesses show the lowest likelihood of relocating across all sectors, with an annual relocation rate of 3.0%



- Industrial business (which include manufacturing, wholesaling, transportation, warehousing, and utilities), along with professional businesses, have the highest rate of annual relocation at 5.0%.
- The rate of new firm creation was highest in 2000-2003 for all sectors and lowest for all sectors in 1997-2003.
- New firm creation was lower for all sectors during the recession years of 2006-2010 than prior values, however relocations showed a more consistent drop and subsequent recovery across industries than new firm creation rate
- The overall rate of new firm creation is highest in FIRE (15.5% of total firms) and service (15.2%) and lowest for industrial firms (12.1%)

Cross-border relocations: Counties and cities

In this section of the Report, we ask what percentage of relocations by firms cross city boundaries, zip code boundaries, or county boundaries. We explore this for all firms, as well as for our six industries of firms.

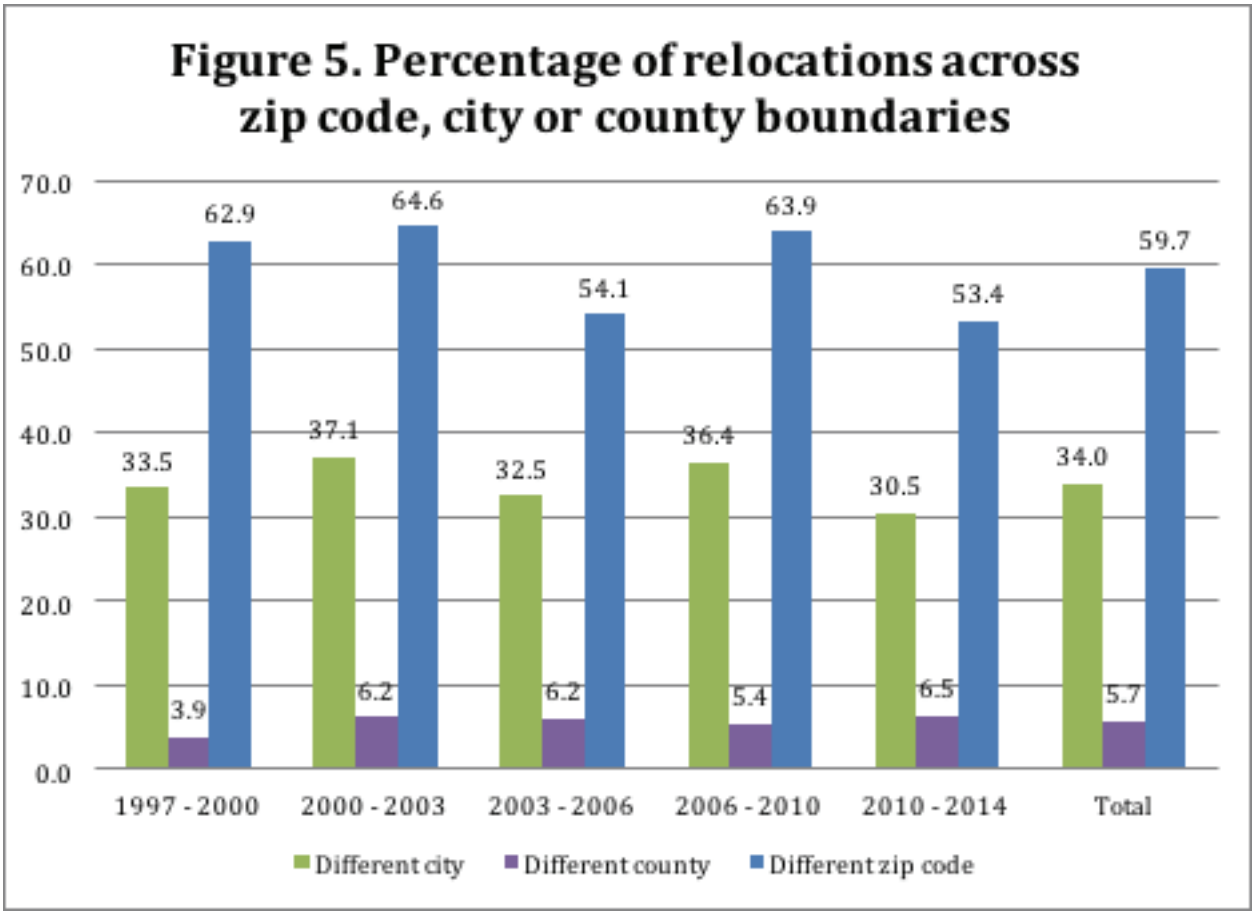


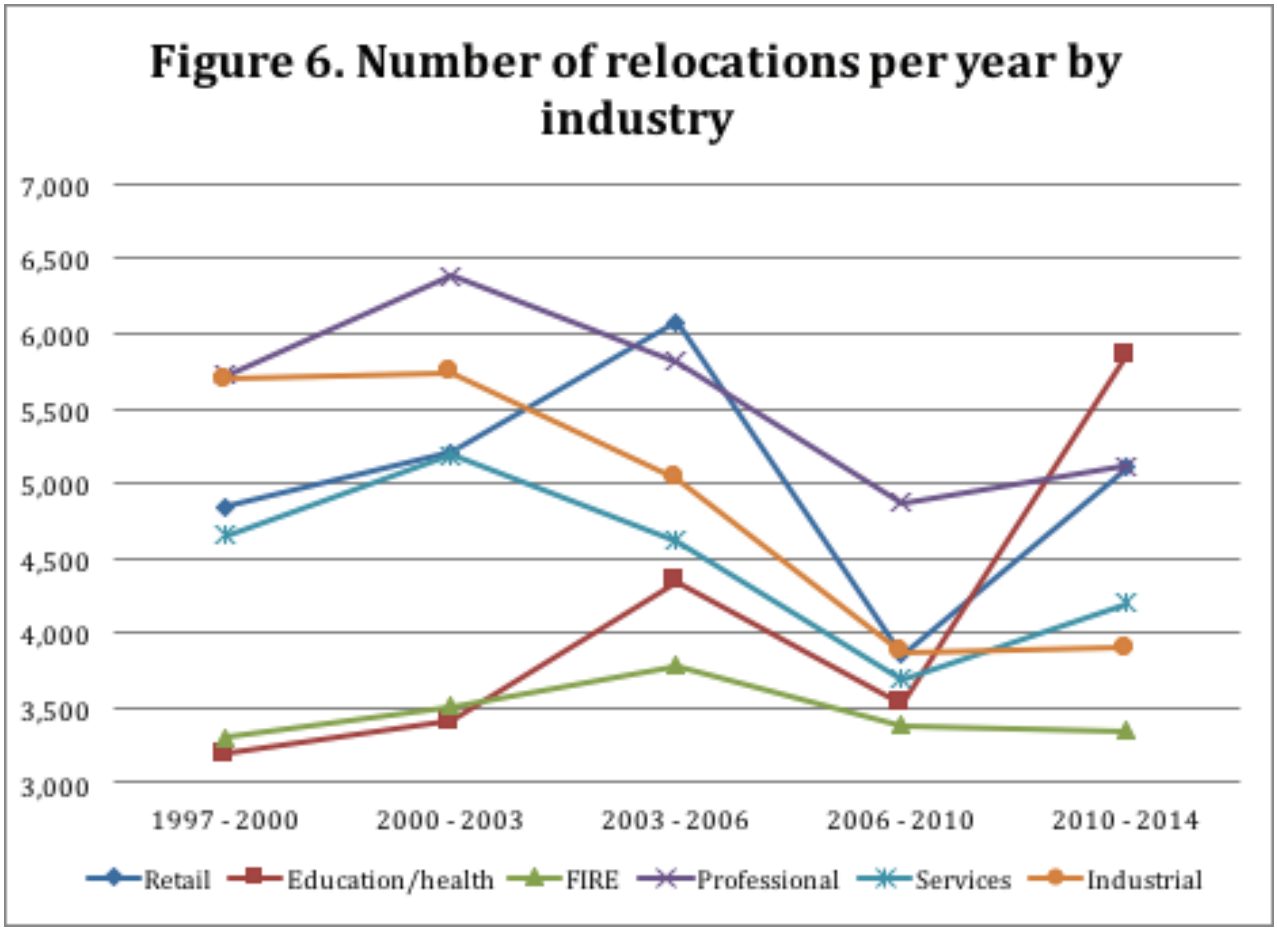
Figure 5 displays business relocations using the "move of 0.1 mile or greater standard. We find:

- Roughly 60% of business relocations are to a new ZIP code
  - » Thus, the remaining 40% of moves were within the same ZIP code and would not have been considered "moves" by prior research.
- Roughly one-third of moves (34%) were to a different city
- Only 5.7% of moves took place across a county boundary[8]

8 Note: this study considers a relocation out of Southern California to be a business establishment 'death' rather than a relocation, since it is no longer participating in the regional economy. Likewise, businesses moving in from out of the 7-county area are counted as births. Note that these are a very small percentage of the overall total.

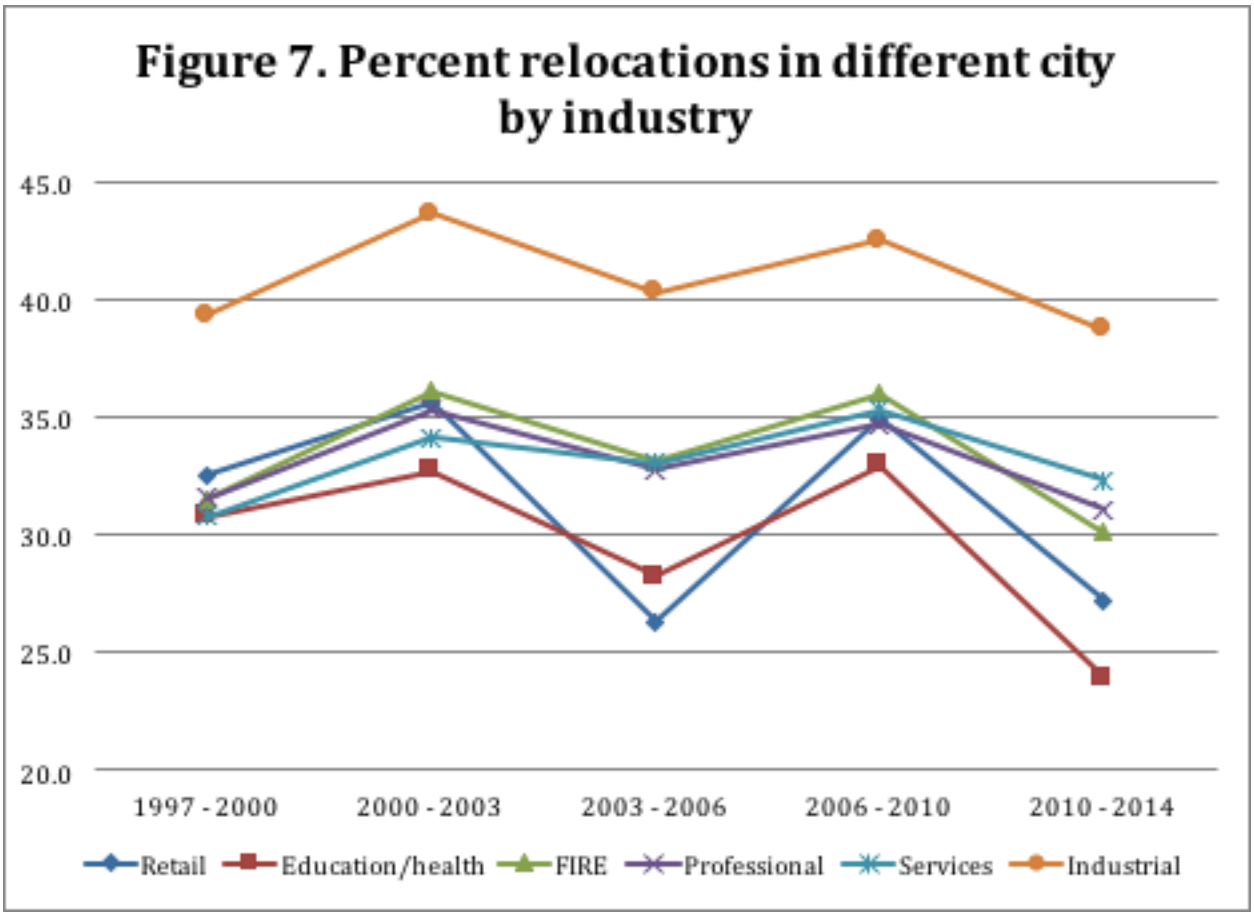
Analyzing "movers" across key economic sectors

In this section, we ask whether the types of businesses that relocate differs across the six industry types that we study.



