The End is Nigh: Limits to the Growth of the Nonprofit Sector

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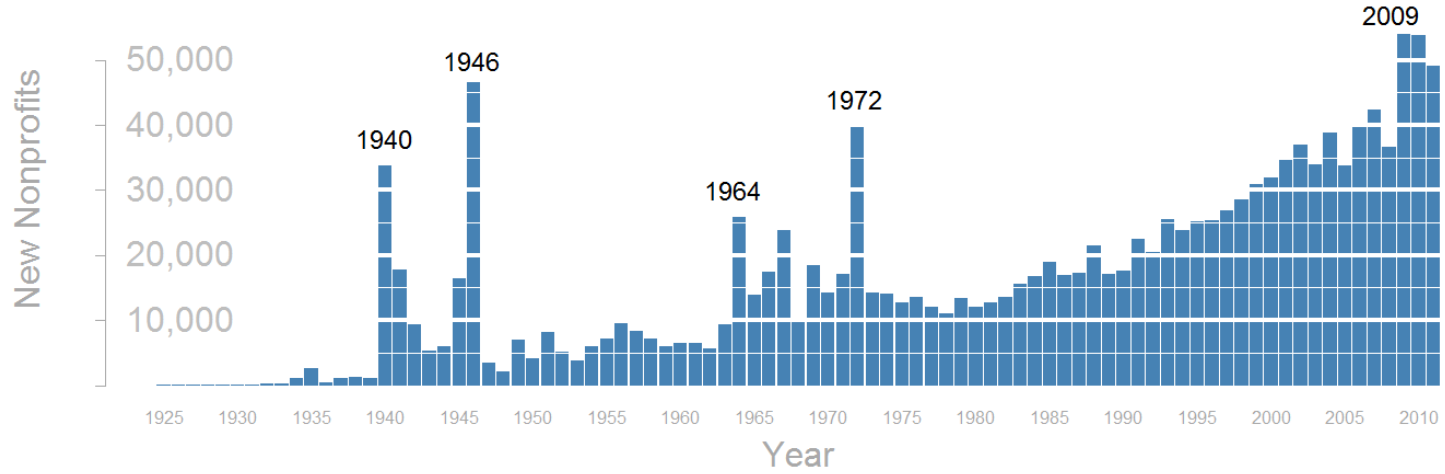
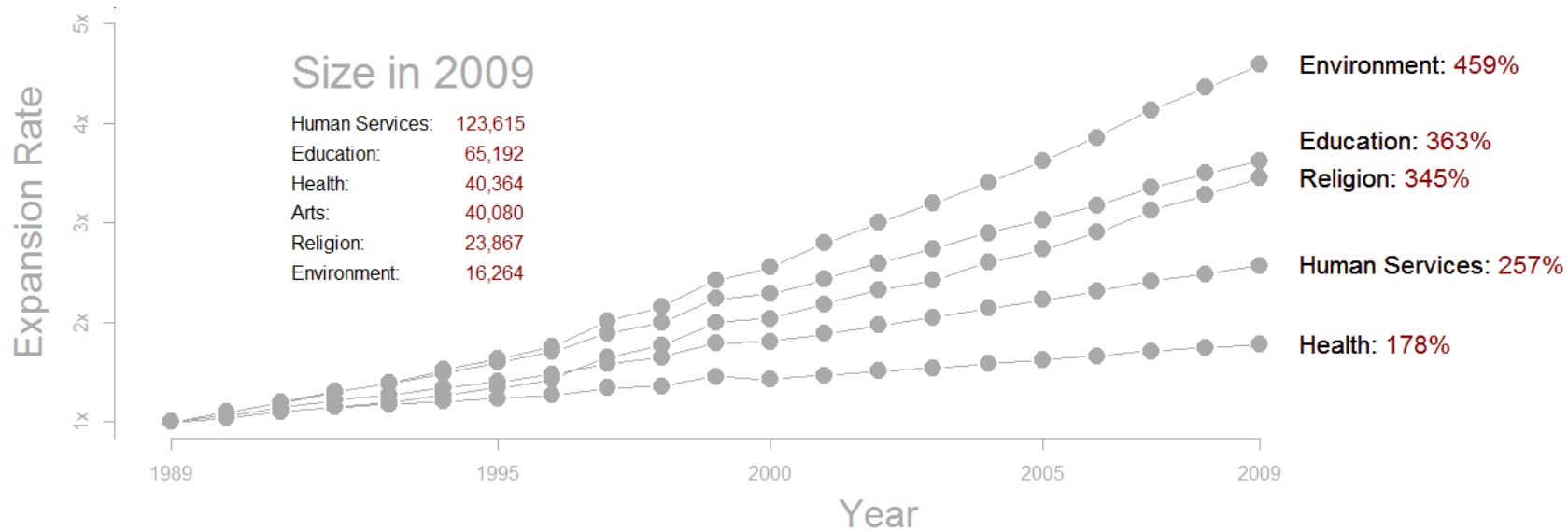
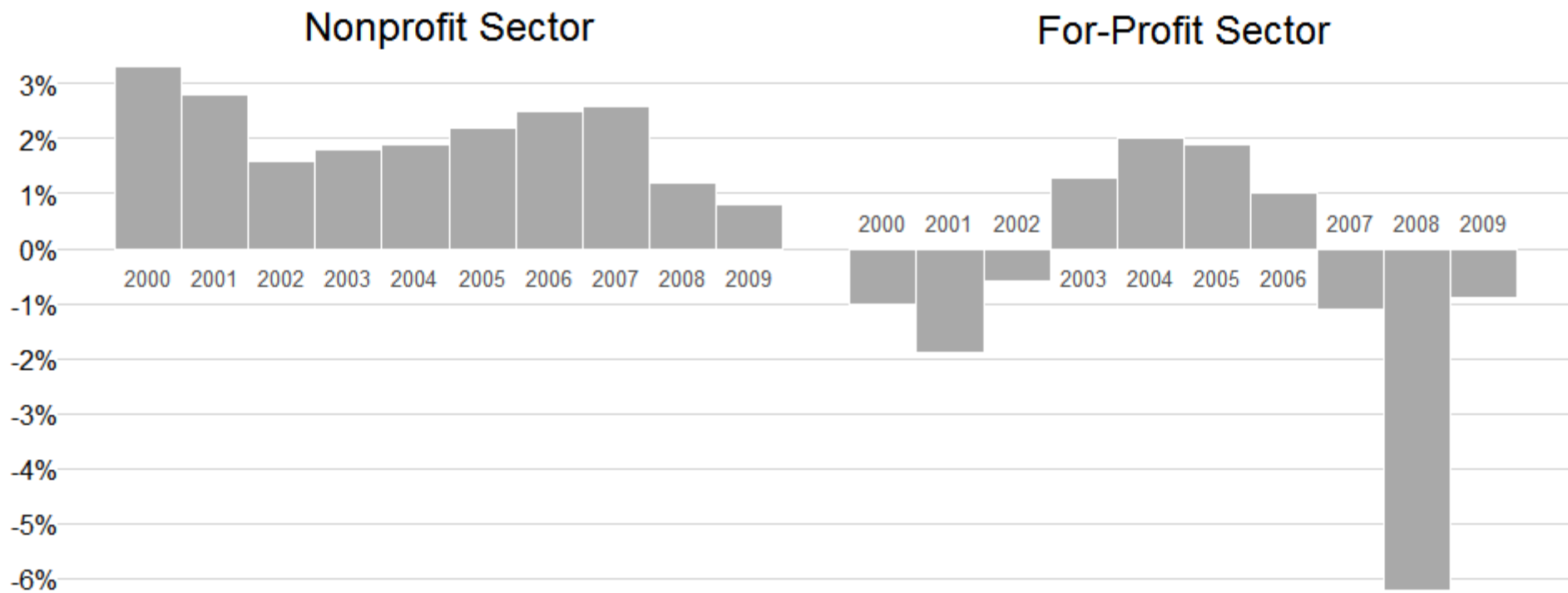
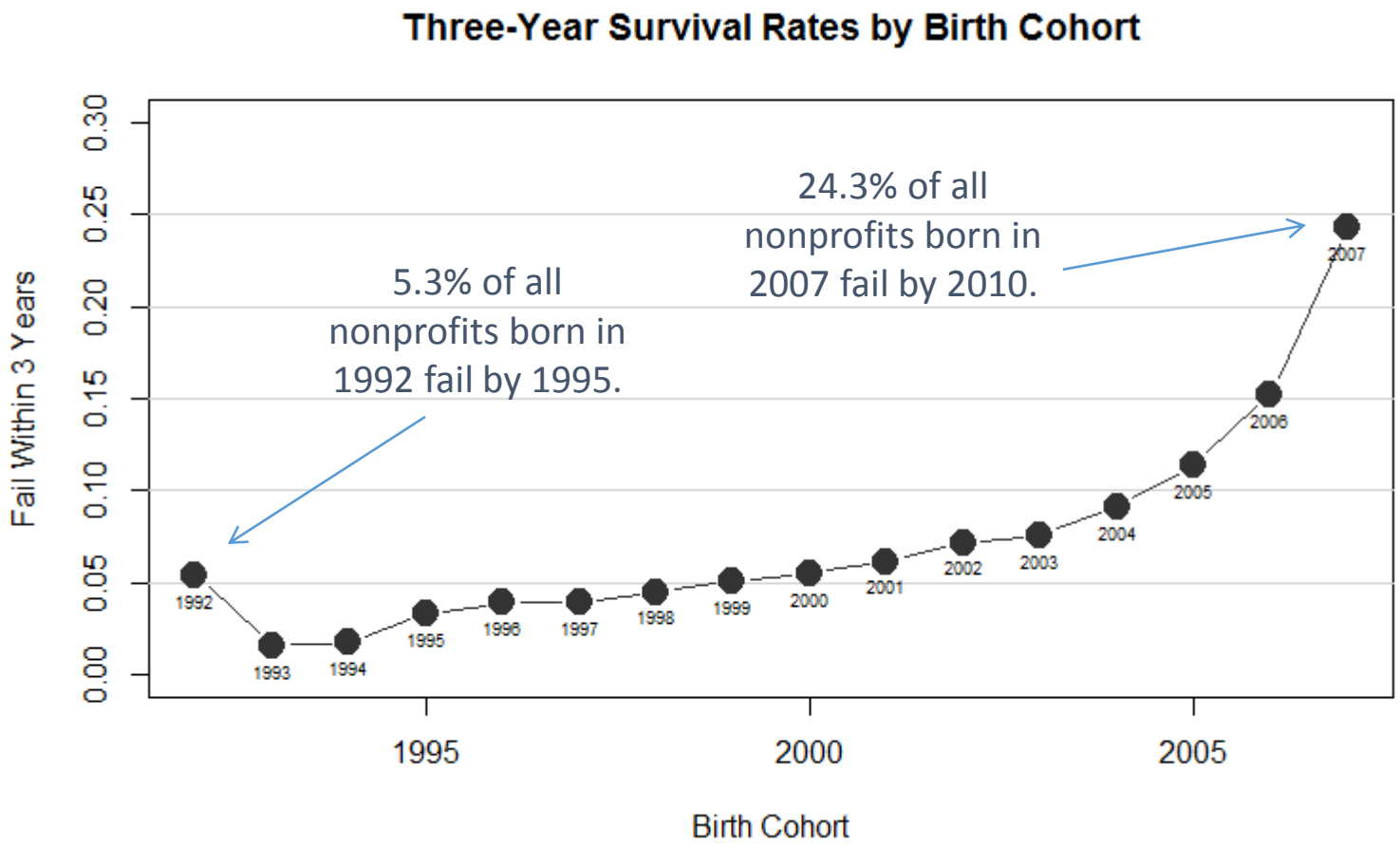
Number of New Nonprofit 501(c)(3) Statuses Granted Each Year

