Use of Tax Data for Economic Research: Understanding the Sharing Economy & Business Income Taxpayer Churning

Division of Tax Policy

New York City Department of Finance

Presented at FTA Revenue Estimating Conference

San Diego, CA

October 2018

Use of Tax Data for Economic Research

Topic I: The Gig Economy in NYC, 2012 v 2015

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- **Methodology**
- **Results**
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- **Conclusion – UBT and GCT**

The Gig Economy in NYC

2012 v 2015

Research Conducted by Maricar Mabutas and Di Han

Division of Tax Policy

NYC Department of Finance

Background

- *Gig economy* generally refers to economic activity that enables contingent workers to provide on-demand goods and services facilitated by an electronic platform.

- Gig work typically offers flexible schedules and low barriers to entry, but not benefits such as health insurance and retirement saving plans.

Background

Gig Economy Platforms and the Industries Most Impacted

Industry	Description	Possible NYC Tax Impact
For-hire vehicles (taxicabs, car services, black cars, and limousines)	On-demand or ride-sharing transportation	Commercial Motor Vehicle Tax, Taxicab License Transfer Tax. The value of the taxi medallion has plummeted amid growth of ride-hailing apps.
Hotel and Lodging	Short-term stay rentals arranged through digital platforms	Real Property Tax, Hotel Room Occupancy Tax
Delivery Services	Online platforms for restaurant, grocery and other delivery services	Unreported Income
Personal Services	On-demand personal services	Unreported Income
Commercial real estate	Co-working spaces	Commercial Rent Tax

Background

Research indicates that while more people are participating in the gig economy, gig earnings augment, rather than replace, income from more traditional work.

- Bureau of Labor Statistics survey data shows the share of employed workers in "alternative work arrangements"[1] was 10.1 percent of total employment in 2017, almost the same as it was in 2005 (10.7 percent) and 1995 (9.9 percent). However, this survey counts only workers whose jobs provided their main source of income.

- Federal Reserve 2017 annual Survey of Household Economics and Decision Making (SCHED) reports three in ten adults work in the gig economy, generally to supplement other income.

- A 2016 paper by labor economists Lawrence Katz of Harvard and Alan Krueger of Princeton estimated that the share of U.S. workers in various "alternative work arrangements" rose from 10.7 percent of total employment in 2005 to 15.8 percent in 2015.

- A 2016 Brookings study (Ian Hathaway and Mark Muro) mined Census non-employer data and concluded "the platform economy for rides and rooms is now sizable and growing rapidly in many larger metro areas."

[1] Alternative work arrangements include independent contractors, on-call workers, staff assigned through temporary agencies, and contract workers.

Methodology

Select NYC payee returns with:
- Any non-employee compensation reported on 1099- MISC
- Any payments reported on 1099-K

Retain only returns with SSN payees.

	1099-MISC	**1099-K** (new in 2011)
Who is required to file	If you issue payments to non-employees i.e. independent contractors	If you issue payments made through payment card transactions (debit, credit cards), or you issue payments as a third party network
What payments to report	Non-employee compensation*	Gross amount of the total reportable payment card/third-party network transactions
Filing threshold (per payee)	at least $600 in payments	None for payment card transactions; 200+ transactions and $20K+ in gross payments for third-party networks

*All other reportable income, such as rents and royalties, are excluded from this study.

Data: IRS 1099-MISC and 1099-K Returns, 2012 and 2015

Results: 1099-MISC
by Number of Returns and Payees

- The number of payers grew 11 percent, while the number of payees grew 8 percent.
- The median payment per return was approximately constant, while the median payment per payee grew 8 percent.
- The number of payers with at least 100 payees grew 7 percent.

1099-MISC	2012	2015	% Change 2012-2015
By Returns			
Number of returns	773,379	848,377	10%
Total payments ($ billion)	$9.80	$11.06	13%
Mean payment	$12,672	$13,034	3%
Median payment	$3,200	$3,225	1%
By Payees			
Number of SSN payees	509,778	550,811	8%
Mean payment per payee	$19,225	$20,076	4%
Median payment per payee	$5,500	$5,925	8%
Number of Payers	182,467	202,563	11%
Number of Payers with 100 Payees or More	525	562	7%
Mean number payees per payer	324	325	0%
Median number payees per payer	166	161	-3%

Results: 1099-MISC by Payment Range

- In both 2012 and 2015, over 60 percent of payees earned less than $10K through remittances on the 1099-MISC.

- Over half the growth in new payees came from those earning more than $10K.

Payment Range	2012		2015		Change in	
	Number of Payees	Cumulative Percentage	Number of Payees	Cumulative Percentage	Number of Payees	Percentage Growth
Less than $600	15,733	3%	17,303	3%	1,570	10%
$600 to $999	47,025	12%	50,133	12%	3,108	7%
$1,000 to $2,999	119,212	36%	123,137	35%	3,925	3%
$3,000 to $4,999	58,839	47%	61,289	46%	2,450	4%
$5,000 to $9,999	85,096	64%	92,202	62%	7,106	8%
$10,000 to $19,999	77,428	79%	88,330	79%	10,902	14%
$20,000 to $39,999	52,485	89%	59,319	89%	6,834	13%
$40,000 or more	53,960	100%	59,098	100%	5,138	10%
Total	**509,778**		**550,811**		**41,033**	**8%**

Results: 1099-K
by Number of Returns and Payees

- The number of returns increased by 81 percent, and total payments grew by 75 percent.
- The number of payees increased by 86 percent, and the number of payers by 39 percent.
- The number of payers with at least 100 payees grew 19 percent, and the mean number of payees for this group increased 55 percent.