In Figure 6 we see that:

- Professional firms usually constitute the largest number of relocating firms
- While industrial firms have a fairly high *rate of relocation*, in terms of number, there were fewer relocations, especially since 2006
- Fewer FIRE firms relocate than other types of firms
- The number of education and healthcare firms relocating saw a large one-time increase in 2010-2014; however, closer investigation showed that this was largely due to a spike in doctor offices moves in and out of several large hospitals across the region in 2012.
- The fewest number of relocating retail firms occurred in the bust years of 2006-10



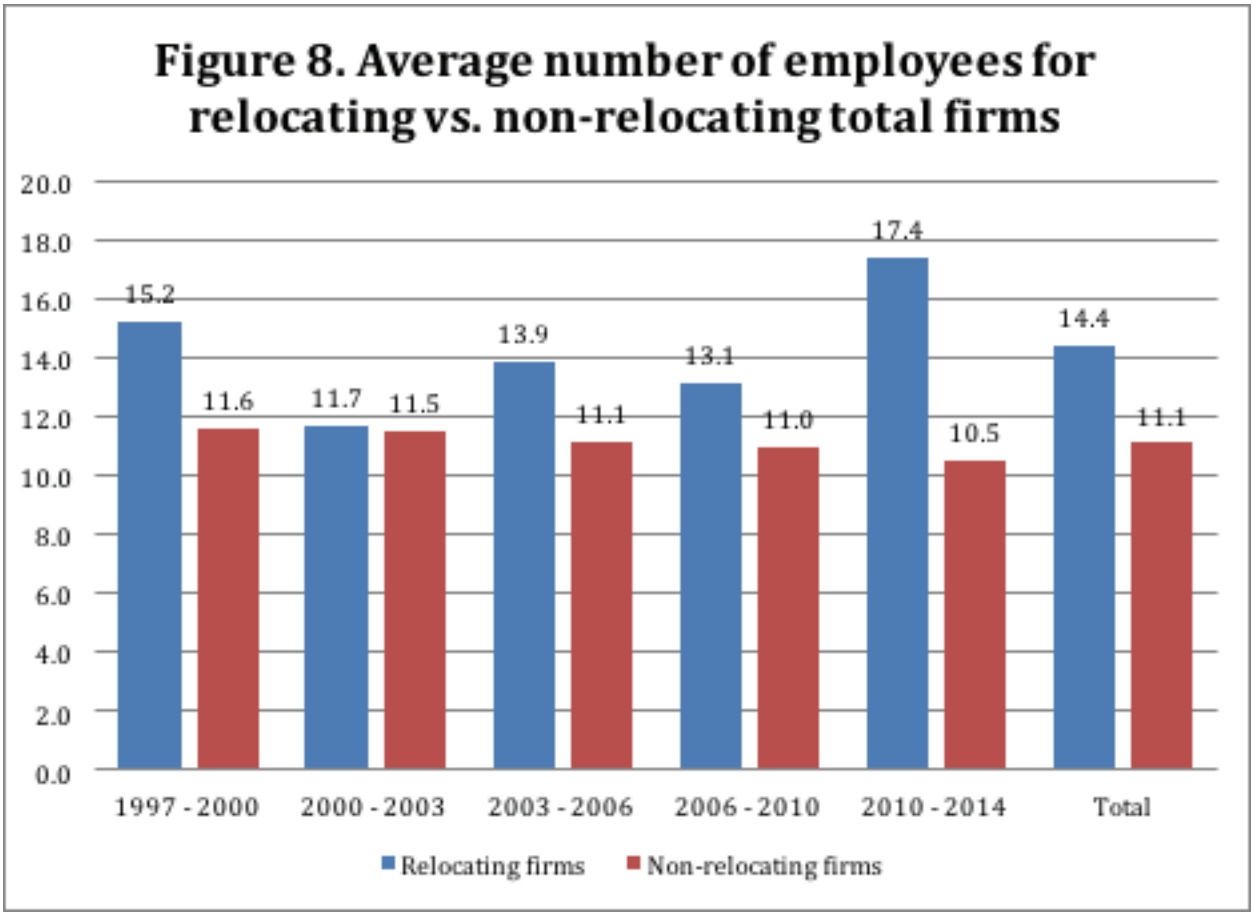
Observing Figure 7,

- The likelihood of a relocation being across city boundaries is highest for industrial businesses – between 40% and 45%
  - » *Most such firms are involved in the production and distribution of goods, so a customer or employee base that resides locally may be less important*
- The likelihood of a relocation crossing a city boundary for most non-industrial type businesses is between 30% and 35%.
- Over the entire time period relocations in education and healthcare are the least likely to be across city boundaries – below 30%.
  - » *These types of businesses are more likely to be public or supported by public finance, which could be tied to a specific municipality.*

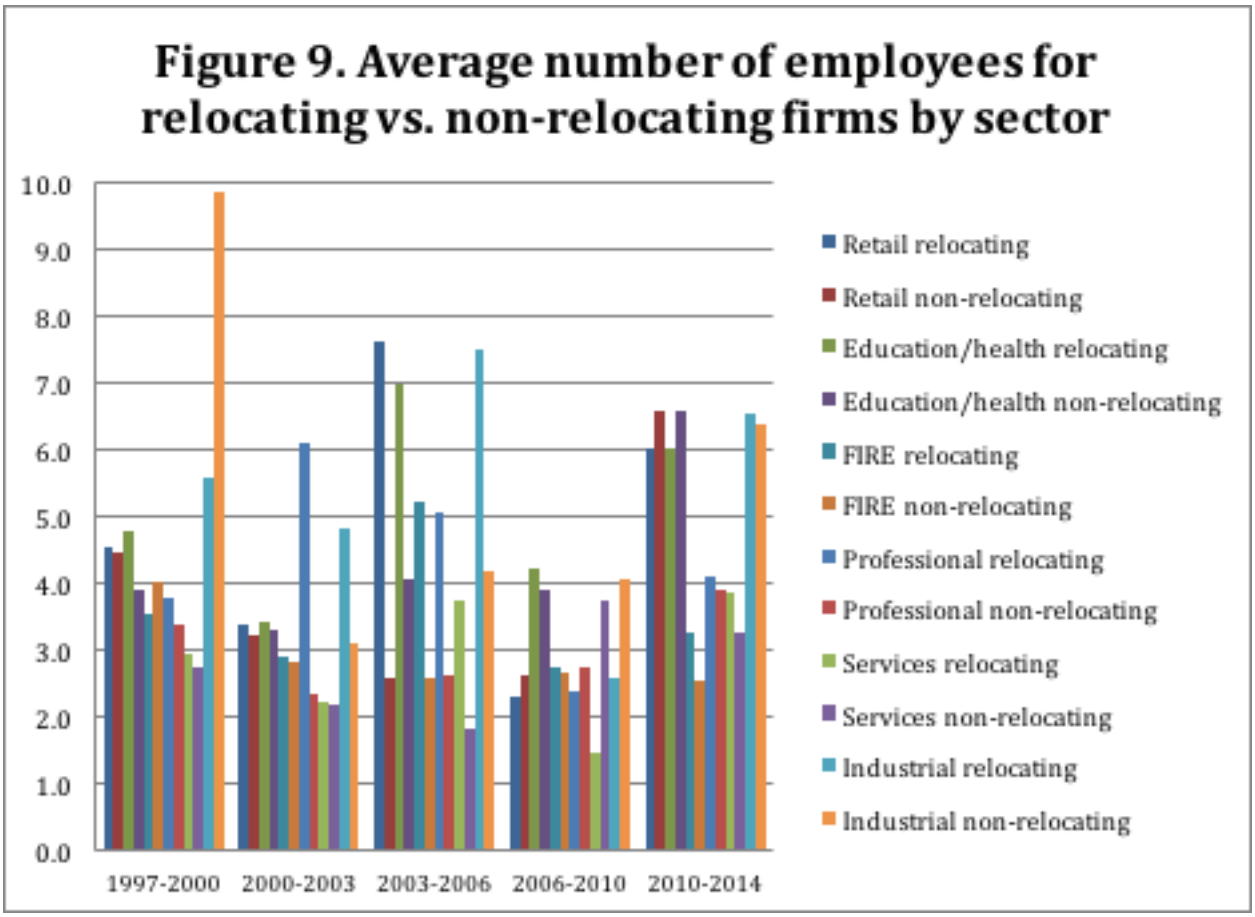
Analyzing "movers" by firm size

In addition to variation by industry, we might expect firms of different sizes or stages in their life-cycles as businesses to have a different likelihood of relocating. Some researchers argue that small and medium-sized businesses start up in innovative or higher cost areas and at a certain point in their maturity are likely to move to lower cost areas or the urban periphery[9].

Figure 8 shows the size of relocating vs. non-relocating firms by time period, and Figure 9 shows this by sector:



9 For an extensive study of small industry relocation in the UK, see Foreman-Peck and Nichols (2017). "Inter-regional mobility of entrepreneurial SMEs." Annals of Regional Science 54: 57-87.

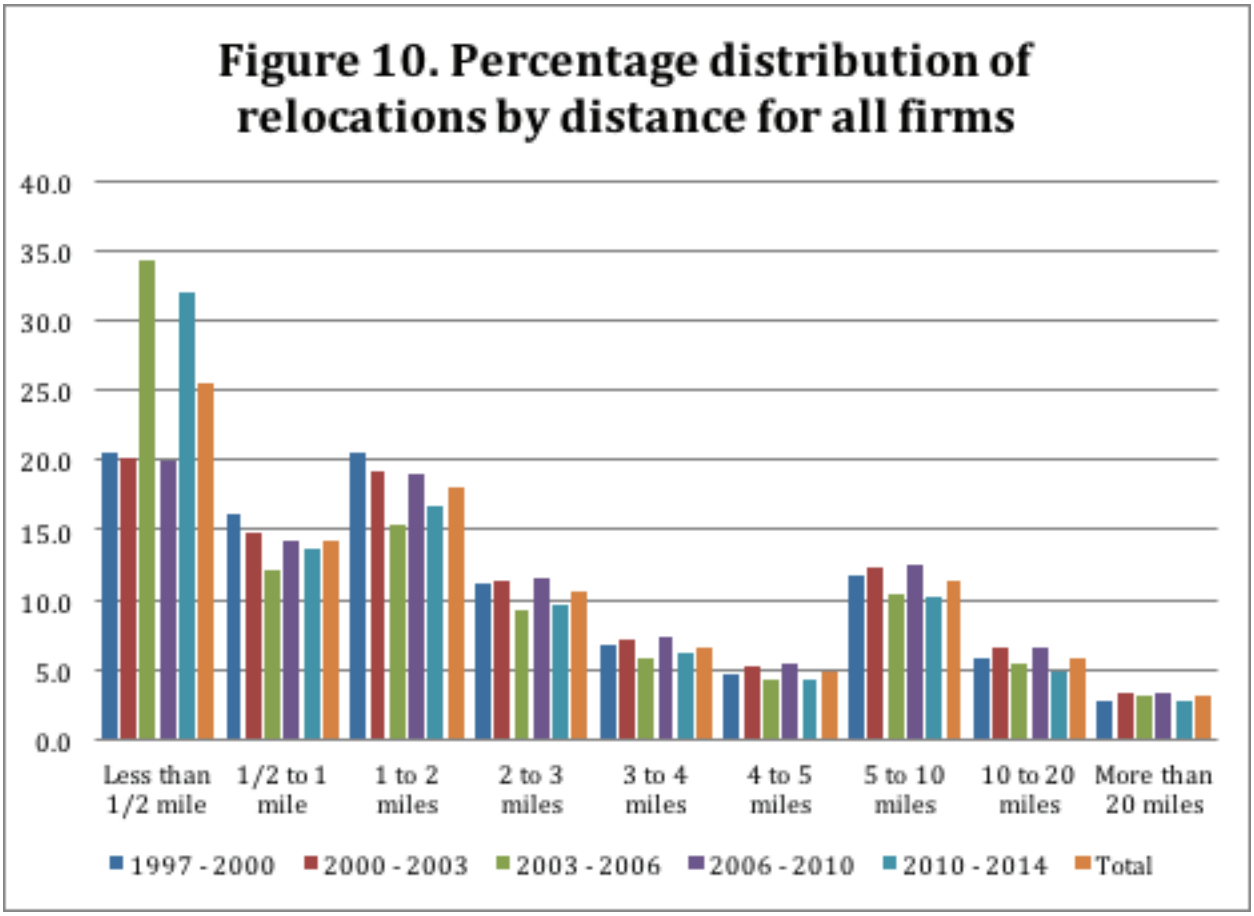


Figures 8 and 9 show:

- In general, relocating firms are larger than non-relocating firms, with an average of 14.4 employees compared to 11.1 employees
- This varies over time; relocating businesses in 2010-2014 were substantially bigger than their non-relocating counterparts while in 2000-2003 they were roughly equal in size.
- Overall, relocating retail, education/healthcare, FIRE, and professional establishments are slightly larger than their non-relocating counterparts.
- The average size of service firms did not differ based on relocation, while relocating industrial firms tended to be slightly smaller on average.