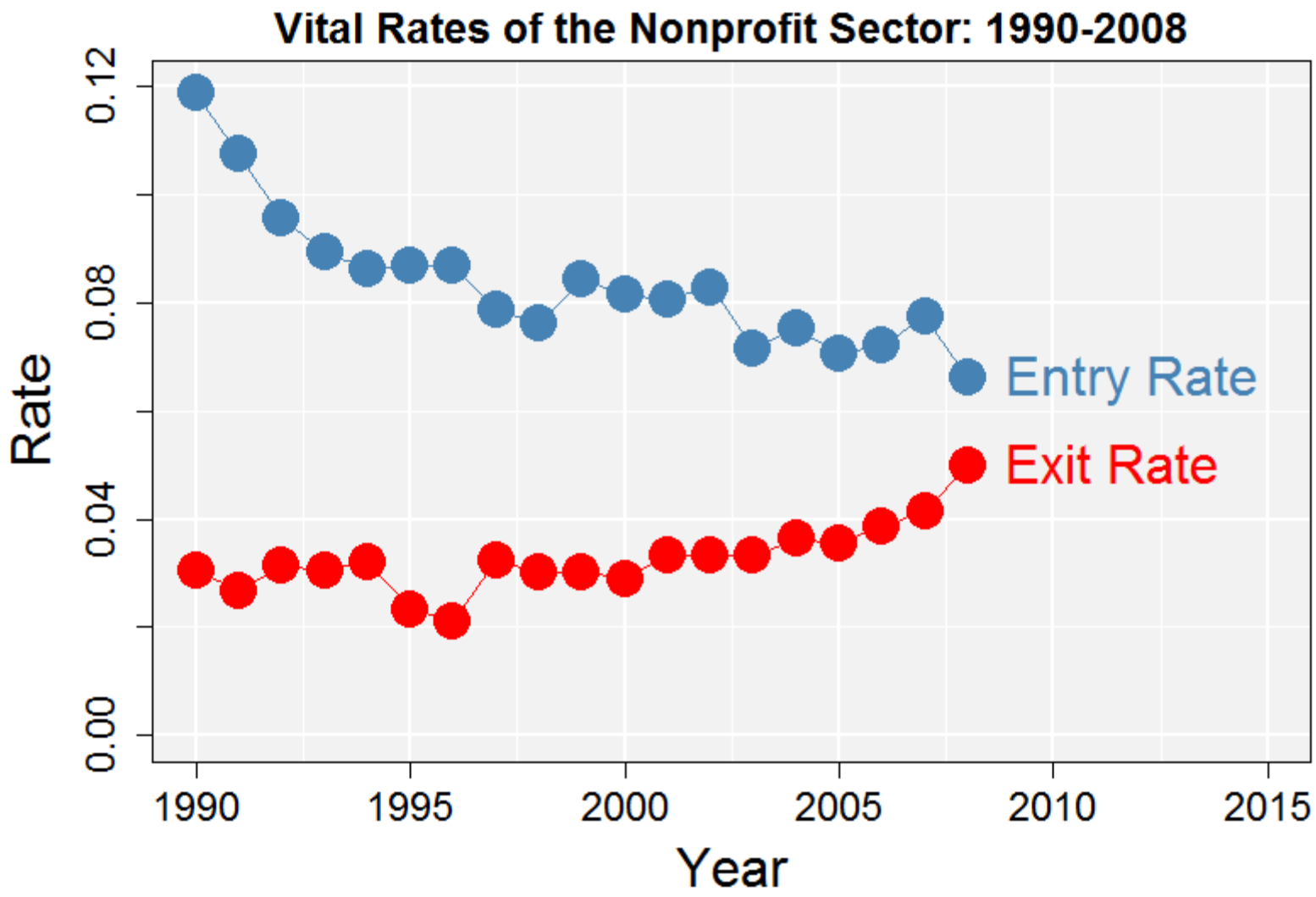


Subsector Growth Since 1989




Nonprofit Sector
For-Profit Sector
3%
2%
1%
0%
-1%
-2%
-3%
-4%
-5%
-6%
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009

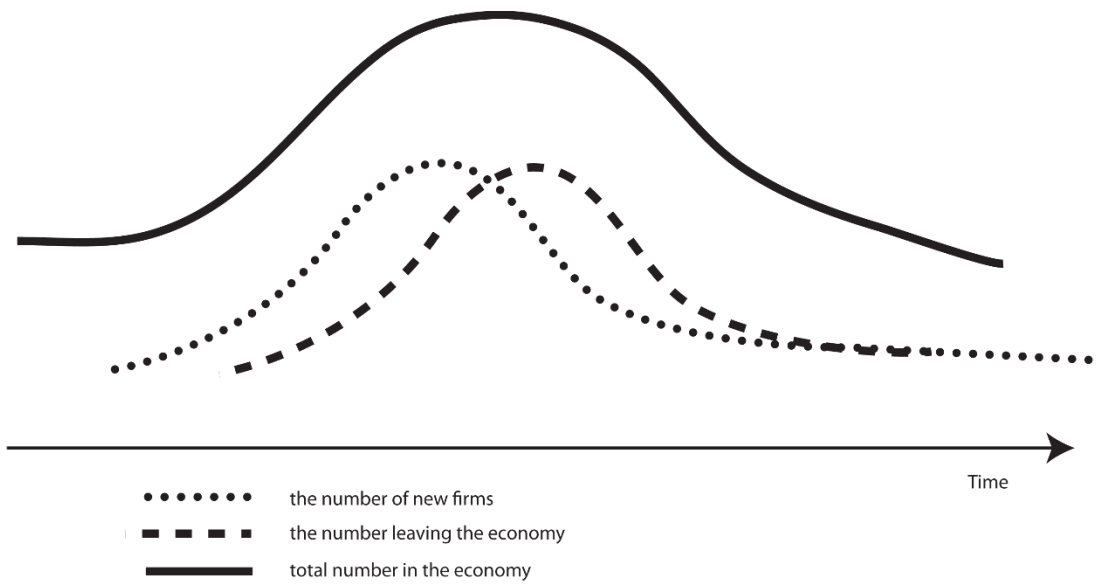

Three-Year Survival Rates by Birth Cohort
Fail Within 3 Years
0.00
0.05
0.10
0.15
0.20
0.25
0.30
5.3% of all nonprofits born in 1992 fail by 1995.
24.3% of all nonprofits born in 2007 fail by 2010.
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
1995
2000
2005
Birth Cohort


Vital Rates of the Nonprofit Sector: 1990-2008
Rate
0.00
0.04
0.08
0.12
1990
1995
2000
2005
2010
2015
Year
Entry Rate
Exit Rate

Research Questions:

What market-level factors drive competition in the nonprofit sector?

Scenario 1: Industry Shakeout



Scenario 2: Saturation and Steady-State

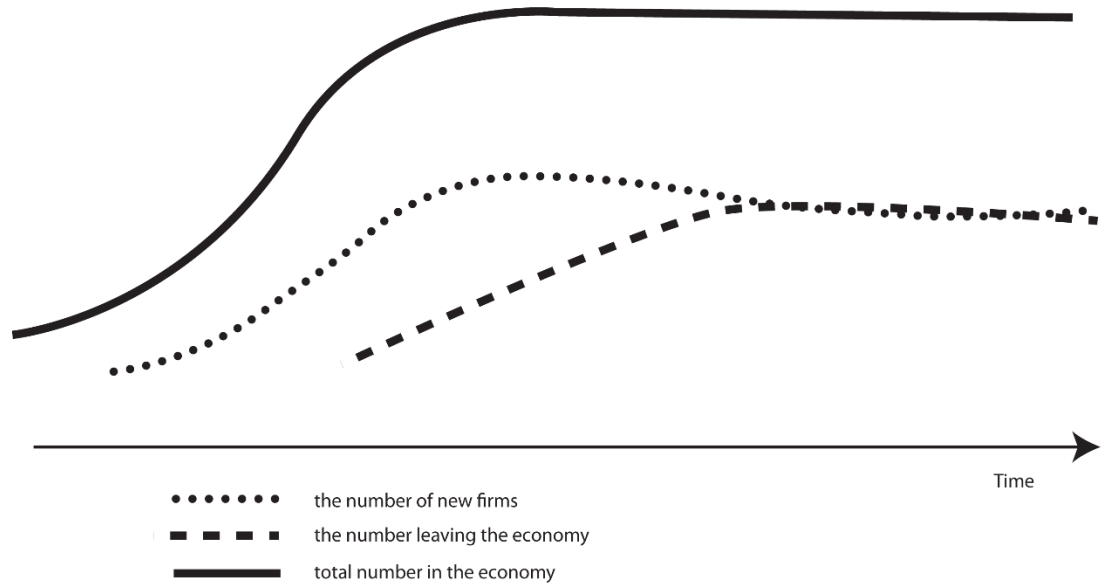
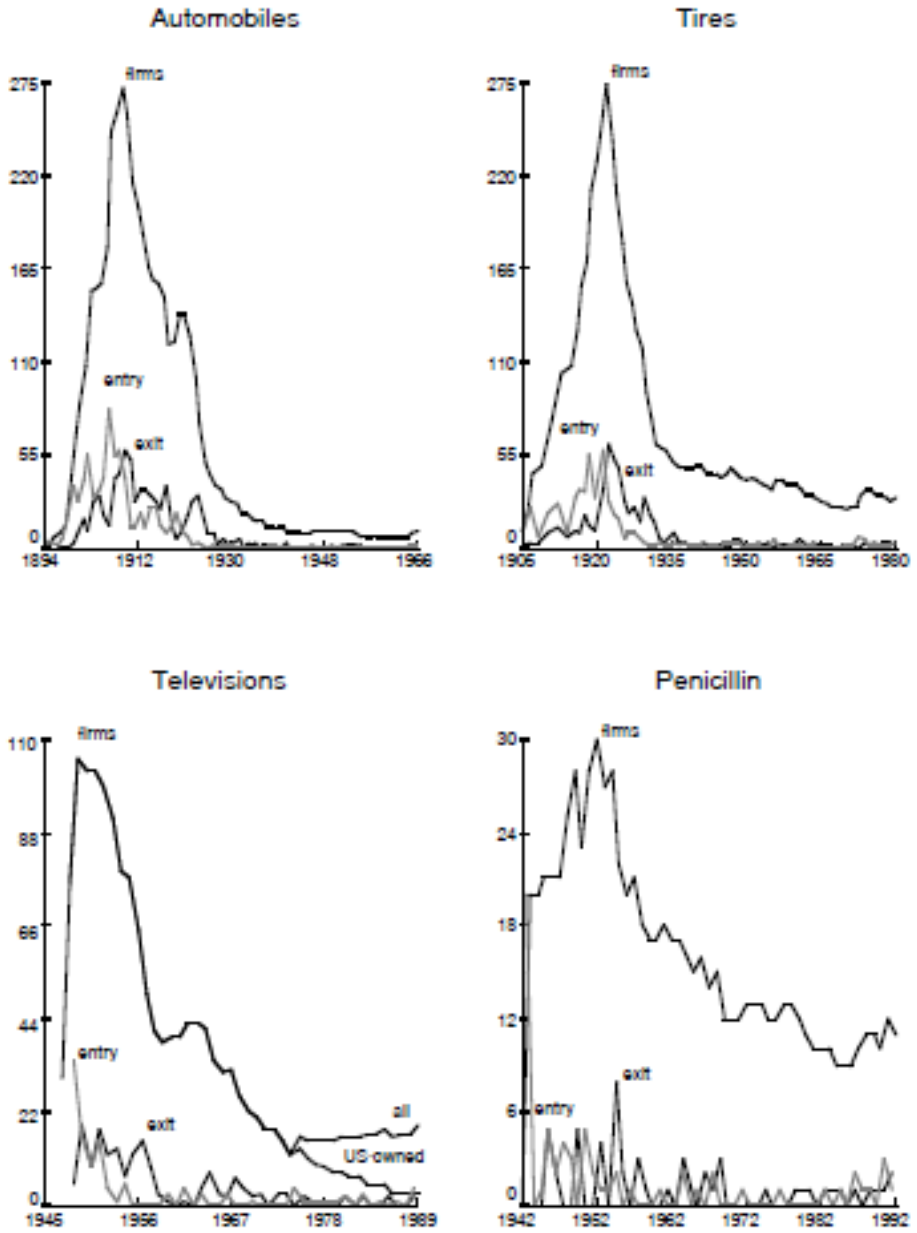


Figure 1.—Number of Producers, Entry, and Exit in the Four Products



Industry Shake-Out

Klepper, S., & Simons, K. L. (2005). Industry shakeouts and technological change. *International Journal of Industrial Organization*, *23*(1), 23-43.