How far do businesses move?

While we previously found that roughly 40% of businesses move within the same ZIP code and about 2/3 of businesses move within the same city, we can also analyze relocation by distance. This is shown in figures 10-16 overall, then by sector.



- A very high share of moves – about 25% - are less than 1/2-mile away from the business' original location.
- This share was higher during the real estate boom that characterized 2003-2006 and suggests that businesses might have been taking advantage of newly constructed spaces (however, this is somewhat speculative).
- The share of short distance moves decreased during the financial crisis years of 2006-2010 but increased again in 2010-2014.
- There is a clear periodicity when observing longer-distance moves, from 2-3 mile moves to 20+ mile moves.
  - » *The share of longer-distance moves was higher in 2000-2003 and 2006-2010, but was lower in 2003-2006 and 2010-2014.*

While we do not have detailed information on the reasons why businesses move, we suspect that periods of higher commercial real estate construction witness higher rates of short-distance moves, which would be indicative of firms seeking out new, nearby spaces without substantially changing their location, the commutes of workers, or the local market area they service.

Figure 11. Percentage distribution of relocations by distance for retail firms

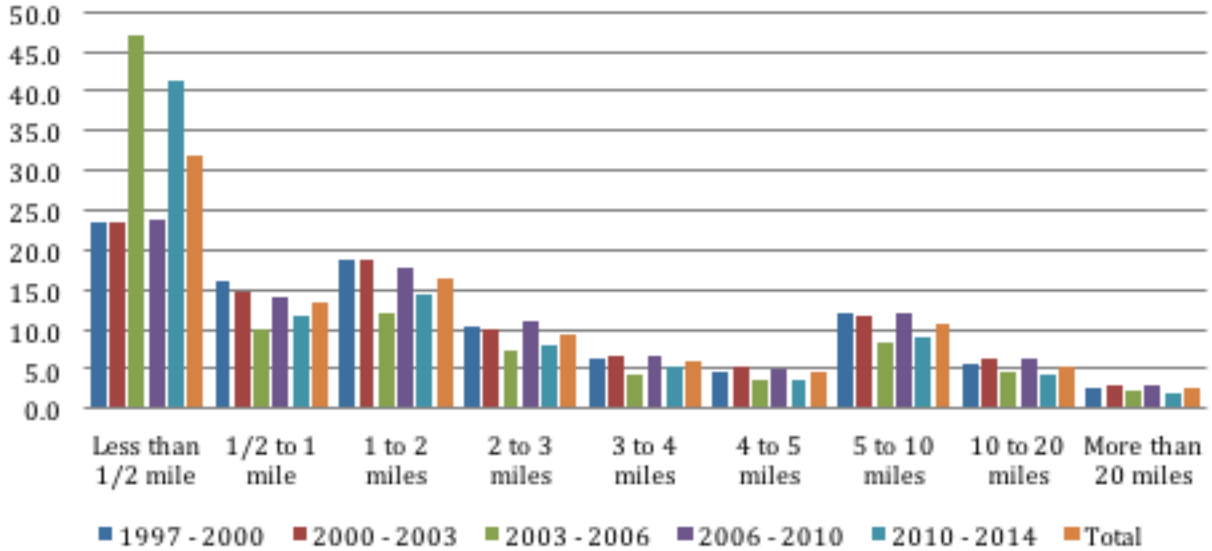


Figure 12. Percentage distribution of relocations by distance for education/health firms

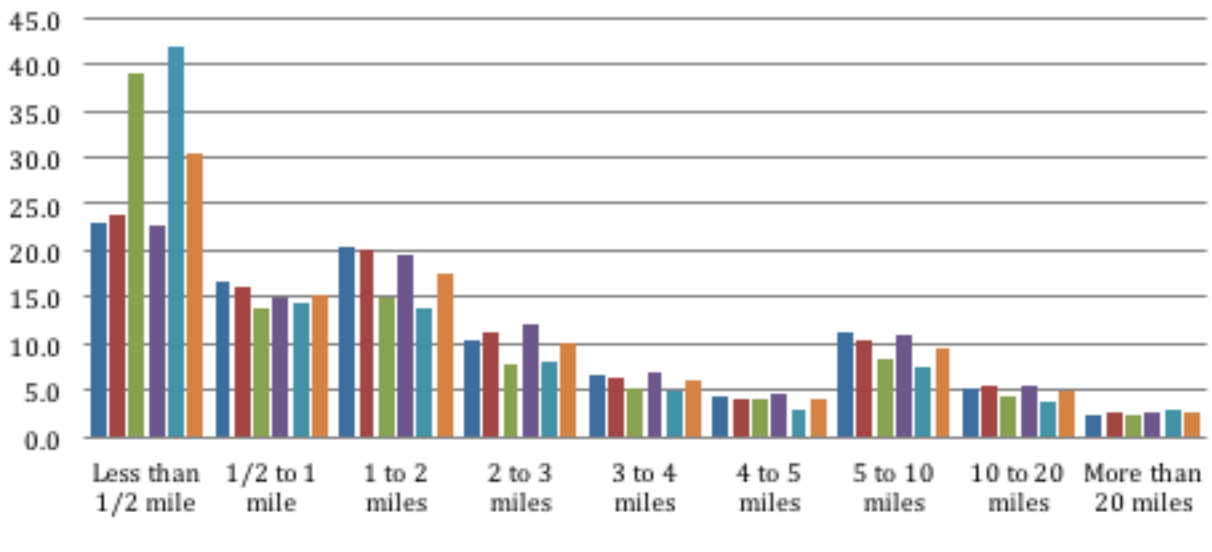


Figure 13. Percentage distribution of relocations by distance for FIRE firms

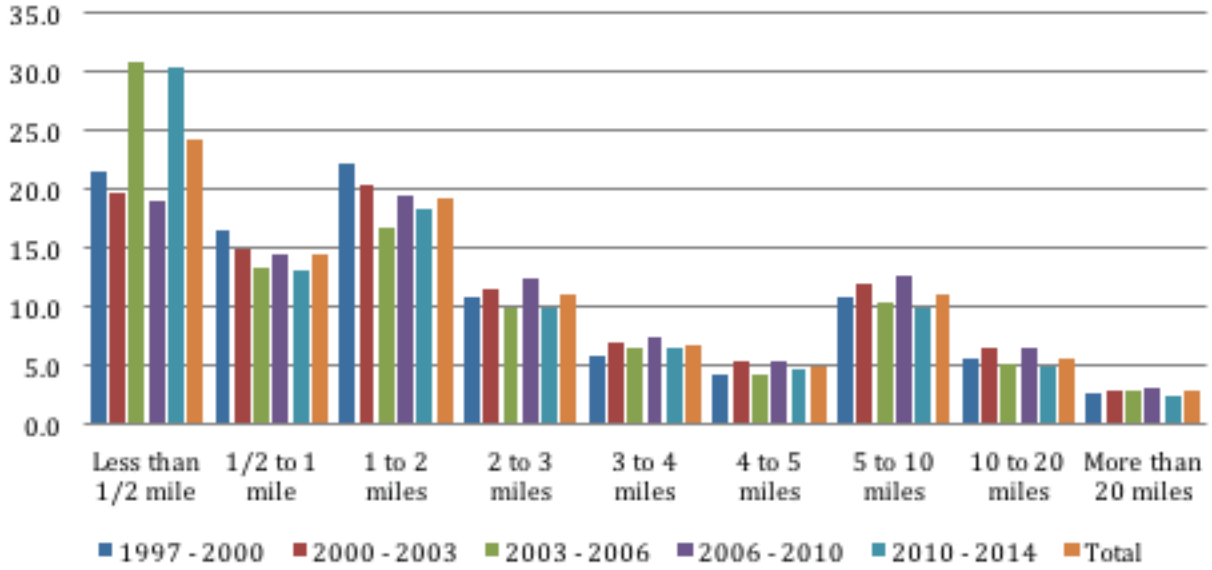
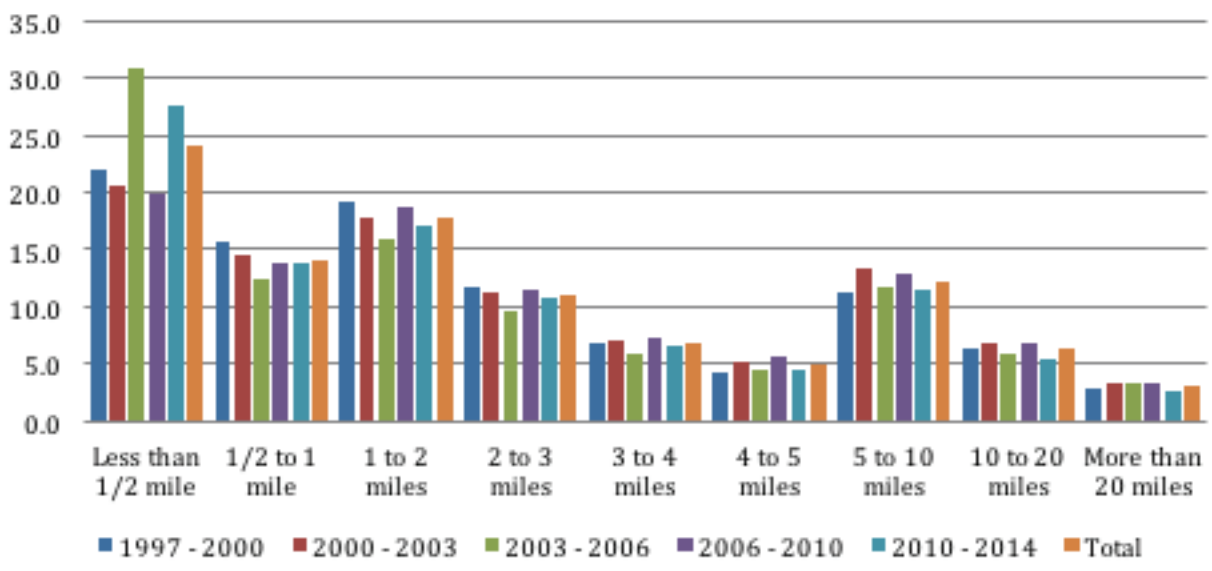


Figure 14. Percentage distribution of relocations by distance for professional firms