Industry Shakeout Example of Crowded Market

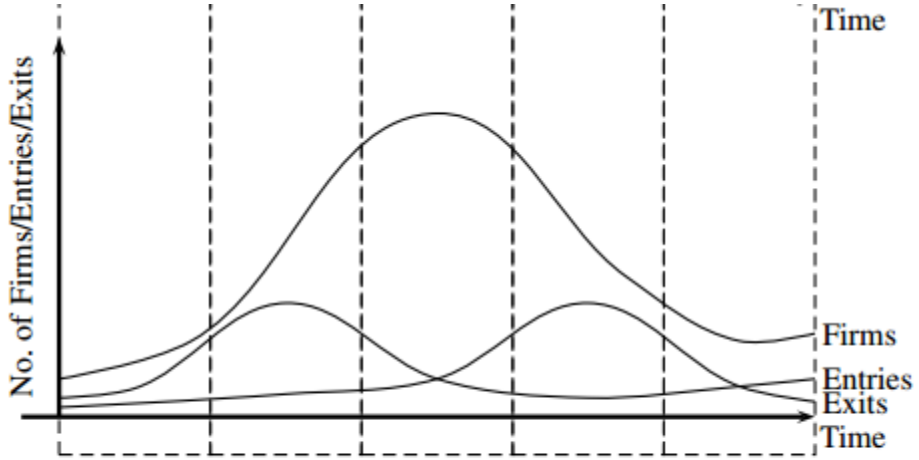


Figure 1.1: Stages of the industry life cycle graphically displayed

Reichstein, T. (2003). Firm growth rate distributions, firm size distributions and the industry life cycle. *IKE Group/DRUID, Aalborg*.

Saturation and Steady-State

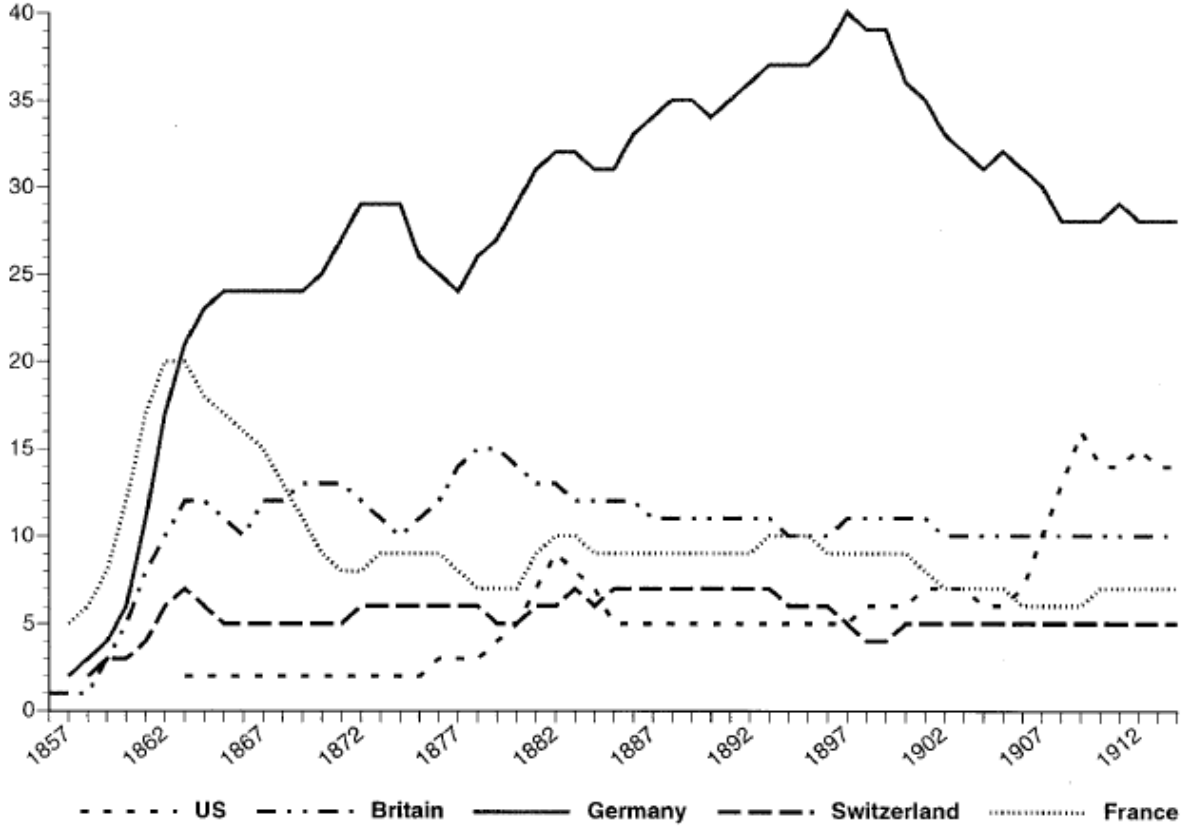
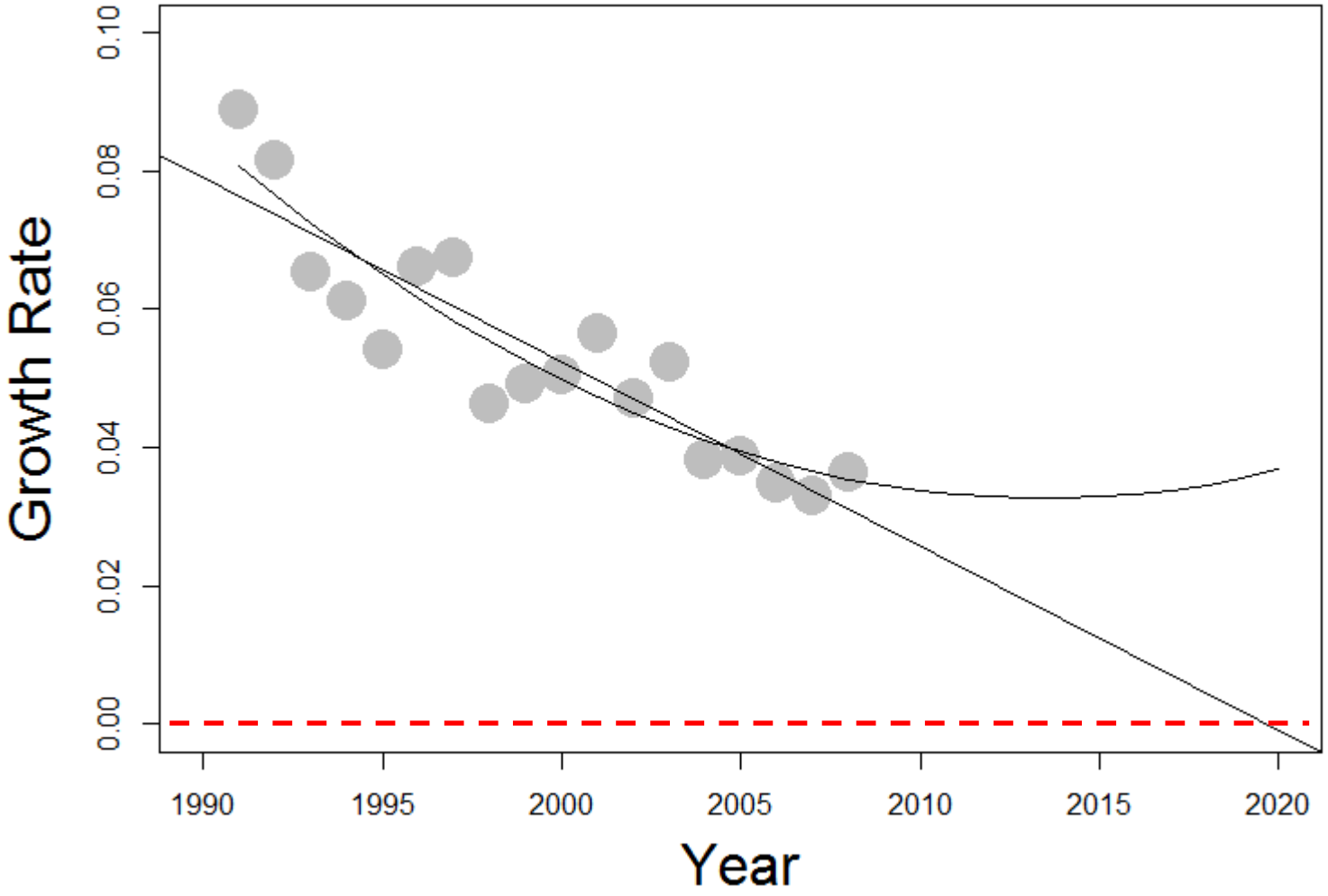


Fig. 3. Number of dye firms by country, 1857–1914

Murmann, J. P., & Homburg, E. (2001). Comparing evolutionary dynamics across different national settings: the case of the synthetic dye industry, 1857–1914. *Journal of Evolutionary Economics*, *11*(2), 177-205.

Scenario One or Two?



Insufficient data to determine

Stable Growth Forecast

Shake-Out Forecast

Economic models of shake-out:

Low start-up costs in the early years of an industry facilitate **easy entry, particularly by firms armed with product innovations**. However, a change in the technological regime increases minimum efficient scale barriers and sunk costs. **As incumbents focus their R&D efforts on process innovations, price is driven down. Incumbent advantage grows, and increasing levels of product innovation expertise is required for profitable entry** (Klepper, 1996). Because of the transition, therefore, rising entry barriers make it difficult for new firms to enter the market, and existing firms undergo severe survival tests.

Reduction in entries, combined with exits of less successful firms, results in decreased variation in product design and leads to the emergence of a dominant design (Klepper, 1996). As a shakeout ensues, **only firms that are able to attain sufficiently low costs and high quality survive** (Jovanovic & MacDonald, 1994; Klepper & Graddy, 1990). **The level of concentration in the industry increases** as a few large players come to enjoy disproportionate market power.

Agarwal, R., & Sarkar, M. B. (2002). The conditioning effect of time on firm survival: An industry life cycle approach. *Academy of Management Journal*,*45*(5), 971-994.

Ecological models of shake-out:

Density-dependence theory explains the dynamics of organizational populations on the basis of the number of organizations in a population (Hannan, 1986; Hannan & Carroll, 1992; Hannan & Freeman, 1989). **Initially, increasing density creates mutualism by enhancing the institutional legitimacy of a population and the ability of its members to attract resources**…However, **as the population continues to grow, the relative scarcity of resources creates a competitive interdependence between members**.

Carroll and Hannan (1989) proposed that an organization's risk of failure is affected not only by the density of the population of which it is a member at any given time, but also by the density of the population at its time of founding. **High density at founding creates a *liability of resource scarcity,* which prevents newly founded organizations from full-scale operation, and *tight niche-packing,* which forces them to use resources that are inferior to those of established organizations**. **Organizations founded in high-density periods therefore experience persistently higher failure rates**, which explains the observed decline in a population's density from its peak.

Agarwal, R., & Sarkar, M. B. (2002). The conditioning effect of time on firm survival: An industry life cycle approach. *Academy of Management Journal*,*45*(5), 971-994.

Economic versus Ecological:

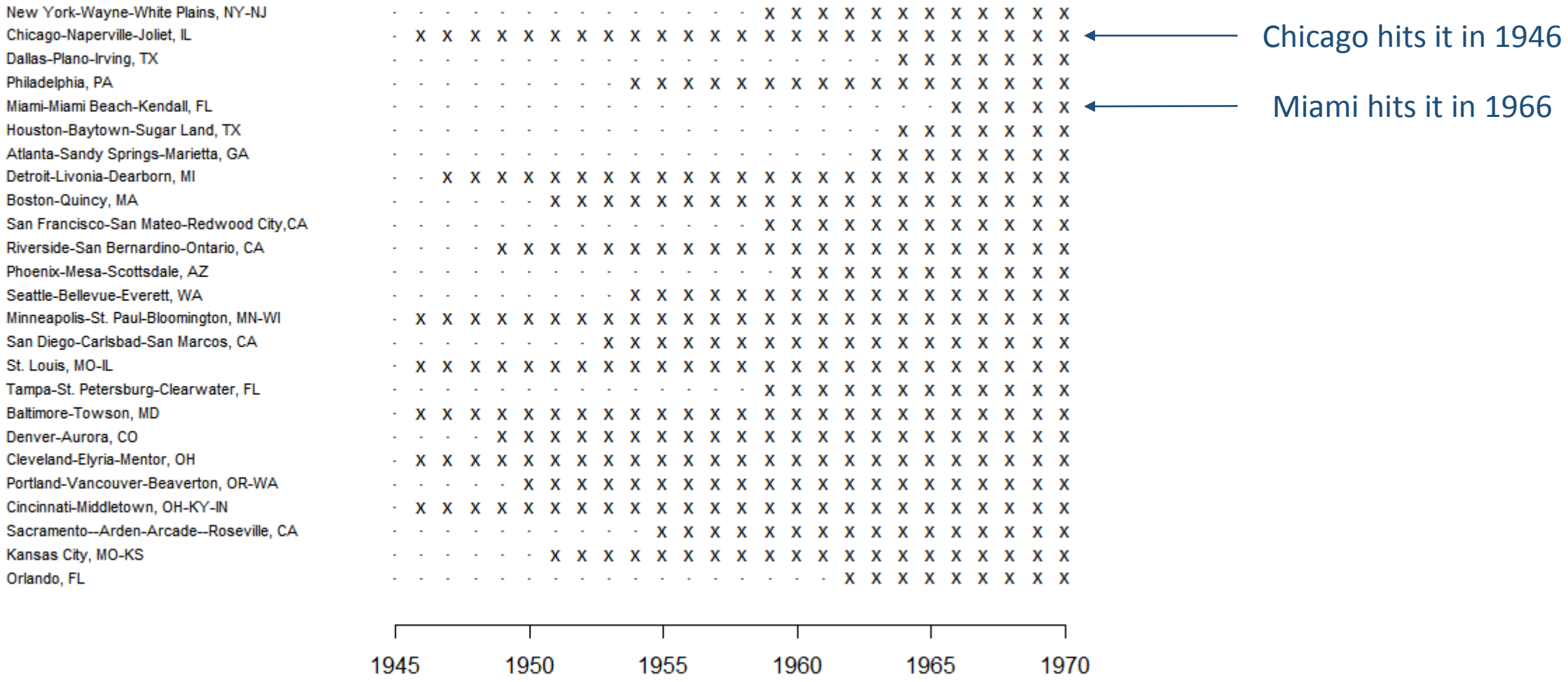
- Economic theories point to the importance of technology, marginal cost of production (economies of scale), competition based on price (versus quality or specialization), and market concentration.

- Ecological theories point to the importance of organizational niches and access to resources.

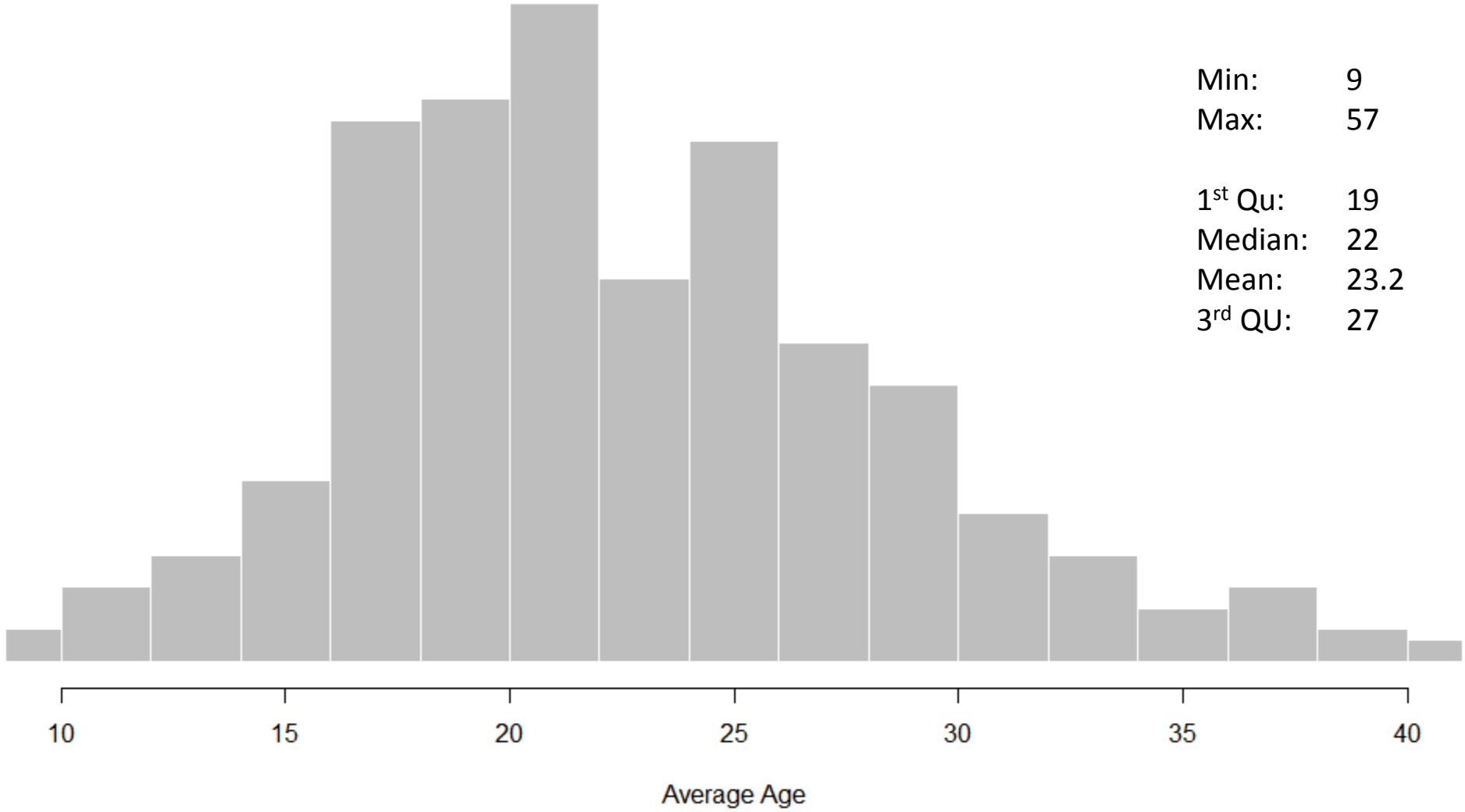
INDUSTRY AGE

(industry operationalized as a subsector within a metropolitan area)