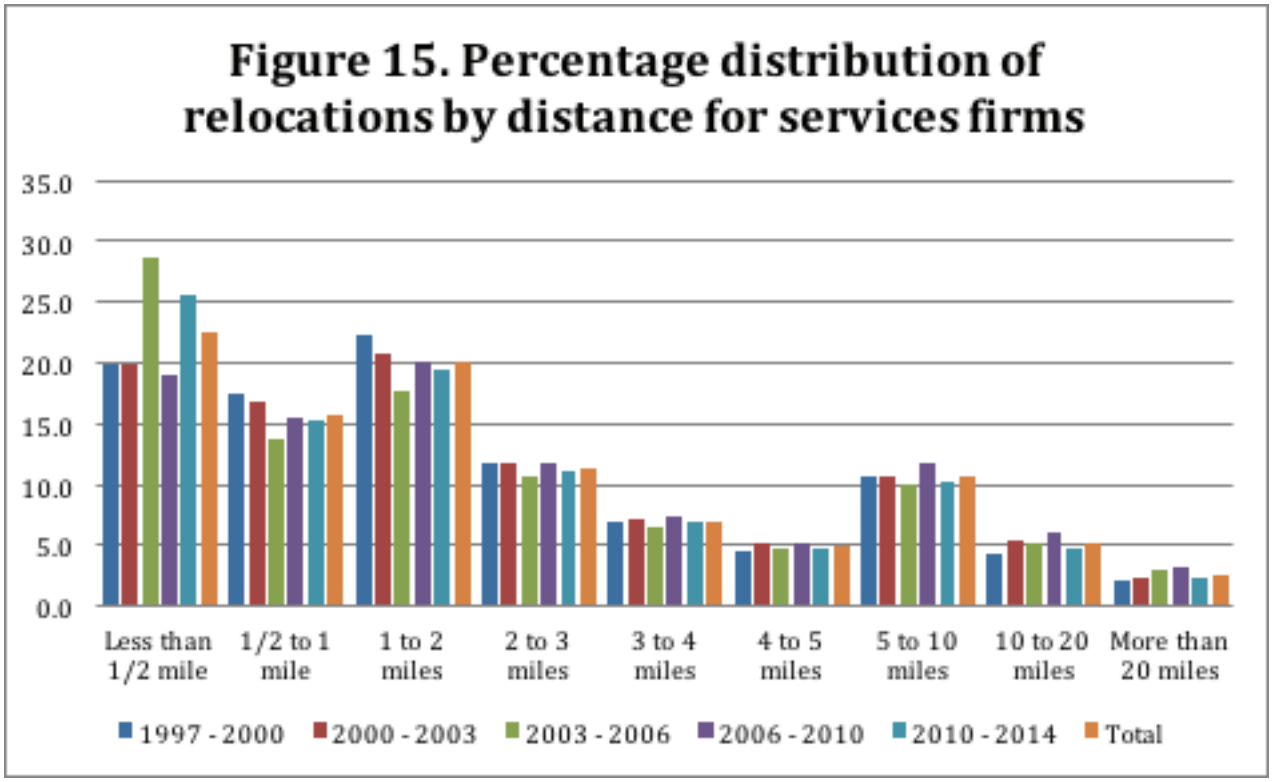


Figure 15. Percentage distribution of relocations by distance for services firms
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Less than 1/2 mile
1/2 to 1 mile
1 to 2 miles
2 to 3 miles
3 to 4 miles
4 to 5 miles
5 to 10 miles
10 to 20 miles
More than 20 miles
1997 - 2000
2000 - 2003
2003 - 2006
2006 - 2010
2010 - 2014
Total

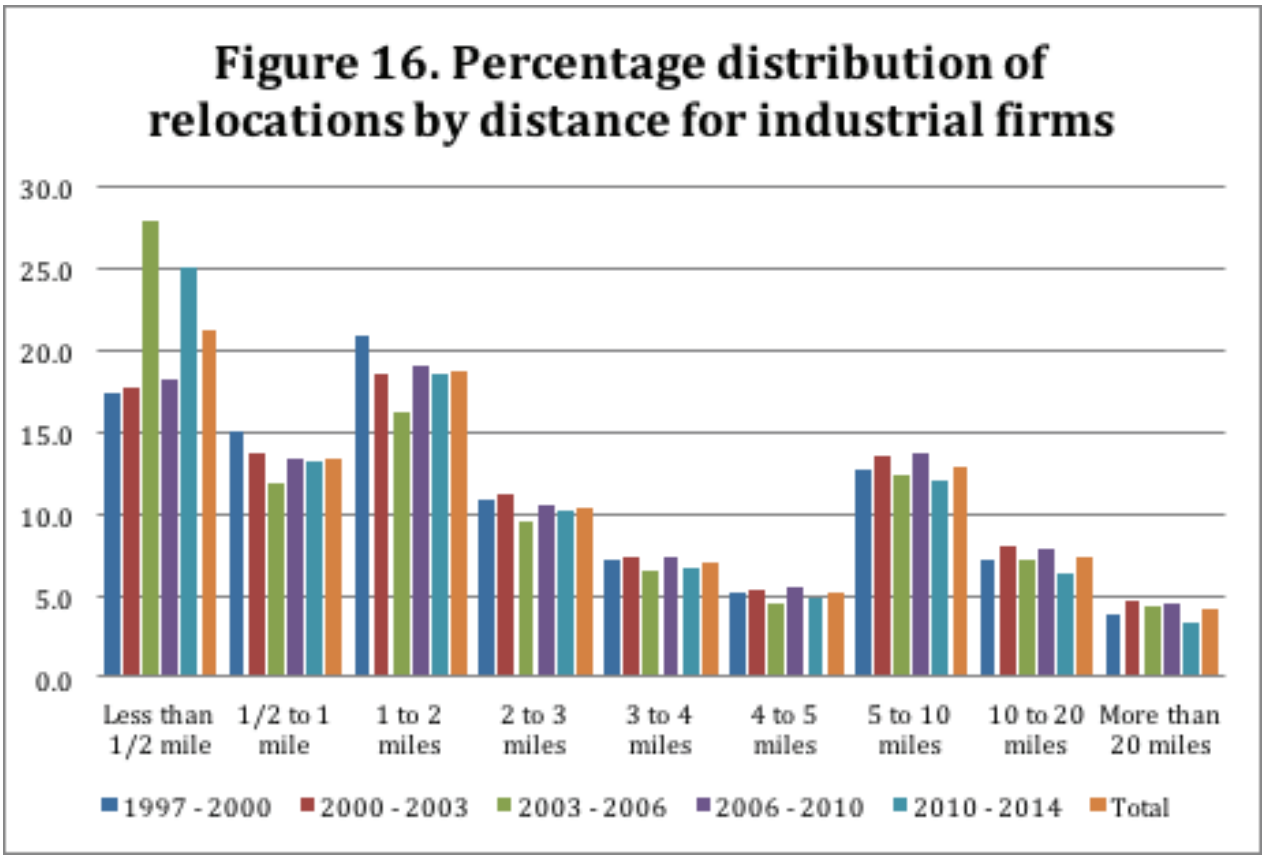


Figure 16. Percentage distribution of relocations by distance for industrial firms
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Less than 1/2 mile
1/2 to 1 mile
1 to 2 miles
2 to 3 miles
3 to 4 miles
4 to 5 miles
5 to 10 miles
10 to 20 miles
More than 20 miles
1997 - 2000
2000 - 2003
2003 - 2006
2006 - 2010
2010 - 2014
Total

In Figures 11-16 which detail specific sectors, we see:

- The highest percentage of local moves (within ½ mile) averaged over these years occurs for retail firms (31%) and education/health firms (30%)
- The lowest percentage of local moves (within ½ mile) occurs for industrial firms (21% over these years), whereas the other firm types are around 23-24%
- The percentage of local moves (within ½ mile) is much higher for all industry types during the boom years of 2003-06 and 2010-14
- Industrial firms experience the largest percentage of long distance moves (5 or more miles) with 24.3%; whereas education/health firms have the fewest at 16.9%
- For retail, FIRE, professional, and industrial firms, the largest percentage of long distance moves (5 or more miles) occur during the contraction periods of 2000-03 and 2006-10

Some of the increase in local moves – and total moves – in the education/healthcare category can be attributed to moves of doctors' offices near four major medical centers in 2012: LAC-USC Medical Center (704 moves), Harbor-UCLA Medical Center (672 moves), VA West Los Angeles Medical Center (505 moves), and the Naval Medical Center – San Diego (469 moves). Since the healthcare industry represents a large number of relatively small business establishments, this finding illustrates how a shift in one industry can contribute greatly to changes in region-wide patterns, e.g. a rise in local moves.

Local Focus I: Businesses moving to and from Irvine

In this section we focus specifically on business relocations involving Irvine, California during the period 2010-14. Irvine is a city of roughly 260,000 residents in central Orange County. As of 2015 Irvine employed 245,000 people, an increase of over 40,000 jobs since 2010 and well above the pre-recession peak of 229,000[10]. These maps and data are available for all cities in Southern California in our web mapping application at: http://shiny.datascience.uci.edu/uciMetropolitanFutures/relocations

Figure 17

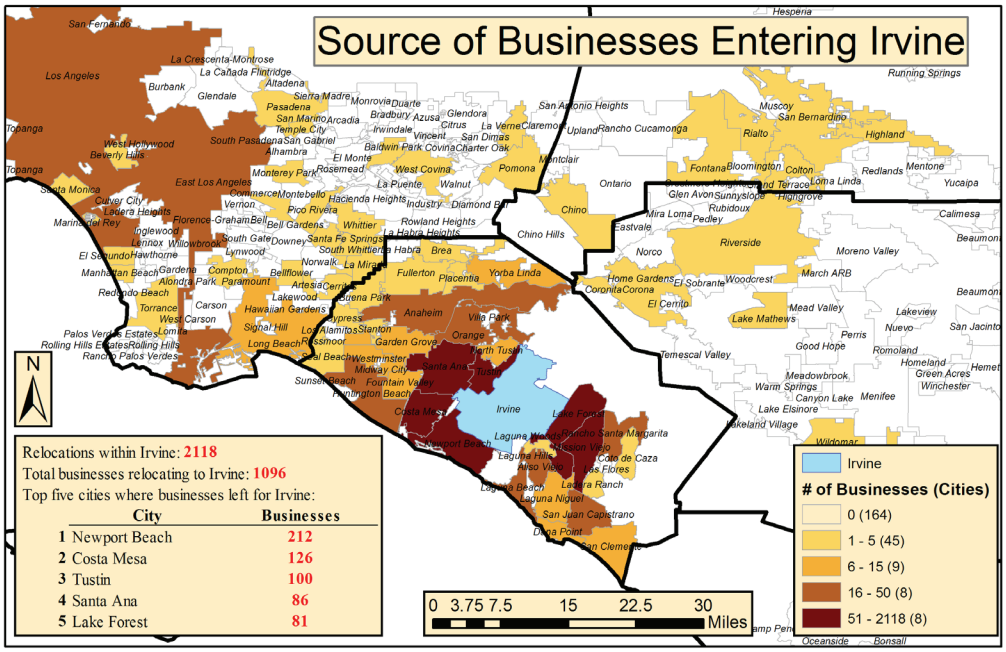


Figure 18

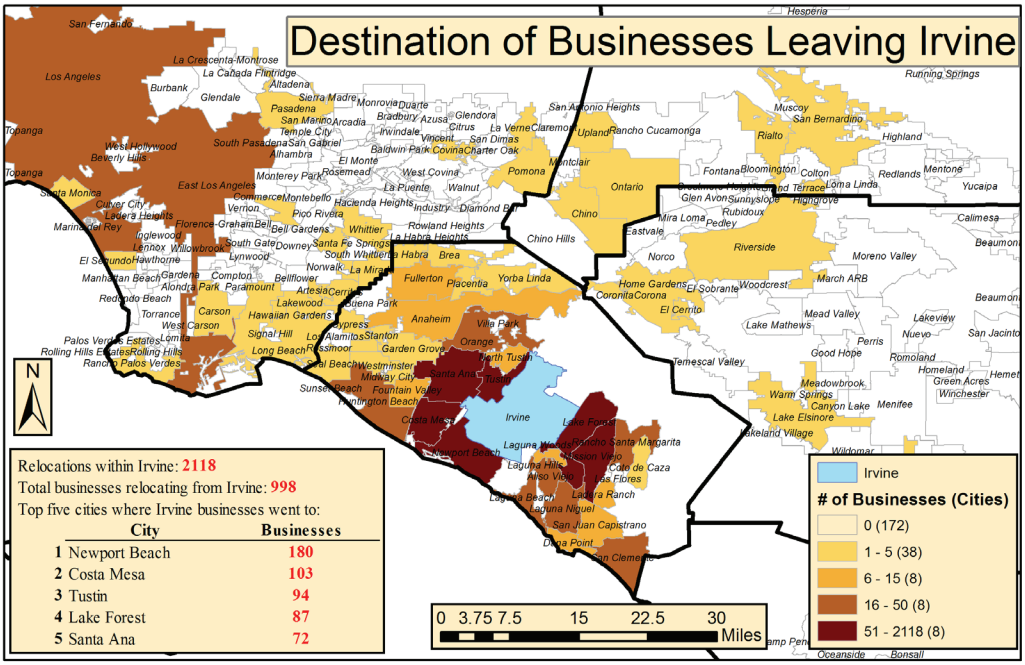


Table 2

Retail relocations within Irvine: **306**
Retail businesses relocating to Irvine: **152**
Top five cities where retail businesses left for Irvine:

	City	Businesses
1	Newport Beach	212
2	Costa Mesa	126
3	Lake Forest	100
4	Tustin	86
5	Santa Ana	81

Education/Healthcare relocations within Irvine: **360**
Education/Healthcare businesses relocating to Irvine: **134**
Top five cities where educ/health businesses left for Irvine:

	City	Businesses
1	Newport Beach	30
2	Costa Mesa	25
3	Santa Ana	10
4	Laguna Hills	9
5	Tustin	8

FIRE relocations within Irvine: **361**
FIRE businesses relocating to Irvine: **169**
Top five cities where FIRE businesses left for Irvine:

	City	Businesses
1	Newport Beach	54
2	Tustin	19
3	Costa Mesa	17
4	Mission Viejo	12
5	Lake Forest	8

Retail relocations within Irvine: **306**
Retail businesses relocating from Irvine: **129**
Top five cities where retail businesses Irvine for:

	City	Businesses
1	Costa Mesa	21
2	Tustin	15
3	Newport Beach	15
4	Aliso Viejo	9
5	Santa Ana	8

Education/Healthcare relocations within Irvine: **360**
Education/Healthcare businesses relocating from Irvine: **99**
Top five cities where educ/health businesses left Irvine for:

	City	Businesses
1	Newport Beach	19
2	Costa Mesa	16
3	Laguna Hills	10
4	Tustin	7
5	Mission Viejo	6

FIRE relocations within Irvine: **361**
FIRE businesses relocating from Irvine: **167**
Top five cities where FIRE businesses left Irvine for:

	City	Businesses
1	Newport Beach	41
2	Tustin	16
3	Lake Forest	15
4	Mission Viejo	12
5	Costa Mesa	12

Professional relocations within Irvine: **595**
Professional businesses relocating to Irvine: **347**
Top five cities where Professional businesses left for Irvine:

	City	Businesses
1	Newport Beach	63
2	Costa Mesa	44
3	Santa Ana	36
4	Tustin	32
5	Lake Forest	21

Service relocations within Irvine: **170**
Service businesses relocating to Irvine: **110**
Top five cities where Service businesses left for Irvine:

	City	Businesses
1	Newport Beach	22
2	Costa Mesa	12
3	Tustin	10
4	Santa Ana	9
5	Lake Forest	9

Industrial relocations within Irvine: **178**
Industrial businesses relocating to Irvine: **109**
Top five cities where Industrial businesses left for Irvine:

	City	Businesses
1	Lake Forest	16
2	Tustin	11
3	Santa Ana	10
4	Newport Beach	9
5	Laguna Hills	8

Professional relocations within Irvine: **595**
Professional businesses relocating from Irvine: **295**
Top five cities where FIRE businesses left Irvine for:

	City	Businesses
1	Newport Beach	69
2	Tustin	33
3	Costa Mesa	27
4	Mission Viejo	23
5	Santa Ana	22

Service relocations within Irvine: **170**
Service businesses relocating from Irvine: **102**
Top five cities where Service businesses left Irvine for:

	City	Businesses
1	Newport Beach	15
2	Costa Mesa	13
3	Lake Forest	11
4	Tustin	8
5	Santa Ana	8

Industrial relocations within Irvine: **178**
Industrial businesses relocating from Irvine: **121**
Top five cities where Industrial businesses left Irvine for:

	City	Businesses
1	Lake Forest	20
2	Santa Ana	14
3	Tustin	11
4	Newport Beach	11
5	Laguna Hills	8

- Irvine experienced positive net business relocations from 2010-2014, with 1,096 businesses entering Irvine from elsewhere and only 998 leaving for other cities.
- The number of relocations within Irvine is roughly equivalent to the number of total relocations to or from the city, at 2118.
- Irvine gains businesses from, and loses businesses to Newport Beach more than any other city, followed by Costa Mesa, Tustin, and other nearby municipalities.
- Few cities from far away have businesses that move to, or have moved from Irvine (See Figures 17-18), though Irvine did gain 18 businesses from Los Angeles – by far the region's largest city.
- In every sector except for industrial, Irvine gains more businesses from other cities than it loses:
  - » Irvine gained 35 more healthcare businesses than it lost, and 52 more professional businesses than it lost from 2010-2014.
  - » Irvine lost 12 more industrial businesses than it gained, with a net deficit of 4 industrial businesses lost to Lake Forest.
  - » Most of these businesses come from nearby – Newport Beach and Costa Mesa in particular, indicating relatively local moves.

10 Data from the 2017 Southern California Association of Governments' Local Profiles Report for Irvine, http://www.scag.ca.gov/DataAndTools/Pages/LocalProfiles.aspx

Local Focus II: Business moving to and from Riverside

In this section we focus specifically on businesses relocations involving Riverside, California. Riverside is a city of roughly 325,000 and is part of the fast-growing Inland Empire. While employment in Riverside has been increasing since 2012, levels are still about 13% below pre-recession highs. The period analyzed here, 2010-2014, represents a portion of this recent economic recovery[11].

Figure 19

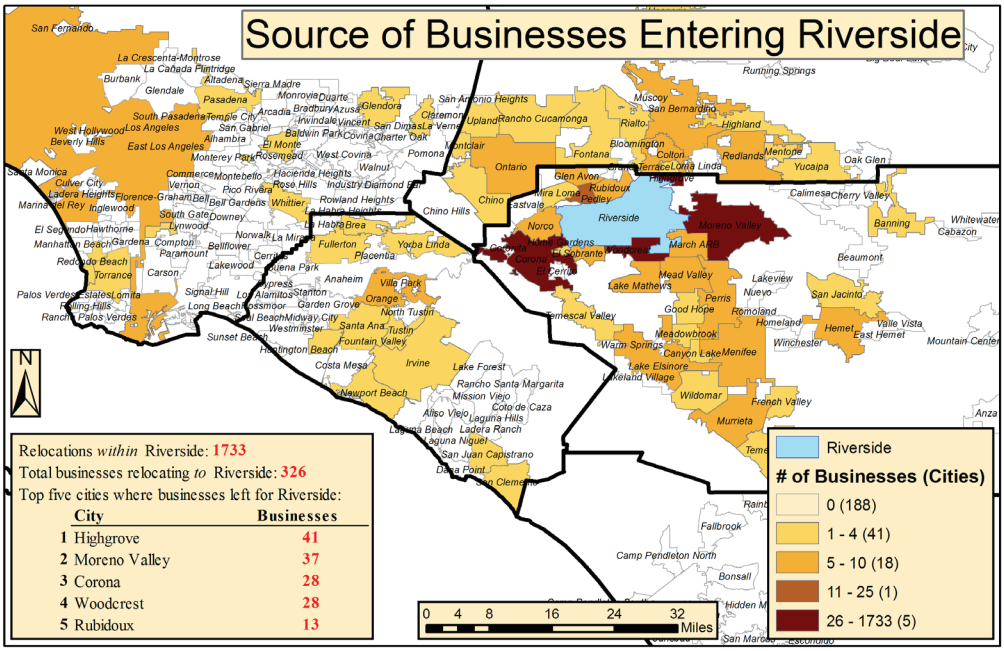


Figure 20

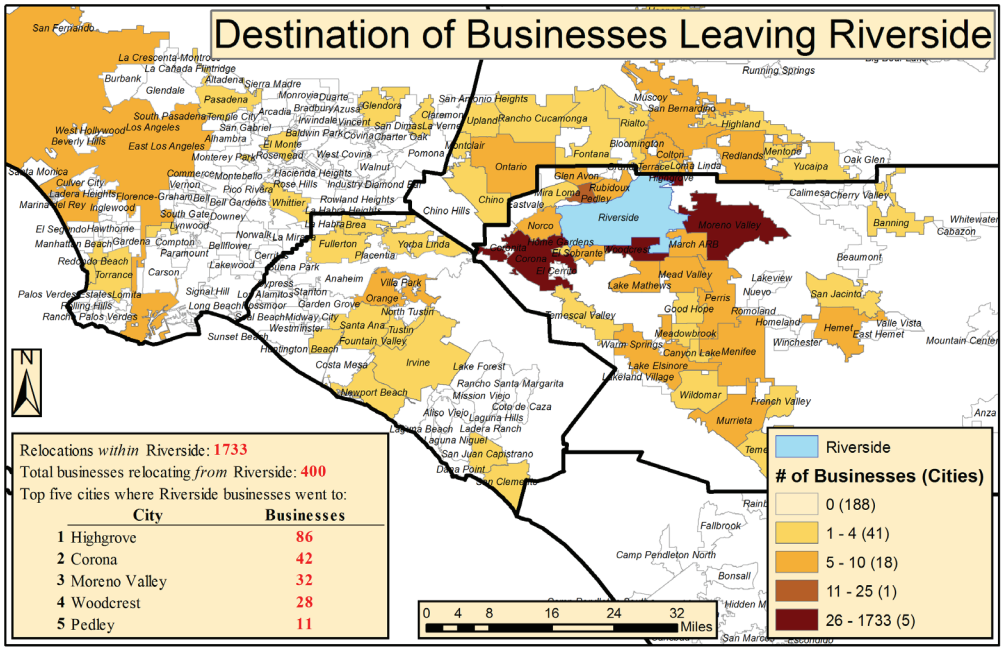


Table 3

Retail relocations *within* Riverside: 257
Retail businesses relocating *to* Riverside: 37
Top five cities where retail businesses left for Riverside:

	City	Businesses
1	Highgrove	41
2	Moreno Valley	37
3	Corona	28
4	Woodcrest	28
5	Rubidoux	13

Education/Healthcare relocations *within* Riverside: 374
Education/Healthcare businesses relocating *to* Riverside: 51
Top five cities where educ/health businesses left for Riverside:

	City	Businesses
1	Rancho Cucamonga	6
2	Corona	6
3	Moreno Valley	5
4	Highgrove	5
5	Anaheim	3

FIRE relocations *within* Riverside: 184
FIRE businesses relocating *to* Riverside: 36
Top five cities where FIRE businesses left for Riverside:

	City	Businesses
1	Moreno Valley	10
2	Highgrove	4
3	Woodcrest	3
4	San Bernardino	2
5	Pedley	2

Retail relocations *within* Riverside: 257
Retail businesses relocating *from* Riverside: 48
Top five cities where retail businesses Riverside for:

	City	Businesses
1	Corona	7
2	Highgrove	5
3	Moreno Valley	4
4	Woodcrest	4
5	Perris	3

Education/Healthcare relocations *within* Riverside: 374
Education/Healthcare businesses relocating *from* Riverside: 59
Top five cities where educ/health businesses left Riverside for:

	City	Businesses
1	Highgrove	15
2	Moreno Valley	9
3	Corona	6
4	Woodcrest	5
5	Murrieta	3

FIRE relocations *within* Riverside: 184
FIRE businesses relocating *from* Riverside: 37
Top five cities where FIRE businesses left Riverside for:

	City	Businesses
1	Highgrove	7
2	San Bernardino	3
3	Moreno Valley	3
4	Woodcrest	3
5	Hemet	2

Professional relocations *within* Riverside: 295
b businesses relocating *to* Riverside: 52
Top five cities where Professional businesses left for Riv

	City	Businesses
1	Highgrove	8
2	Woodcrest	6
3	Moreno Valley	5
4	Corona	4
5	Rialto	3

Service relocations *within* Riverside: 265
Service businesses relocating *to* Riverside: 49
Top five cities where Service businesses left for Riverside:

	City	Businesses
1	Highgrove	5
2	Norco	4
3	Corona	4
4	Rubidoux	4
5	Anaheim	3

Industrial relocations *within* Riverside: 165
Industrial businesses relocating *to* Riverside: 51
Top five cities where Industrial businesses left for Riverside:

	City	Businesses
1	Highgrove	12
2	Corona	8
3	Rubidoux	3
4	Woodcrest	3
5	San Bernardino	2

Professional relocations *within* Riverside: 295
Professional businesses relocating *from* Riverside: 76
Top five cities where FIRE businesses left Riverside for:

	City	Businesses
1	Highgrove	15
2	Corona	9
3	Cathedral City	4
4	Los Angeles	4
5	Victorville	3

Service relocations *within* Riverside: 265
Service businesses relocating *from* Riverside: 65
Top five cities where Service businesses left Riverside for:

	City	Businesses
1	Highgrove	14
2	Moreno Valley	7
3	Woodcrest	6
4	Rubidoux	5
5	Corona	4

Industrial relocations *within* Riverside: 165
Industrial businesses relocating *from* Riverside: 63
Top five cities where Industrial businesses left Riverside for:

	City	Businesses
1	Highgrove	19
2	Corona	10
3	Glen Avon	4
4	March AFB	3
5	Woodcrest	3

- Riverside demonstrated a net relocation loss over 2010-2014: 326 businesses moved to Riverside while 400 moved away.
  - » While Irvine had roughly the same amount of business relocation within and outside of the city, 70% of business relocations in Riverside were within the city limits (1733 moves).
- Most relocations from and to Riverside were to adjacent cities such as Highgrove, Moreno Valley, Corona, and Woodcrest.
- The unincorporated census place of Highgrove is the recipient of the highest number of businesses leaving Riverside (86) as well as the source of the highest number of businesses entering Riverside.
- Very few relocations involve cities far from Riverside
- Riverside lost 24 more professional firms than it gained, the greatest "deficit" amongst business categories.
  - » However, a substantial portion of this relocation deficit can be attributed to firms moving to Highgrove, which is not incorporated and has been under consideration for annexation by Riverside.