YEAR EACH MSA REACHED 10% OF TOTAL NONPROFIT DENSITY

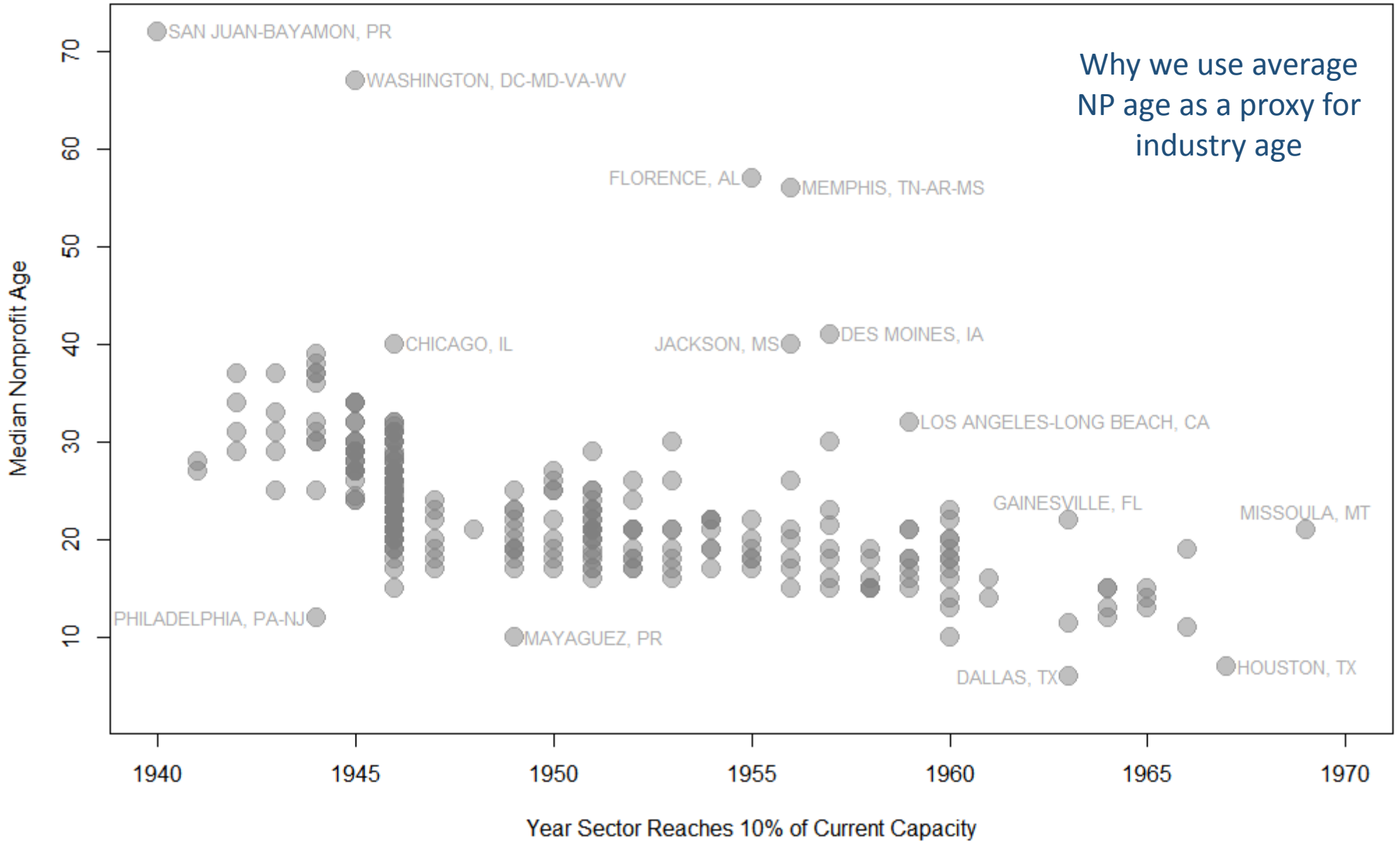


Average Nonprofit Age by MSA



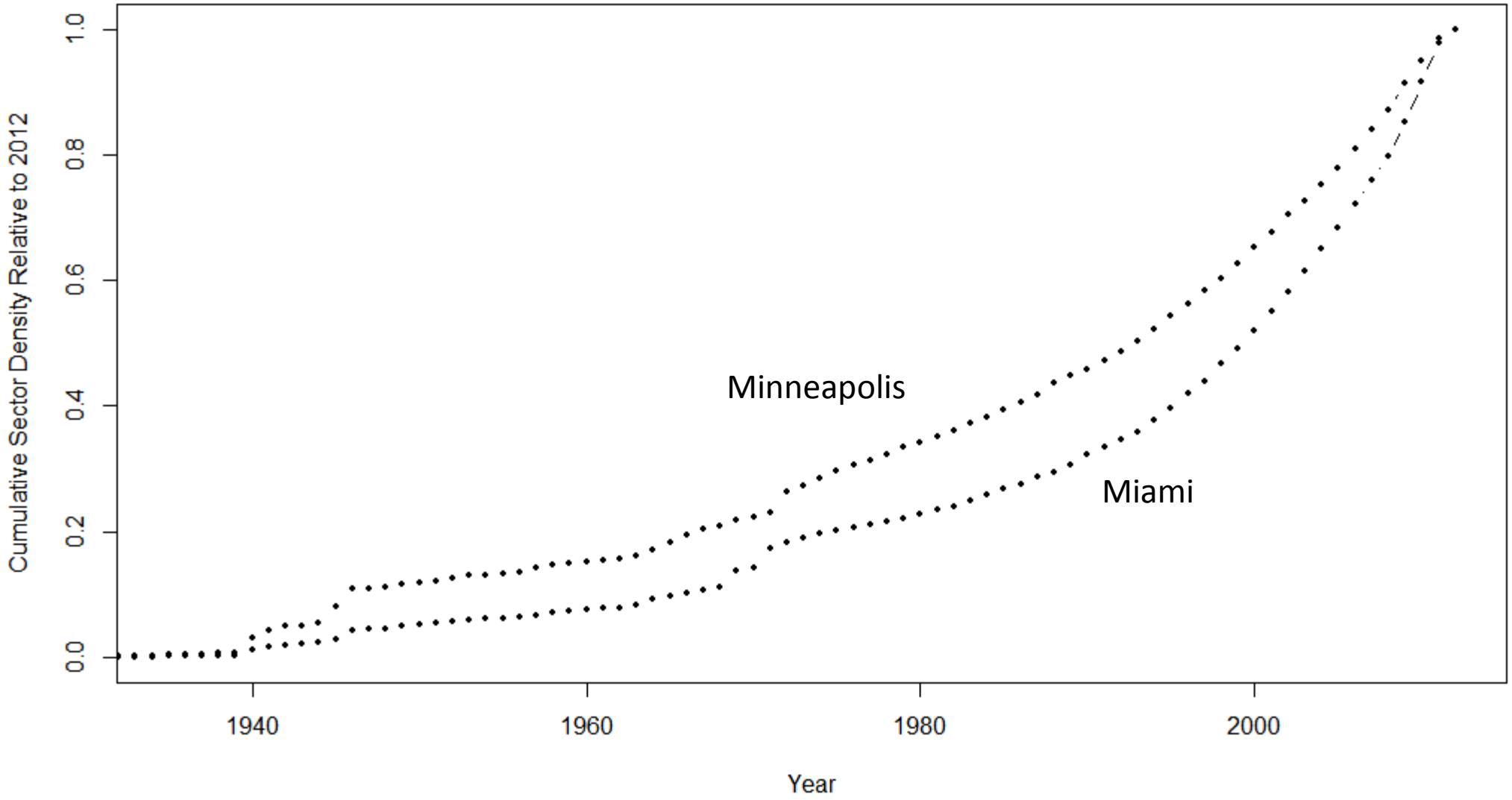
Min:	9
Max:	57
1st Qu:	19
Median:	22
Mean:	23.2
3rd QU:	27

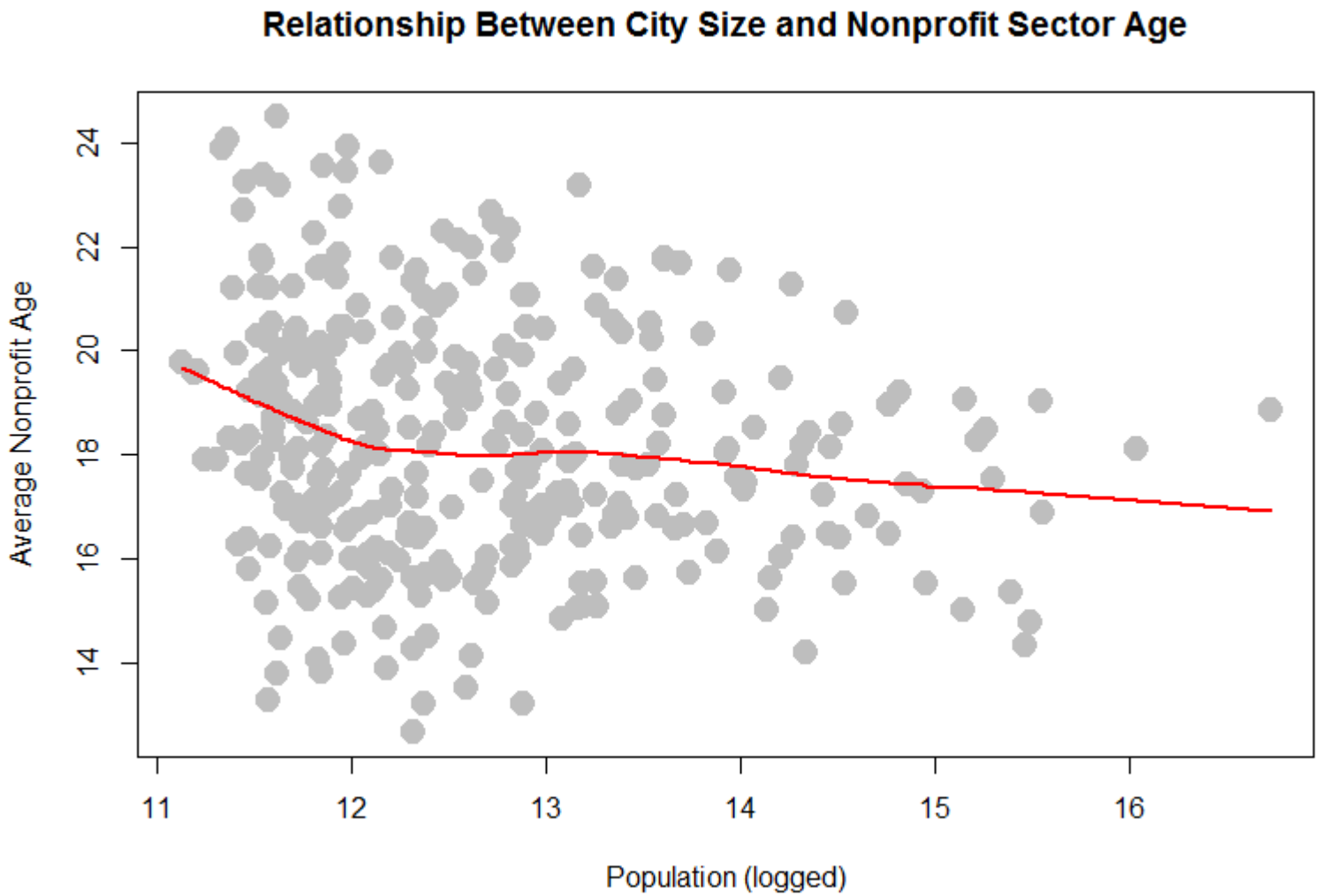
CITIES THAT STARTED NONPROFIT SECTORS EARLIER HAVE OLDER NONPROFITS



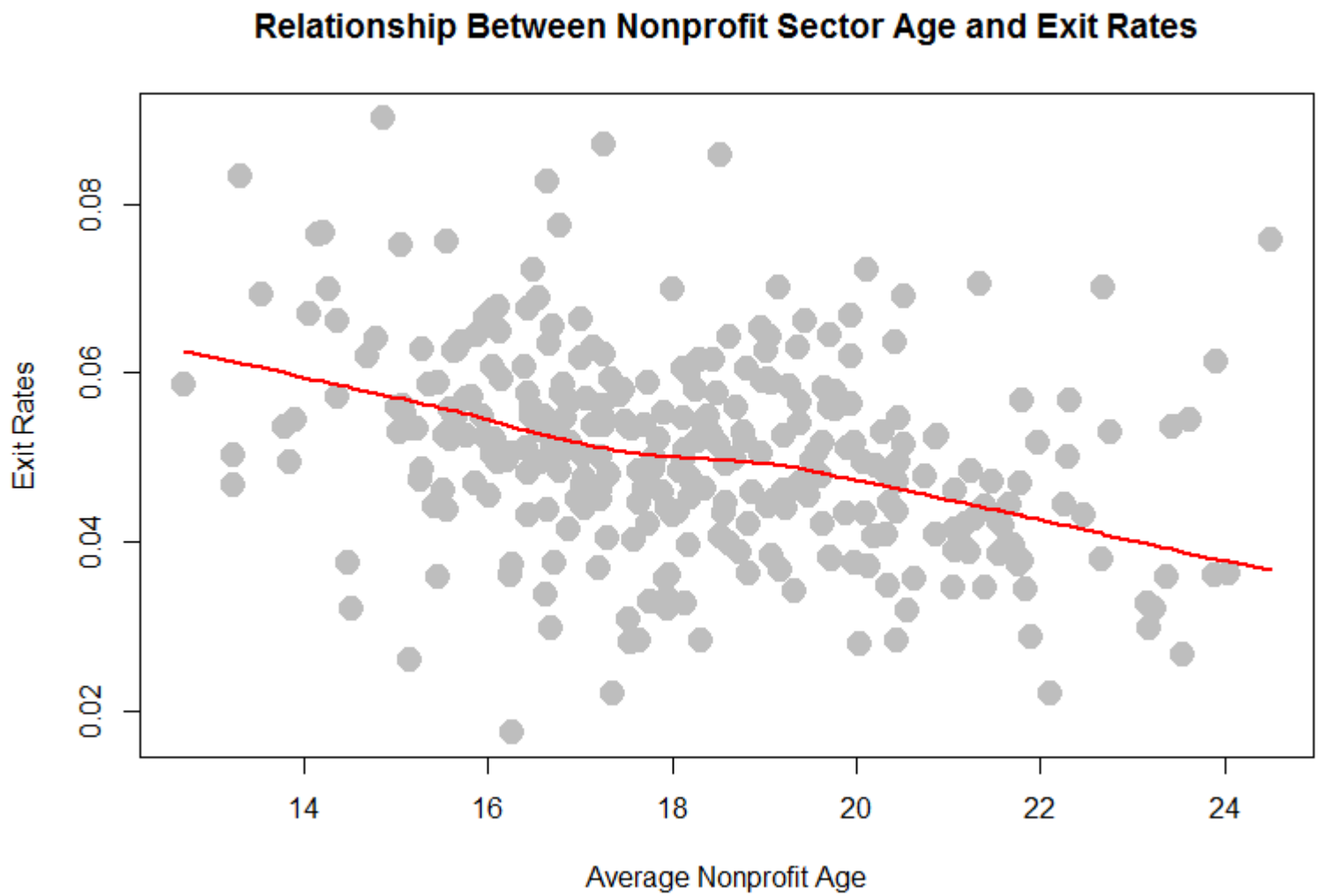
Why we use average NP age as a proxy for industry age

MARKET SATURATION PROCESS IN TWO CITIES





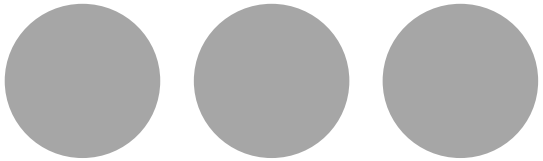
Age is not a function of city size



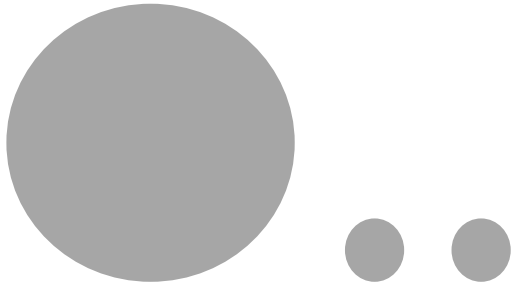
Age does drive exits

MARKET CONCENTRATION

REVENUE CONCENTRATION: HERFINDAHL-HIRSCHMAN INDEX (HHI)



HHI = 0 ⟷ HHI = 1



Revenues distributed equally over all organizations.

$0.33^2 + 0.33^2 + 0.33^2 = 0.33$

Revenues concentrated in a few organizations.

$0.80^2 + 0.10^2 + 0.10^2 = 0.66$

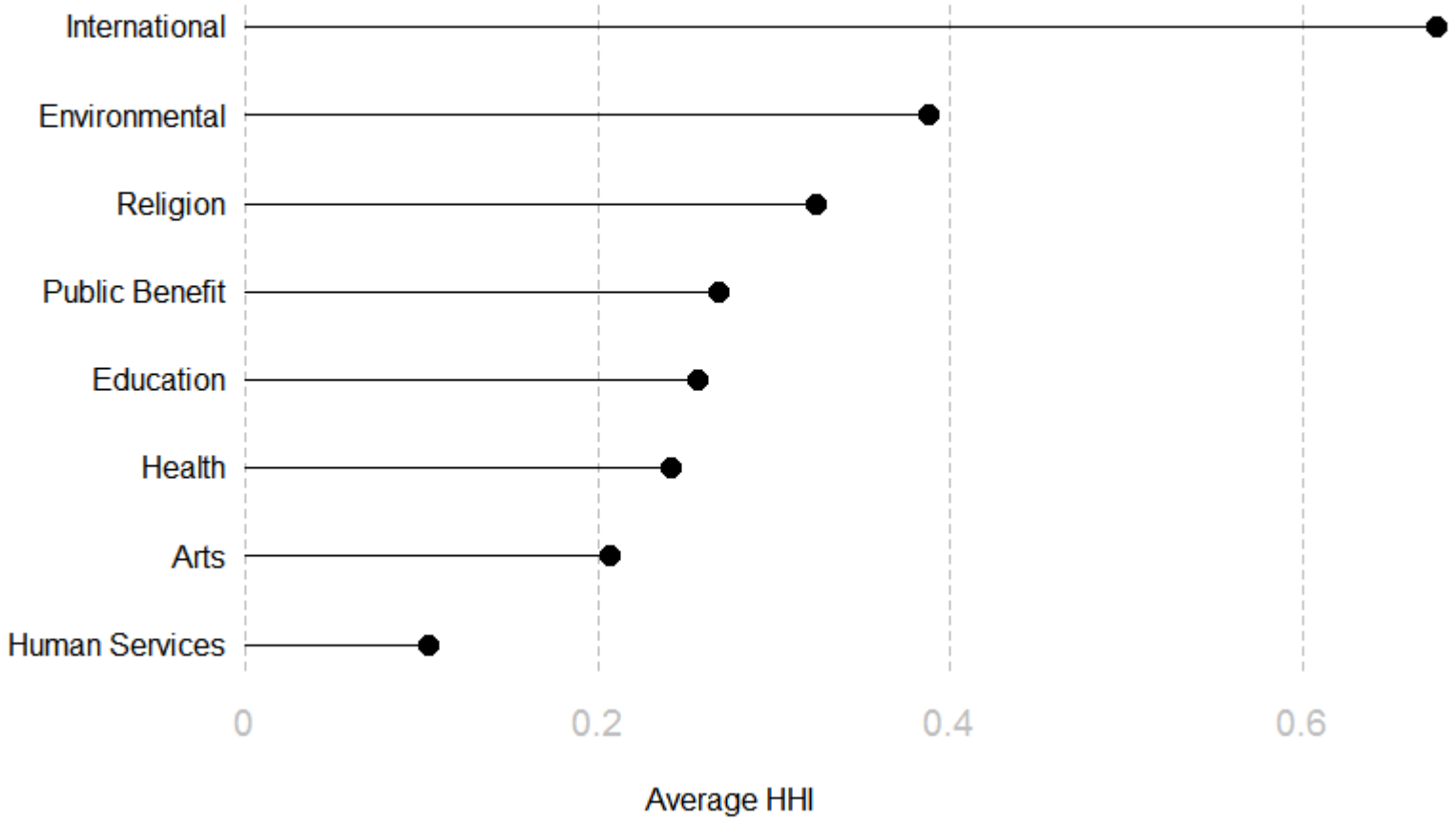
$$H = \sum_{i=1}^{N} s_i^2$$

N = number of firms in a market
s_i = revenue share of firm i in the market

$$H^* = \frac{(H - 1/N)}{1 - 1/N}$$

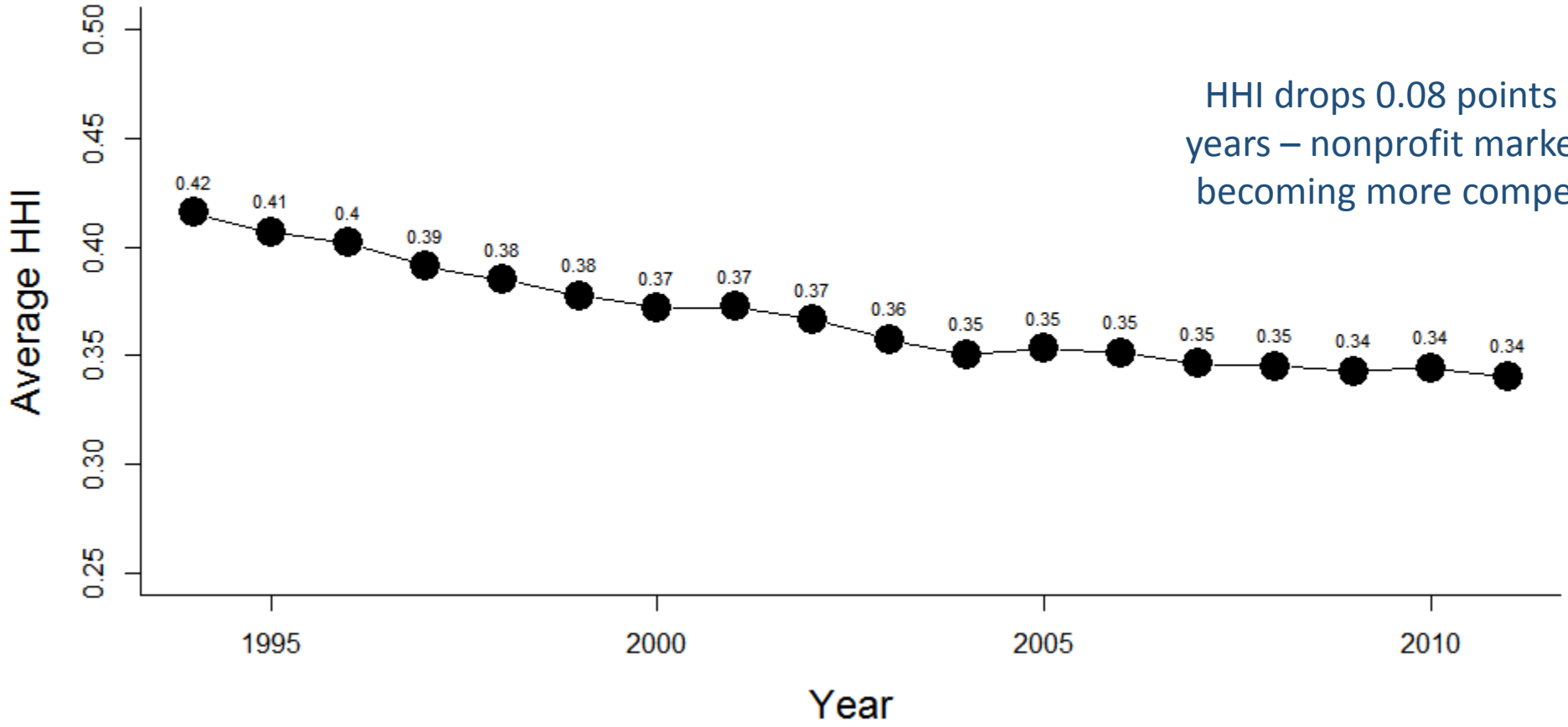
Normalized between 0 and 1.

REVENUE CONCENTRATION BY SUBSECTOR



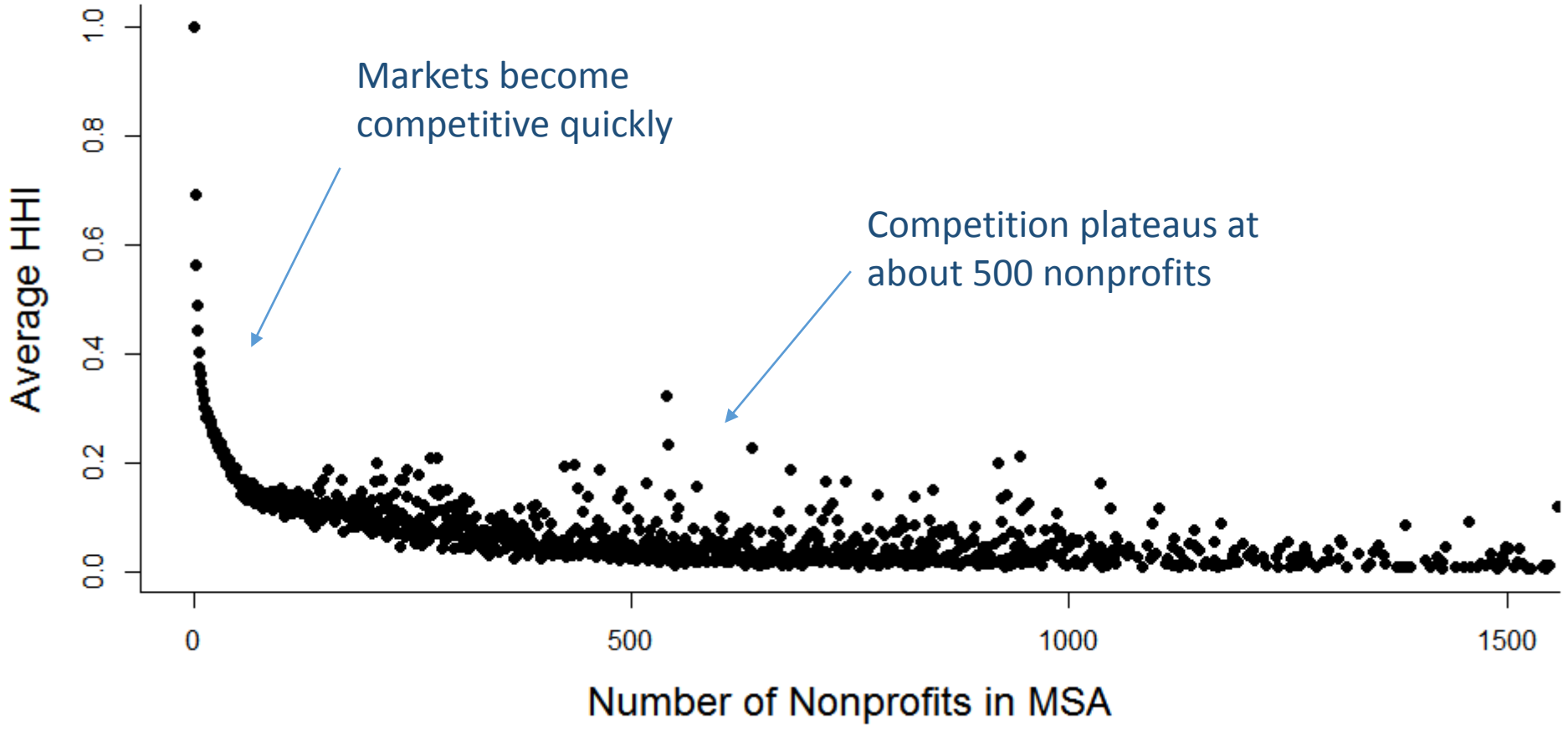
Economies of scale vary across subsectors