11 Data from the 2017 Southern California Association of Governments' Local Profiles Report for Riverside, http://www.scag.ca.gov/DataAndTools/Pages/LocalProfiles.aspx

Where do businesses move from – and which kinds of neighborhoods do they move to?

In this section we characterize the neighborhood context surrounding business relocations. Trends toward mixed-use development, which places commercial land uses and homes in close proximity, as well as the increasing desire of walkable, transit-accessible communities have been rising in recent years. In addition, certain types of businesses, such as those that are creative, artistic, or tech-oriented are thought to increasingly seek out neighborhoods that are walkable, denser, and in close proximity to other businesses[12] .

In this section, we compare the neighborhood surrounding each business that relocated over the period from 1997-2014, using a combination of census and other data.

Figure 21. Pedestrian Friendliness

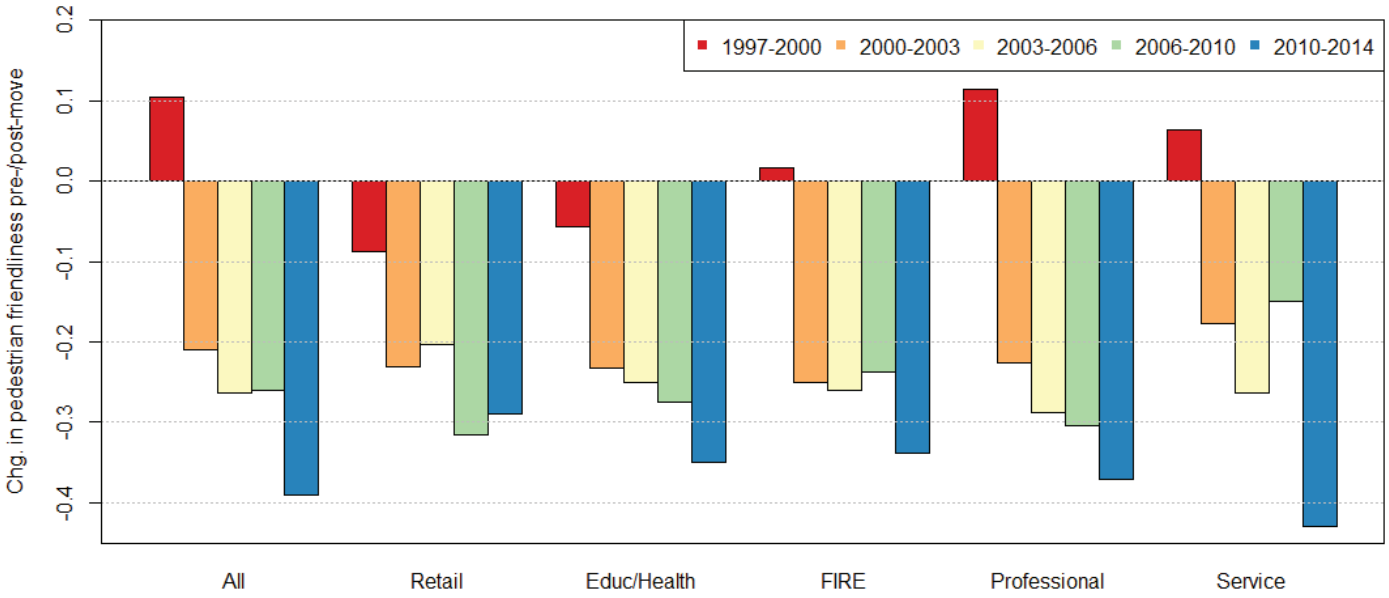


Figure 21 compares a measure of pedestrian friendliness of the neighborhood surrounding businesses before and after relocation[13]:

- In almost all cases, businesses relocate to less pedestrian friendly neighborhoods
  - » The only exceptions are relocations between 1997-2000 in professional, service, FIRE, and all industries
- Businesses relocating between 2010-2014 tended to have far lower pedestrian node levels in their new locations.
  - » This was most pronounced for service businesses, and least pronounced for retail locations, which saw a very slight reversal in the trend toward far lower pedestrian accessibility in the new location.

12 See, for example, works on the "creative class" including Florida, R. (2017) The New Urban Crisis. Basic Books: New York.

13 The EPA Smart Location Database measure for Pedestrian network node density provides this measure as of 2010. While data are provided at the census block-group level, we instead weight a block group by its contiguous neighbors since census boundaries often run along street centerlines and may impact street-based measures.

Neighborhood Population Density

Figure 22: Population Density

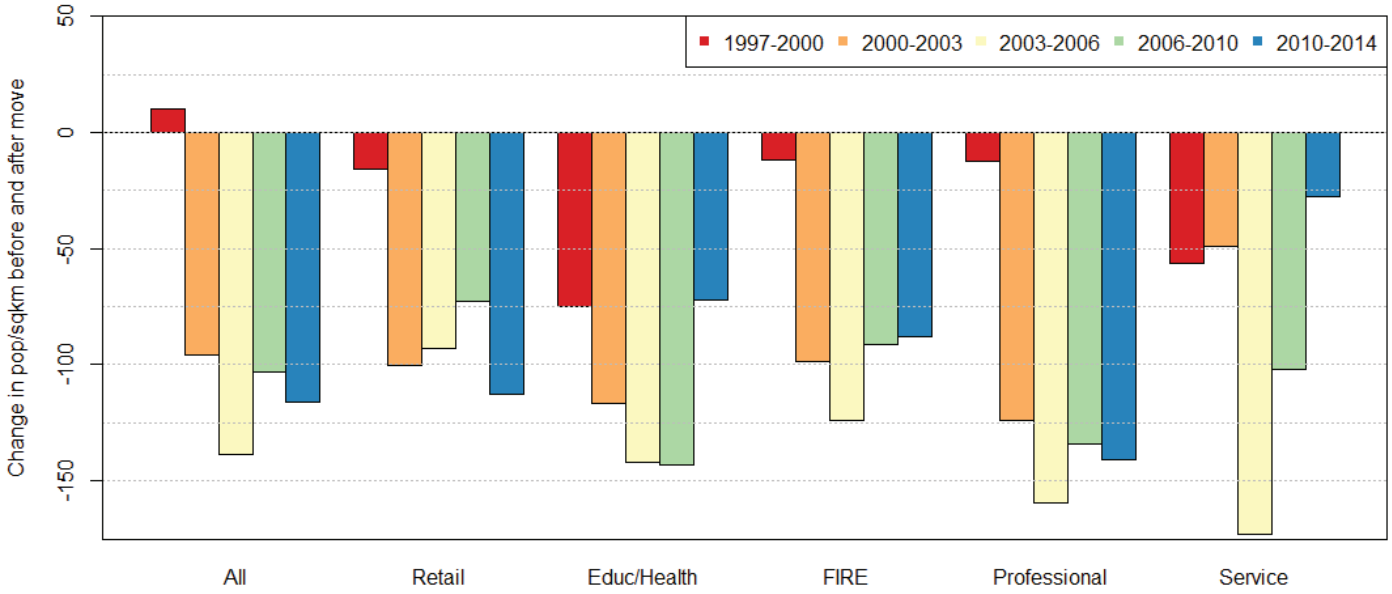


Figure 22 compares the population density near relocating businesses before versus after their moves[14]:

- In almost every case, businesses relocate to neighborhoods with a *lower population density* than the neighborhoods they had occupied previously.
  - » The only exception is the total for businesses between 1997-2000
- Service businesses show more variation across periods:
  - » Service businesses relocating between 1997 and 2003 moved to areas with only slightly lower population density
  - » Service businesses relocating between 2003 and 2006 moved to far less dense neighborhoods
  - » Service businesses relocating between 2010 and 2014 moved to areas only very slightly less dense than their original business locations

14 Year 2000 Census data, and 2010 and 2013 American Community Survey data at the census block-group level are used for population density, education level, income and age. We use linear interpolation across years to generate an annual estimate for each of these characteristics. For each relocating business, we calculate the difference between the value in the original neighborhood in the first year and the final neighborhood in the second year.