REVENUE CONCENTRATION OVER TIME

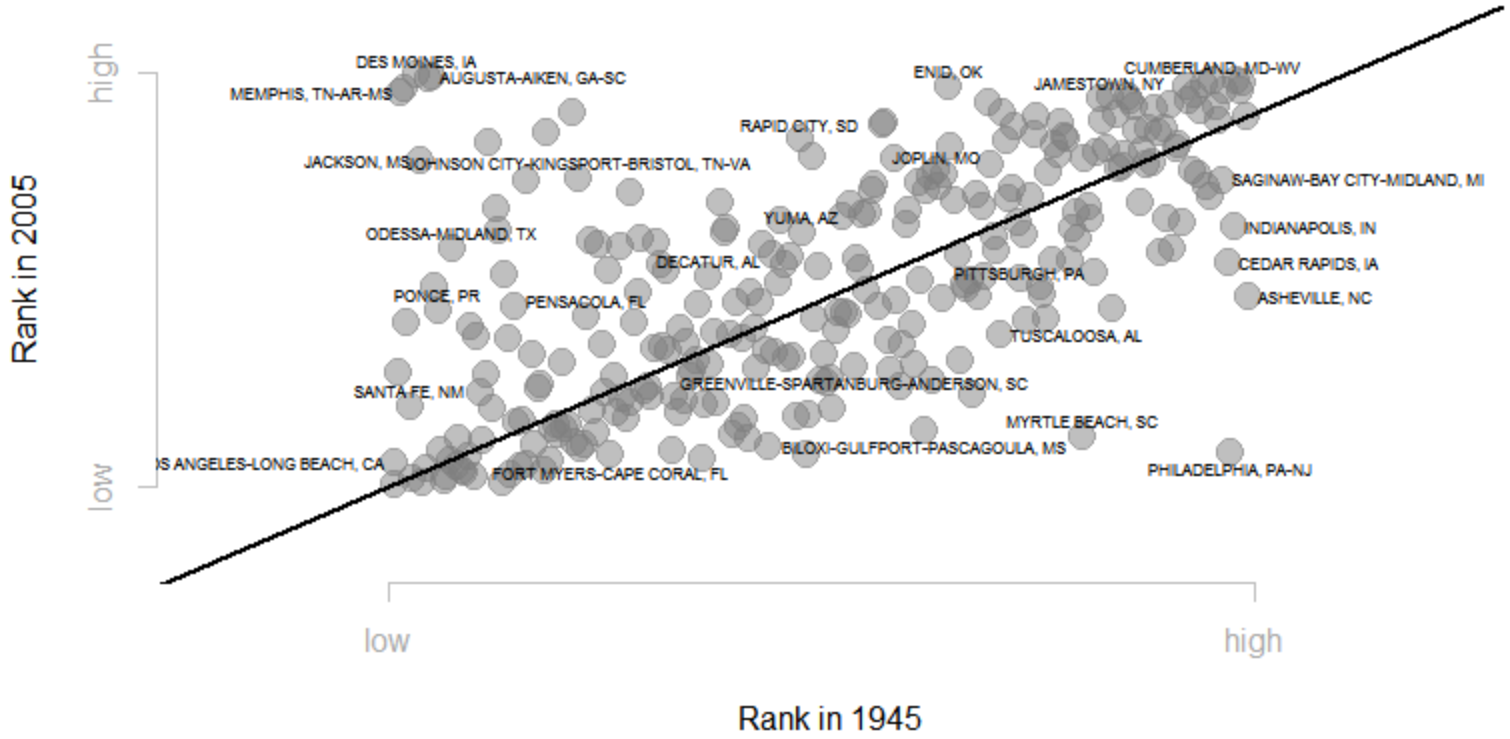


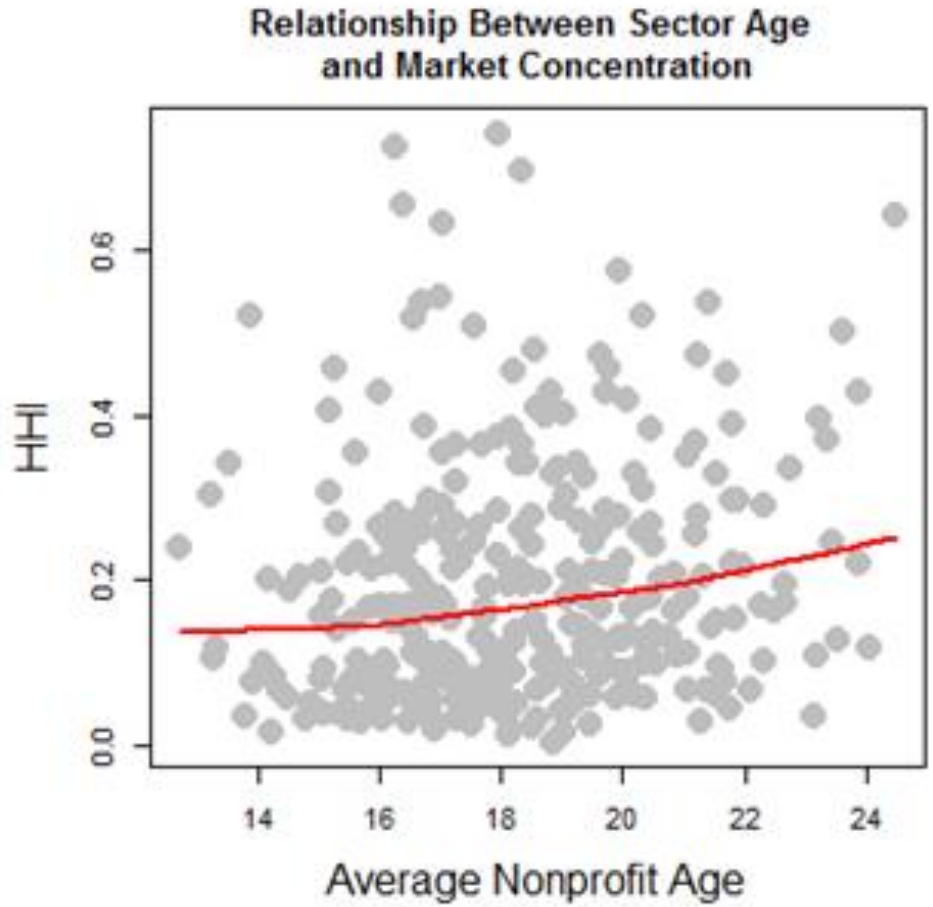
HHI drops 0.08 points in 17 years – nonprofit markets are becoming more competitive

REVENUE CONCENTRATION BY MARKET SIZE



PERSISTENCE OVER TIME




Relationship Between Sector Age
and Market Concentration
HHI
0.0
0.2
0.4
0.6
14
16
18
20
22
24
Average Nonprofit Age

DATA AND ANALYSIS

Model: OLS Cross-Section in 2005

- All nonprofits in metro areas
- DV is average of years 2004-2006

$Entry/Exit_{2005}$ ~ **City Characteristics** + **Market Characteristics**

- **Population**
- Income
- Education
- Politics
- Employment
- Inequality
- Size of Gov.

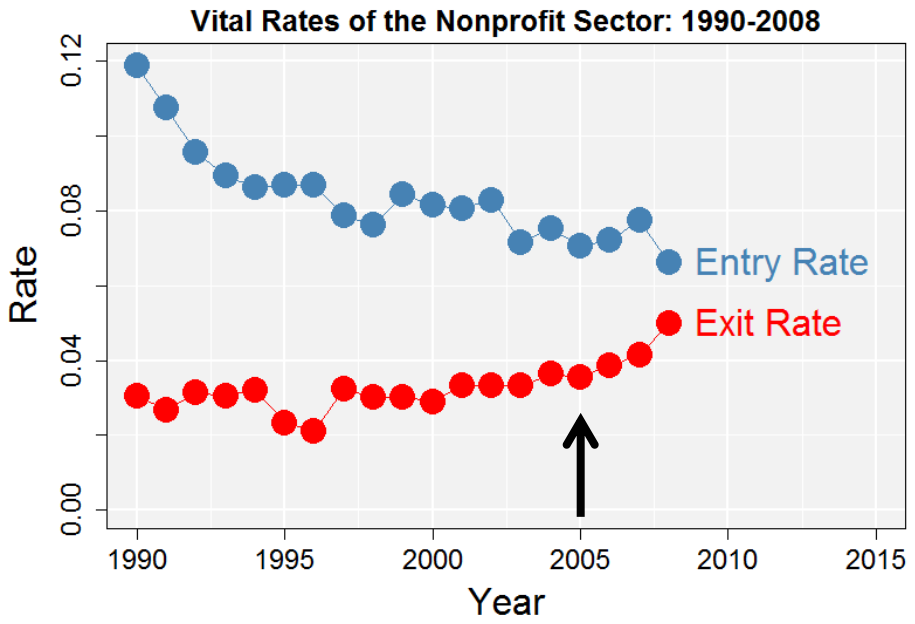
- **Age of Industry**
- **Concentration (HHI)**
- Foundation Dollars
- Revenue Opps for NPs

Data:

313 Largest Metropolitan Statistical Areas (MSAs)

- NCCS Core Data for Public Charities
- NCCS Core Data for Private Foundations
- Census Demographics Data (Various Datasets)

Data and Analysis:



Data Sources

Number of Nonprofits	2010	Total number of human service nonprofits in the county	National Center for Charitable Statistics
Population	2000; 2010	Total MSA population	Decennial Census
Direct Payments	2000-2010		
Government Grants	2000-2010	Total Federal Government expenditure on grants in fiscal year 2010	
Salaries and Wages	2000-2010		
Class of Worker – Government	2000; 2010	Percent of the population employed in the class government workers	
Professional Services	2000; 2010		
Industry-Construction	2000; 2010	Percentage of the Population employed in the construction industry	2000 Decennial Census and 2010 5 Year American Community Survey
Industry- Arts, Entertainment, and Accommodation	2000; 2010	Percentage of the population employed in the arts, entertainment and accommodation industry	2000 Decennial Census and 2010 5 Year American Community Survey
Total assets – private foundations	2000; 2010		NCCS Core Private Foundations
Total assets – public foundations	2000; 2010		NCCS Core Public Charities
Median Household Income	2000; 2010	Median household income of the population	2000 Decennial Census and 2010 5 Year American Community Survey
Poverty	2000; 2010	Percent of families living in poverty	2000 Decennial Census and 2010 5 Year American Community Survey
Gini Coefficient	2000; 2010	Measure of the inequality in income within in MSA	Arizona State University Geo Data Center and 2010 5 Year American Community Survey
African American	2000; 2010	Percent of the population identifying as African-American	2000 and 2010 Decennial Census
Asian	2000; 2010	Percent of the population identifying as Asian	2000 and 2010 Decennial Census
Population aged 65-69	2000; 2010	Percent of the population between the ages of 65 and 69	2000 Decennial Census and 2010 5 Year American Community Survey
Political Views	2000; 2004; 2008	Percent voting for the Democrat Party candidate in the 2008 presidential election	Congressional Quarterly*
Number of Churches	2000; 2010	Total number of churches in the county	Religious Congregation and Membership Study
College Educated	2000; 2010	Percent of the population with a college education or higher	2000 Decennial Census and 2010 5 Year American Community Survey
Property Crime	2000; 2008	Number of property crimes known to police	Federal Bureau of Investigation Statistics*

Descriptive Statistics

Variable	Mean	St. Dev	Minimum	Maximum
Growth Rate	0.03	0.02	-0.03	0.09
Birth Rate	0.08	0.02	0.04	0.14
Death Rate	0.05	0.01	0.02	0.11
Population	674,369.00	1,450,780.00	68,203.00	18,351,099.00
Population Growth	9.0%	9.0%	-16.0%	38.0%
Ave. Age of Nonprofits	18.21	2.39	11.61	24.49
HHI	19.2	-	0.5	74.3
Gini Coefficient	0.44	0.03	0.37	0.54
Unemployment	6.94	1.88	2.5	16.5
Republican Vote	0.5	0.11	0.2	0.78
College GraduationRate	16.04	4.33	6.8	33.9
Revenue Mix	0.79	0.13	0.25	0.96
Median Income	$43,936	$7,544	$24,501	$76,478
Philanthropic Dollars	$150,830,116	$446,435,647	$4,149	$4,604,307,314
Government Earnings	$73,067,724	$2,452,933	$5,362,031	$154,636
Government Employees	55,084.00	105,498.00	4,689.00	1,361,785.00
Direct Payments	$40,440,076	$1,596,260	$3,113,806	$154,597
Government Grants	$36,787,529	$1,037,020	$2,541,465	$51,361

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ENTRY RATES	Age	HHI	Both	Interaction
Pop. Growth 2000-2010	**0.034****	**0.055*****	**0.033****	**0.033****
	'(0.011)	'(0.011)	'(0.011)	'(0.011)
Average Nonprofit Age	**-0.002*****		**-0.002*****	**-0.002***
	'(0.000)		'(0.000)	'(0.001)
HHI (Revenue Concentration)		**0.002**	**0.002**	**-0.006**
		'(0.001)	'(0.001)	'(0.007)
Age*HHI				**0.000**
				'(0.000)
Intercept	**-0.065**	**-0.111**	**-0.071**	**-0.081**
	(0.078)	'(0.082)	'(0.078)	'(0.079)
Population (log)	**0.004**	**0.005**	**0.005**	**0.005**
	'(0.003)	'(0.003)	'(0.003)	'(0.003)
Foundation Assets (log)	**-0.001**	**-0.001***	**0.000**	**0.000**
	'(0.000)	'(0.000)	'(0.000)	'(0.000)
Revenue Proportion from Donations	**-0.013***	**-0.022****	**-0.017****	**-0.016***
	'(0.006)	'(0.007)	'(0.006)	'(0.007)
Proportion Voting Republican	**0.003**	**0.003**	**0.003**	**0.003**
	'(0.008)	'(0.009)	'(0.008)	'(0.008)
Gini Coefficient	**-0.026**	**-0.025**	**-0.025**	**-0.023**
	'(0.034)	'(0.036)	'(0.034)	'(0.034)
Unemployment	**0.000**	**0.000**	**0.000**	**0.000**
	'(0.000)	'(0.001)	'(0.000)	'(0.000)
Per Capita Income (log)	**0.018***	**0.017***	**0.018***	**0.017***
	'(0.007)	'(0.007)	'(0.007)	'(0.007)
Percent Adults w/ College Education	**0.000**	**0.000**	**0.000**	**0.000**
	'(0.000)	'(0.000)	'(0.000)	'(0.000)
Size of Government	**-0.001**	**-0.001**	**-0.001**	**-0.001**
	'(0.001)	'(0.001)	'(0.001)	'(0.001)
R-squared	0.528	0.482	0.531	0.533
N	313	313	313	313