Resident Income Levels

Figure 23: Change in Neighborhood Median Family Income for Relocating Businesses

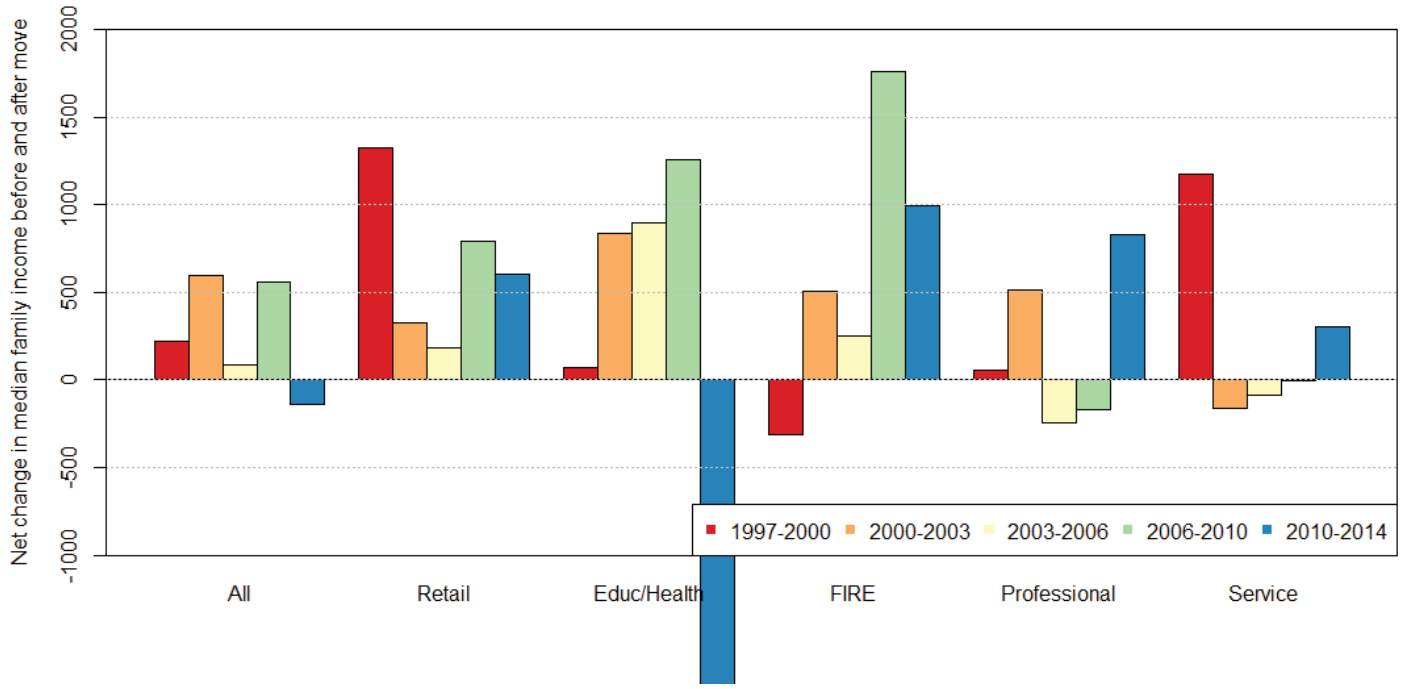


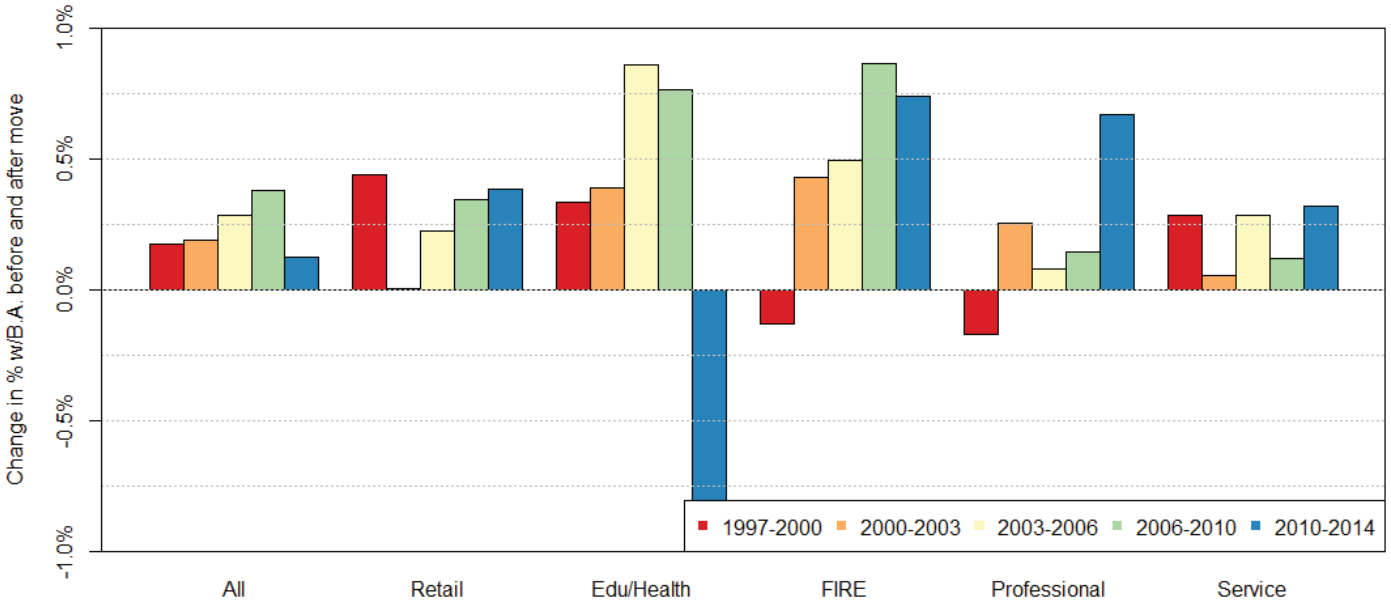
Figure 23 compares neighborhood median (family) income levels prior to and after businesses relocate. Since on average, median household incomes increase by about $1000/yr., Figure 23 displays change net of this amount.

- Across most sectors and time periods, businesses tend to relocate to higher-income neighborhoods than they'd been in previously.
- This is most pronounced in 2000-2003 and 2006-2010, while relocations during 2003-2006 and 2010-2014 were to neighborhoods with very slight different income differences.
- Since 2006, the average retail and FIRE business has shown a clear shift in moving toward areas with substantially higher median incomes. For FIRE businesses in 2006-2010 the increase in neighborhood income – above and beyond region-wide increases – was $1500.
- Prior to 20010, education/healthcare businesses relocated to greater income neighborhoods, but this changed dramatically for 2010-2014. However, as discussed previously, a very high proportion of these moves are related to doctors' offices changing locations in 2012 at a handful of large medical centers, some of which tend to be in lower income areas.

Neighborhood Education Levels

Many studies of neighborhood change focus on the process of gentrification, which is characterized by an in-migrating population which is wealthier and better educated and drives up home prices, raising concerns about residential displacement. Most studies (For an excellent study on the employment impacts of gentrification and neighborhood change, see Lester, T.W. and Hartley, D.A. "The long term employment impacts of gentrification in the 1990s." *Regional Science and Urban Economics* 45: 80-89.) prefer to use education levels as an indicator of this process rather than income levels, which can fluctuate for individuals year-to-year.

Figure 24: Percent B.A. Change by Industry and Time Period



- Most relocating businesses move to areas with higher levels of college educated residents nearby
  - » This difference is minimal: the average difference is a 0.5% increase in college education rate.
- A similar one-time anomaly is found for education/healthcare businesses relocating between 2010-2014, which move to neighborhoods with lower education levels.

Neighborhood Age Structure

The following two figures compare the characteristics of neighborhoods before and after business relocations:

Figure 25: Change in Neighborhood Young-Adult Population Share for Relocation Businesses

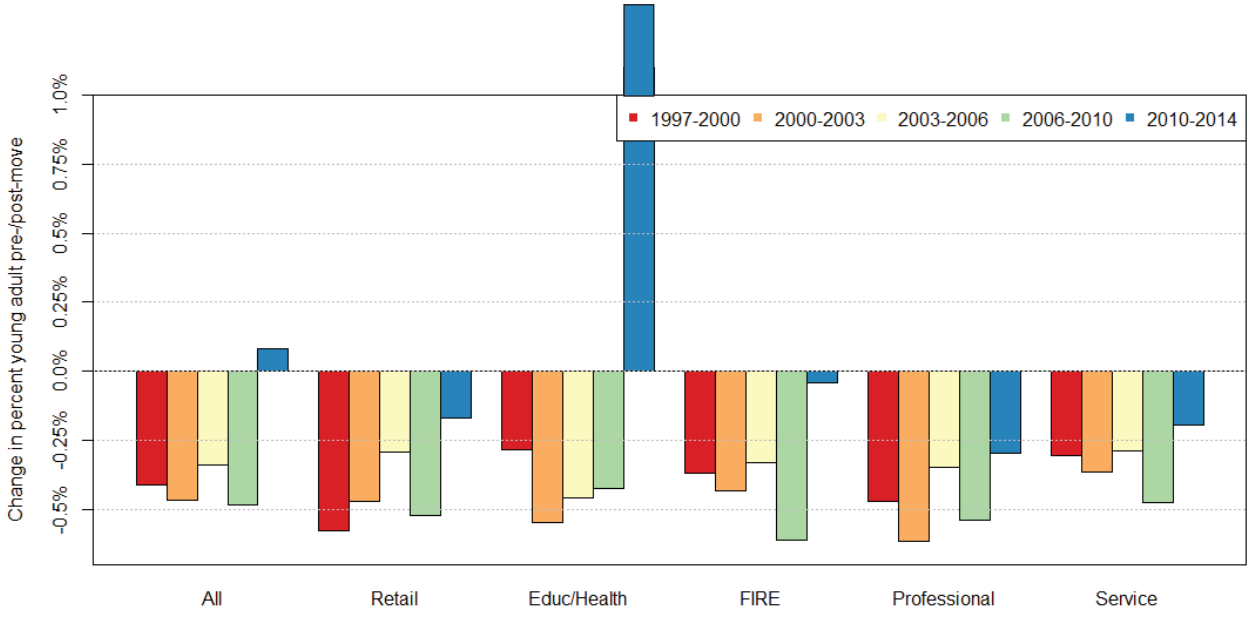
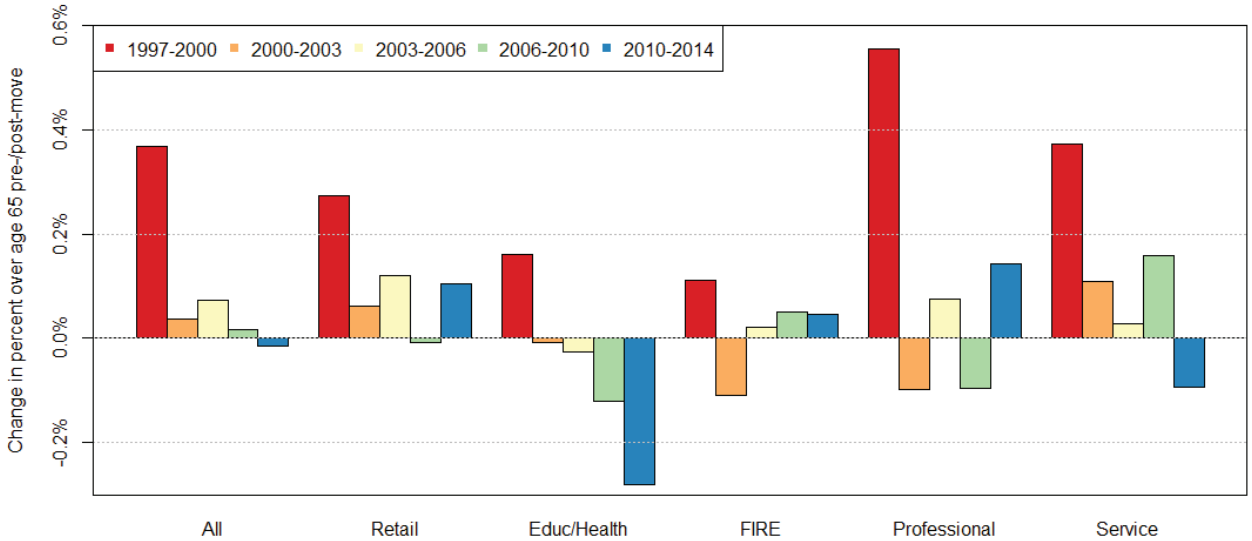


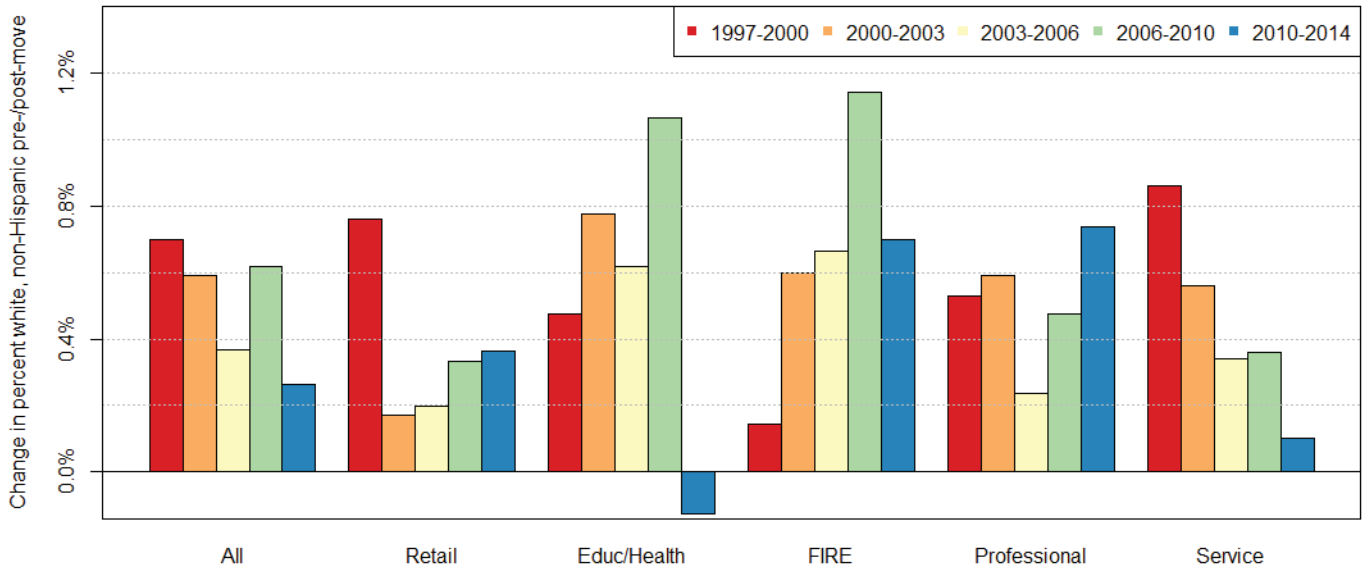
Figure 26: Change in Neighborhood Over-65 Population Share for Relocation Businesses



- Businesses tend to move into areas with young adult population shares that are very slightly lower than found in their previous locations
  - » However, the magnitude of the differences is minimal; roughly 0.5% fewer young adults (ages 19-34).
- Businesses relocating between 1997-2000 move to neighborhoods with slightly higher shares of senior citizen (above age 65) population than their old neighborhoods
  - » However, systematic trends are weak since 2000: there are not very substantial differences in senior citizen population share