ENTRY RATES	Age	HHI	Both	Interaction
Pop. Growth 2000-2010	**0.034****	**0.055*****	**0.033****	**0.033****
	'(0.011)	'(0.011)	'(0.011)	'(0.011)
Average Nonprofit Age	**-0.002*****		**-0.002*****	**-0.002***
	'(0.000)		'(0.000)	'(0.001)
HHI (Revenue Concentration)		**0.002**	**0.002**	**-0.006**
		'(0.001)	'(0.001)	'(0.007)
Age*HHI				**0.000**
				'(0.000)
MidAtlantic Region	**0.000**	**0.001**	**-0.001**	**-0.001**
	'(0.004)	'(0.004)	'(0.004)	'(0.004)
MidSouth Region	**0.006**	**0.008**	**0.005**	**0.004**
	'(0.004)	'(0.004)	'(0.004)	'(0.004)
Midwest Region	**0.001**	**0.001**	**0.001**	**0.000**
	'(0.003)	'(0.004)	'(0.003)	'(0.003)
MountainWest Region	**0.006**	**0.008**	**0.006**	**0.005**
	'(0.005)	'(0.005)	'(0.005)	'(0.005)
Northeast Region	**-0.002**	**-0.003**	**-0.002**	**-0.001**
	'(0.004)	'(0.005)	'(0.004)	'(0.004)
PacificNorth Region	**0.006**	**0.010***	**0.006**	**0.005**
	'(0.004)	'(0.004)	'(0.004)	'(0.004)
Plains Region	**0.006**	**0.003**	**0.006**	**0.005**
	'(0.004)	'(0.005)	'(0.004)	'(0.004)
Southeast Region	**0.011****	**0.014*****	**0.011****	**0.010****
	'(0.004)	'(0.004)	'(0.004)	'(0.004)
Southwest Region	**0.006**	**0.010***	**0.006**	**0.005**
	'(0.004)	'(0.004)	'(0.004)	'(0.004)
R-squared	0.528	0.482	0.531	0.533
N	313	313	313	313

	Age	HHI	Both	Interaction
ENTRY RATES				
Pop. Growth 2000-2010	**0.034****	**0.055*****	**0.033****	**0.033****
	'(0.011)	'(0.011)	'(0.011)	'(0.011)
Average Nonprofit Age	**-0.002*****		**-0.002*****	**-0.002***
	'(0.000)		'(0.000)	'(0.001)
HHI (Revenue Concentration)		**0.002**	**0.002**	**-0.006**
		'(0.001)	'(0.001)	'(0.007)
Age*HHI				**0.000**
				'(0.000)
EXIT RATES				
Pop. Growth 2000-2010	**-0.014**	**-0.006**	**-0.014**	**-0.014**
	'(0.010)	'(0.009)	'(0.010)	'(0.010)
Average Nonprofit Age	**-0.001***		**-0.001***	**0.001**
	'(0.000)		'(0.000)	'(0.001)
HHI (Revenue Concentration)		**0.000**	**0.000**	**-0.019****
		'(0.001)	'(0.001)	'(0.006)
Age*HHI				**0.001****
				'(0.000)
GROWTH RATES				
Pop. Growth 2000-2010	**0.048*****	**0.061*****	**0.047*****	**0.047*****
	'(0.012)	'(0.012)	'(0.012)	'(0.012)
Average Nonprofit Age	**-0.002****		**-0.002****	**-0.003****
	'(0.000)		'(0.000)	'(0.001)
HHI (Revenue Concentration)		**0.001**	**0.001**	**0.013**
		'(0.001)	'(0.001)	'(0.008)
Age*HHI				**-0.001**
				'(0.000)

Population growth and age of the sector are associated with entry rates.

Not with exit rates.

	Age	HHI	Both	Interaction
ENTRY RATES				
Pop. Growth 2000-2010	**0.034****	**0.055*****	**0.033****	**0.033****
	'(0.011)	'(0.011)	'(0.011)	'(0.011)
Average Nonprofit Age	**-0.002*****		**-0.002*****	**-0.002***
	'(0.000)		'(0.000)	'(0.001)
HHI (Revenue Concentration)		**0.002**	**0.002**	**-0.006**
		'(0.001)	'(0.001)	'(0.007)
Age*HHI				**0.000**
				'(0.000)
EXIT RATES				
Pop. Growth 2000-2010	**-0.014**	**-0.006**	**-0.014**	**-0.014**
	'(0.010)	'(0.009)	'(0.010)	'(0.010)
Average Nonprofit Age	**-0.001***		**-0.001***	**0.001**
	'(0.000)		'(0.000)	'(0.001)
HHI (Revenue Concentration)		**0.000**	**0.000**	**-0.019****
		'(0.001)	'(0.001)	'(0.006)
Age*HHI				**0.001****
				'(0.000)
GROWTH RATES				
Pop. Growth 2000-2010	**0.048*****	**0.061*****	**0.047*****	**0.047*****
	'(0.012)	'(0.012)	'(0.012)	'(0.012)
Average Nonprofit Age	**-0.002****		**-0.002****	**-0.003****
	'(0.000)		'(0.000)	'(0.001)
HHI (Revenue Concentration)		**0.001**	**0.001**	**0.013**
		'(0.001)	'(0.001)	'(0.008)
Age*HHI				**-0.001**
				'(0.000)

Revenue concentration is only associated with exit in older sectors.

CONCLUSION

Discussion:

Demographic characteristics of communities used in nonprofit density studies are not important.

>> We need to approach density (stocks) and entry / exit (flows) differently.

Population growth is the biggest predictor of higher entry rates.

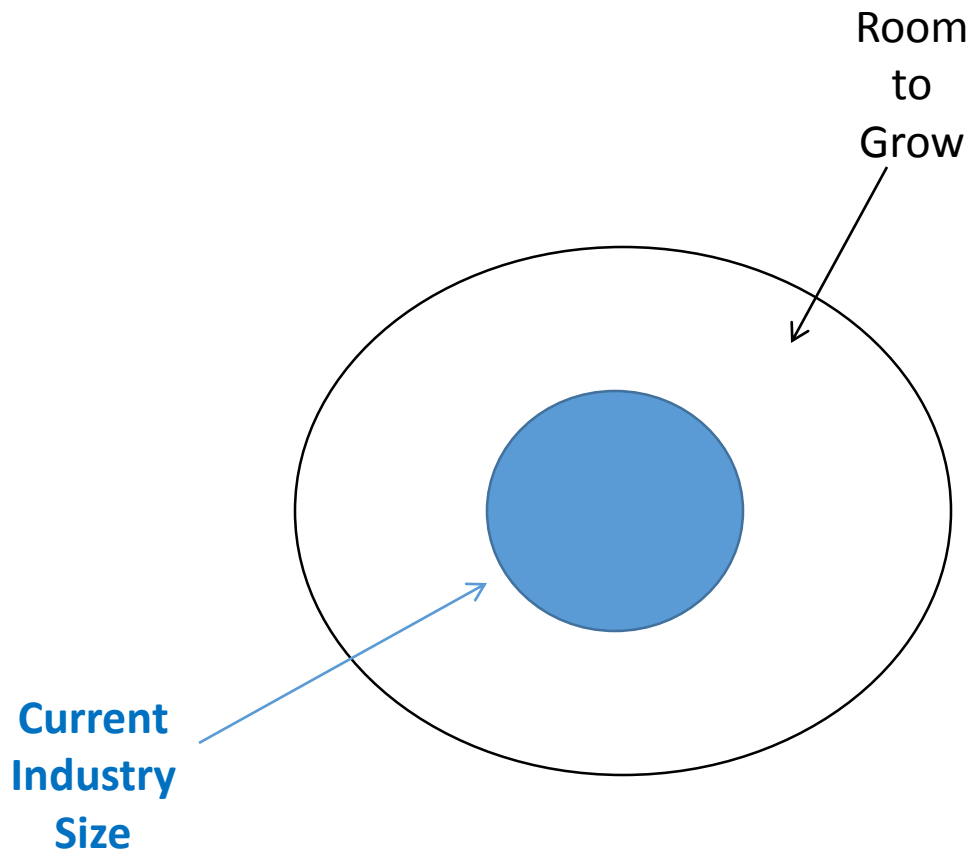
Market age and competitiveness (low HHI) predict exit.

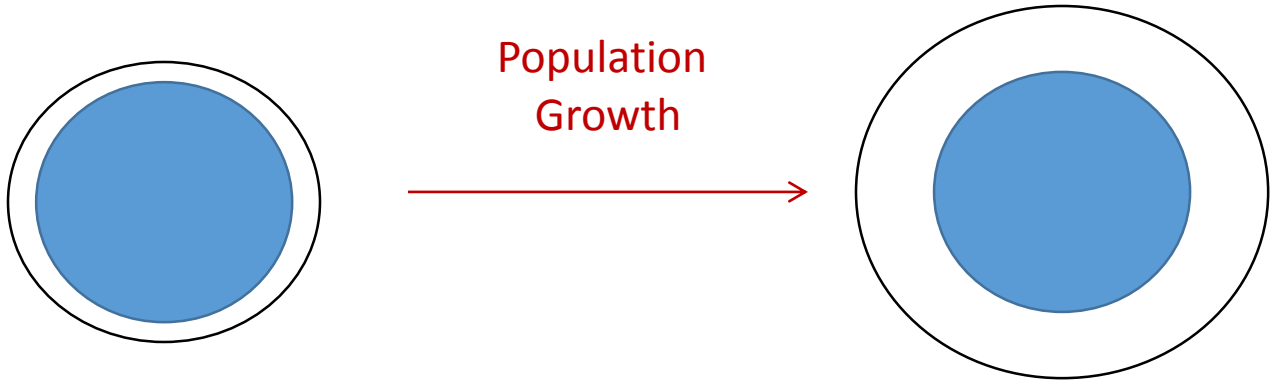
How should we interpret the market age, and the revenue concentration variables? Are these the best way to measure competition in nonprofit markets?

Table 1
Research Variables Included in Previous Empirical Studies on Nonprofit Density

	Control Variables			Interdependence or Government Failure?				Alternative Theories		
	Community Need (+)	Community Wealth (+)	Population (+)	Community Diversity (+)	Government Size (–)	Government Grants (+)	Private Grants (+)	Social Capital (+)	Religious Activity (+)	Philanthropic Culture (+)
Corbin (1999)	Y	Y		Y					Y	N
Gronbjerg and Paarlberg (2001)	Y	Y	X	N		N			N	N
Salamon and Anheier (1998)				N		Y	N			
Matsunaga and Yamauchi (2004)	Y	N	X	N	Y		Y			
Saxton and Benson (2005)	N	Y	X		N			Y		
Paarlberg and Gen (2009)	N	Y	X	Y	Y					
Luksetich (2008)		Y	X		N	Y				

Note: Community need is measured by poverty or unemployment rates. Community wealth is measured by per capita income. Population is controlled by including population as a variable or by using per capita measures for other variables. Community diversity can be measured by race, religion, or age demographics. Generally, race and religion have not been significant predictors. All four variables within the box are needed to test interdependence theory and government failure theory jointly. "Y" indicates a significant finding in the direction predicted by theory. "N" indicates a nonsignificant finding. "X" indicates that population was used as a control variable.


Room
to
Grow
Current
Industry
Size


Population
Growth


Market Saturation
w/ Age