Racial/Ethnic Composition

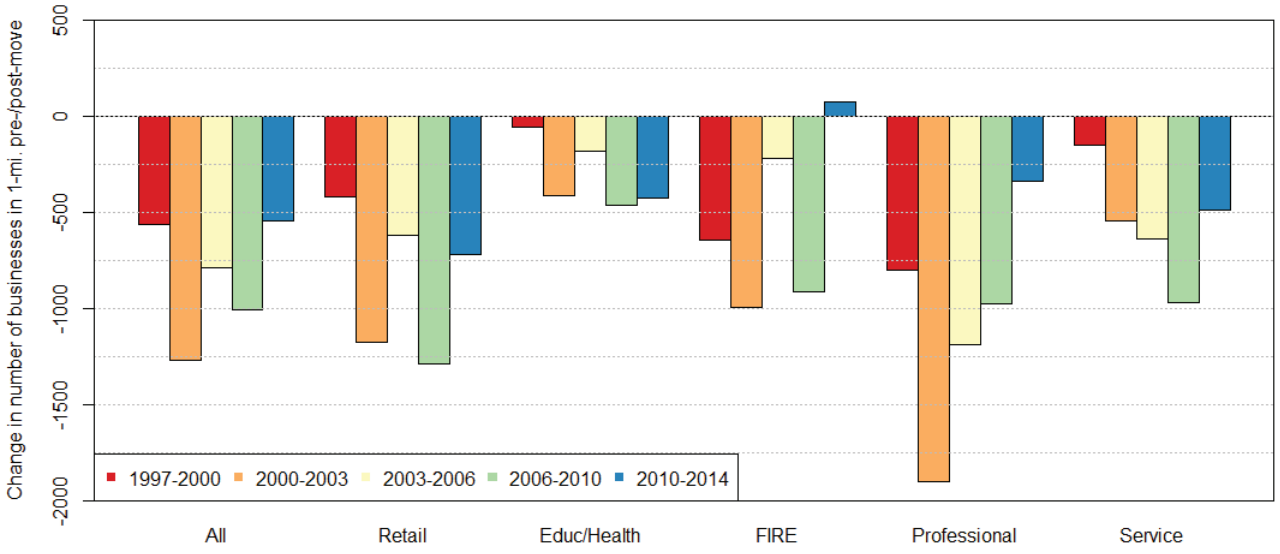
Figure 27: Change in Neighborhood white, non-Hispanic population for Relocating Businesses



- The overall trend seems to be that businesses move to neighborhoods with slightly higher shares of white, non-Hispanic population; however, average differences are rarely greater than 1%
- For all businesses, this difference was lower during the boom years of 2003-2006 and recovery years of 2010-2014 than during intervening periods
- FIRE and Education/healthcare businesses which relocated between 2006-2010 experienced the greatest increases in white, non-Hispanic population

Nearby Business Density

Figure 28: Change in Number of Business Establishments within 1 Mile for Relocating Businesses



Examining the overall employment density in neighborhoods surrounding businesses before and after a move allows us to examine whether businesses prefer dense areas which may offer complementarity or spillover benefits, or whether isolation is desirable [15].

- On average, businesses are moving to areas with fewer employees within 1 mile
  - » This is most pronounced for professional businesses which relocate, and especially between 2000 and 2003
- For retail, FIRE, and all businesses, there does appear to be a slight element of periodicity, similar to the relocation distance noted earlier.
  - » These businesses systematically relocated to far less dense areas during the "less booming" periods of 2000-2003 and 2006-2010
  - » During the intervening "boom" years, these businesses tended to relocate to areas with similar, but slightly lower business establishment density

15 In this section, neighborhoods are census blocks plus surrounding blocks up to 1 mile away.

Conclusions

Understanding business relocations is important for a number of reasons. States and localities expend substantial resources competing for business investment, often in competition with each other. Business relocations are also a component of neighborhood change: not only can businesses provide local social capital, but recent trends suggest that certain types of firms may increasingly seek out areas that are denser, more walkable, or have more high income workers nearby.

Using a technique that defines a move as a change in location of greater than 0.1 miles, **we find that only about 3.2% - 4.7% of businesses move each year over 1997-2014.** This is far greater than previous studies which tabulate an annual business relocation rate closer to 1%, though very short distance moves are typically not included in such estimates. Despite this advantage in our approach, defining moves based on distance does rely heavily on the robustness of the data, e.g. whether a store within a mall is recorded at its exact location or if all stores in the mall are coded to the same point. The very large number of doctors' offices which moved in and out of medical campuses in 2012 illustrates how, if not identified, anomalies in high resolution data can yield spurious results.

About 1/3 of business relocations in Southern California cross municipal boundaries, but this varies by city. Over 2010-2014, roughly half of the relocations to or from Irvine involved other cities, but only 30% of Riverside business relocations were to or from outside. **Only about 6% of relocations cross county borders, and a very low share of relocations appear to be longer than 10 miles or involve cities far away.** While roughly 25% of moves are less than ½-mile away from a business' original location, these "local moves" were far higher during the boom years of 2003-2006 and the recovery years of 2010-2014, suggesting that "local moves" – and thus overall levels of business relocation – are tightly linked to commercial property cycles. This is an important point for city governments to consider.

Industrial businesses tend to have a higher share of intercity moves than those in education or healthcare. Intermediate, production, or distribution-type industries which do not need to be near a particular customer base – compared to establishments that might be more tied to a local government or specific service area – tend to move further. Retail businesses, in fact, move less frequently than several other industries.

Finally, comparing the neighborhood around a business before and after it moves can provide an indication of sectoral trends in which kinds of neighborhoods businesses prefer. Overwhelmingly we find that **businesses relocate toward less dense and less pedestrian-friendly neighborhoods**, with no recent changes apparent in this pattern. While on average most businesses move toward higher-income neighborhoods, this trend is most pronounced for retail and FIRE businesses since 2006. Businesses also overwhelmingly have fewer nearby businesses after they move. This could be a feature of new commercial developments and the areas in which they occur – there are simply fewer things nearby in the beginning. However this also could suggest that businesses have been "crowded out" and seek more space, rather than seeking the agglomerative benefits that may come from locating next to a lot of other firms.

Technical Appendix A: Data Sources Used

- •Business establishment data are current as of 2014 and were provided by:

  Infogroup. (2015). *Reference USA Historical Business Dataset*.

- Neighborhood demographic characteristics at the block group-level were retreived from the US Census Bureau's 2000 Census and the 2010 and 2013 American Community Surveys
- Pedestrian friendliness was generated from the EPA's Smart Location database field D3apo: "Network density in terms of facility miles of pedestrian-oriented links per square mile:"

  Ramsay, Kevin, & Bell, Alexander. (2014). Smart Location Database. Retrieved from: https://www.epa.gov/sites/production/files/2014-03/documents/sld_userguide.pdf

Technical Appendix B: Defining a Move

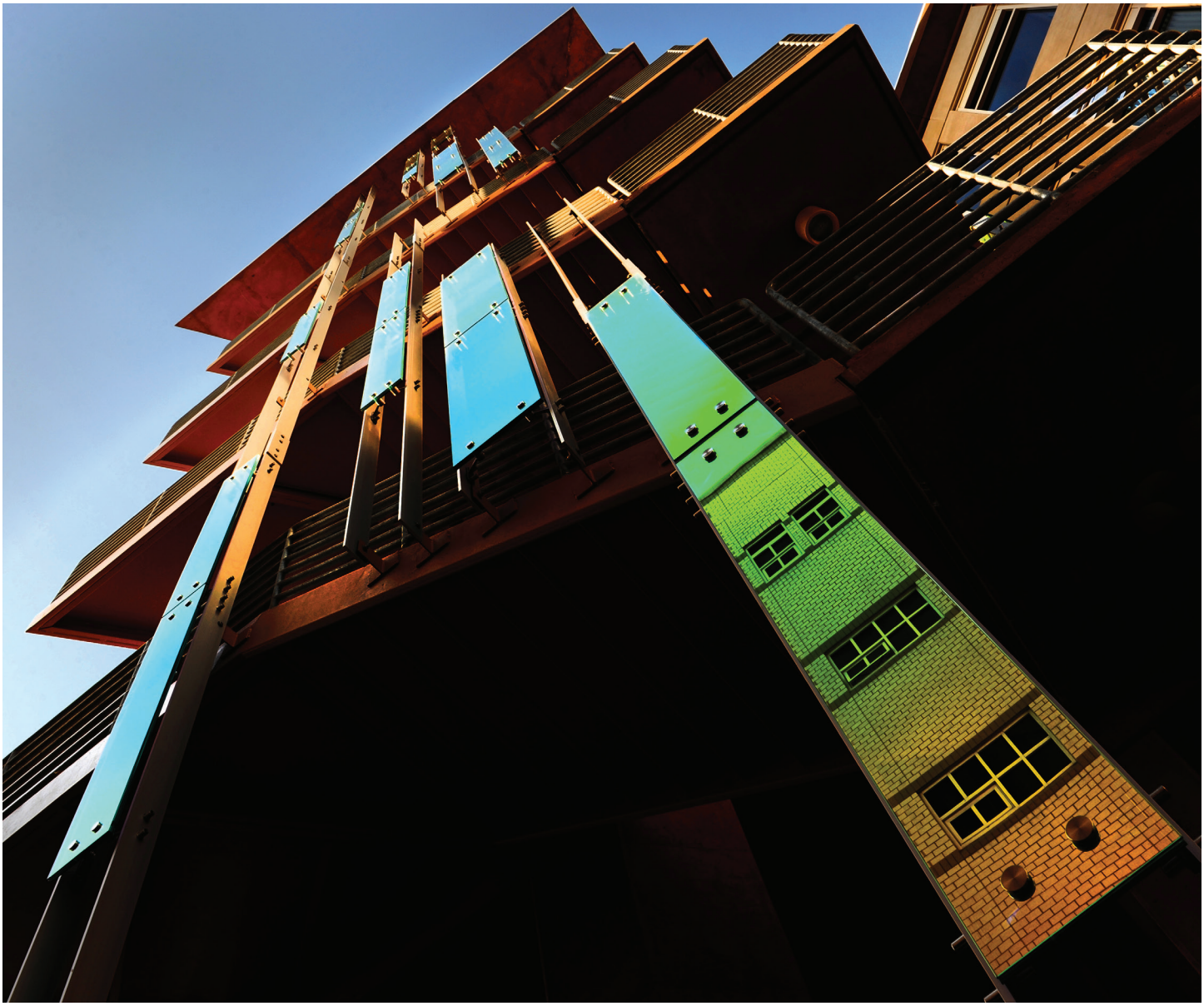
Longitudinal business establishment data provide a very close look at business relocations and have been available to researchers from commercial providers such as Infogroup, Experian, and Dun and Bradstreet for over a decade. These providers track businesses using a unique identifier that remains consistent year-over-year, allowing researchers to follow businesses if they move from one year to the next. Previous research by Neumark et al. (2005) using Dun and Bradstreet's National Establishment Time Series (NETS) data define what they call "significant moves" as moves where both the ZIP code and street address changes.

However, the average ZIP code in within US urbanized areas is 29.13 square miles and the average ZIP code in Southern California is 28.18 square miles, substantially impairing the ability to detect short distance moves – especially those due to changes in physical space needed by small and medium sized retail and professional businesses.

We are able to use the precise latitude and longitude information from our Reference USA data (provided by Infogroup) to find the exact location of 95.9% of business establishments in the region from 1997-2014. While this process of converting address information to geographic coordinates (known as geocoding) is fairly robust, there are two sources of potential error. First, for the 4% of businesses whose addresses could not adequately be read as text and converted into latitude and longitude data, we can only rely on the ZIP code for location information. For these cases, we reverted to the prior definition of a significant move, which was based on a ZIP code change.

Second, even for the vast majority of successfully geocoded establishments, there remains an issue of precision. This is noticeable in the case of large shopping malls, office parks, or campuses where a street address, suite number, or location on a street corner can match a businesses to a location that is marginally different than its actual location – especially if an address is typed slightly differently from one year to the next. We performed sensitivity testing and determined that using a 0.1 mile (160 meter) cutoff to define a move was robust to this second issue. Using a 0.05-mile threshold increased the total number of "moves" dramatically, and spot-checking identified many cases where this was spurious. Thus, we used the criteria of whether a business' location changed by more than 0.1 mile as an indicator of a move.

Finally, since a small proportion of business establishments disappeared from the data set in a given year then returned, but in a different location, we added these cases to the total number of relocations if they met the above criteria.



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