1099-K	2012	2015	% Change 2012-2015
By Returns			
Number of returns	52,930	95,546	81%
Total payments ($ billion)	$2.11	$3.70	75%
Mean payment	$39,945	$38,691	-3%
Median payment	$19,386	$21,455	11%
By Payees			
Number of SSN payees	40,788	75,844	86%
Mean payment per payee	$51,836	$48,741	-6%
Median payment per payee	$30,099	$30,150	0%
Number of Payers	182	253	39%
Number of Payers with 100 Payees or More	58	69	19%
Mean number payees per payer	844	1,304	55%
Median number payees per payer	549	357	-35%

Results: 1099-K by Payment Range

- In both 2012 and 2015, just under 30 percent of payees earned less than $10K through remittances on 1099-Ks.

- Over 40 percent of the growth in number of payees came from those payees earning more than $50K.

Payment Range	2012		2015		Change in	
	Number of Payees	Cumulative Percentage	Number of Payees	Cumulative Percentage	Number of Payees	Percentage Growth
Less than $2,000	5,355	13%	10,680	14%	5,325	99%
$2,000 to $4,999	2,674	20%	5,640	22%	2,966	111%
$5,000 to $9,999	3,043	27%	5,615	29%	2,572	85%
$10,000 to $19,999	4,382	38%	6,926	38%	2,544	58%
$20,000 to $29,999	4,895	50%	8,952	50%	4,057	83%
$30,000 to $39,999	4,914	62%	7,386	60%	2,472	50%
$40,000 to $59,999	8,290	82%	13,233	77%	4,943	60%
$60,000 to $79,999	2,398	88%	8,820	89%	6,422	268%
$80,000 or more	4,837	100%	8,592	100%	3,755	78%
Total	**40,788**		**75,844**		**35,056**	**86%**

Results: Gig Firms[1]
by Number of Returns and Payees

- The number of payees working for the studied gig firms has grown from 541 to over 47K between 2012 and 2015, and total payments grew from $5m to over $1b.
- The median payment per payee increased 67 percent between 2012 and 2015.
- The mean number of payees per payer increased from 23 to over 1,800, while the median number of payees per payer increased from 8 to 44.

1099-MISC and 1099-K	2012	2015	% Change 2012-2015
By Returns			
Number of returns	543	61,849	11290%
Total payments ($ million)	$5	$1,027	18654%
Mean payment	$10,083	$16,602	65%
Median payment	$5,133	$4,388	-15%
By Payees			
Number of SSN payees	541	47,048	8596%
Mean payment per payee	$10,121	$21,825	116%
Median payment per payee	$5,133	$8,547	67%
Number of Payers	24	30	25%
Mean number payees per payer	23	1,836	7883%
Median number payees per payer	8	44	450%

[1] Gig firms were identified through consultation with NYC Small Business Services.

Results: Gig Firms by Payment Range

- In 2012, over 2/3 of payees from the studied gig firms earned less than $10K; this share declined to 53 percent in 2015.
- The number of payees earning more than $20K from the studied gig firms increased dramatically.

Payment Range	2012		2015		Change in	
	Number of Payees	Cumulative Percentage	Number of Payees	Cumulative Percentage	Number of Payees	Percentage Growth
Less than $2,000	156	29%	12,606	27%	12,450	7981%
$2,000 to $4,999	113	50%	6,640	41%	6,527	5776%
$5,000 to $9,999	98	68%	5,530	53%	5,432	5543%
$10,000 to $29,999[1]	174	100%	9,790	73%	9,616	12700% [2]
$30,000 to $49,999			5,162	84%	5,162	
$50,000 to $69,999			3,410	92%	3,410	
$70,000 or more			3,910	100%	3,910	
Total	541		47,048		46,507	8596%

[1] For 2012, number of payees includes those with payments of $10K or more.

[2] Percent growth is calculated for payments of $10,000 or more.

Results: Gig Firms as Share of Total

The studied gig firms accounted for 52 percent of the increase in returns and 36 percent of the growth in payments from 2012 to 2015.

The number of 1099-MISC and 1099-K returns increased by 118K.

	Number of Returns		
	2012	2015	Increase
Total[1]	826,309	943,923	117,614
Gig Firms	543	61,849	61,306
Gig Firms as % Total	**0.1%**	**7%**	**52%**

Total payments reported to NYC individuals on the 1099-MISC and 1099-K returns increased by $2.8b.

	Total Payments ($ millions)		
	2012	2015	Increase
Total[1]	$11,915	$14,755	$2,840
Gig Firms	$5	$1,027	$1,021
Gig Firms as % Total	**0%**	**7%**	**36%**

[1] Total includes returns from both 1099-MISC and 1099-K.

Conclusion

- The growth in the number of 1099s from the selected gig firms reflects the growth of the sharing economy in New York City from 2012 to 2015.

- Relatively low median payments from gig firms confirms other research that earnings from the gig economy augment other earnings.

- The growth in 1099-Ks significantly outpaced the growth in 1099-MISC forms, driven by the increase in third-party network transactions.

- The high filing threshold for 1099-Ks ($20K and 200 transactions) fails to capture all payments through on-demand platforms and may create compliance issues.

Corporation and Partnership Churning in the NYC Filer Population

Research Conducted by Seth Samelson

Division of Tax Policy

NYC Department of Finance

Goals

- Analyze Business Income Tax population changes by looking at the births, deaths, and lifespans of entities.

- Contrast expected lifespans of entities by entity type, sector, borough, and allocation status.

- Examine changes in new business formation by type of business entity over time.

Methodology

- Create two longitudinal datasets
  - for partnerships (unincorporated business tax, or UBTP), 1996 through 2014
  - for corporations (general corporation tax, or GCT), 1992 through 2014
- Identify earliest and latest years that each entity (EIN) is in dataset.
- Assign birth and death year (next slide).
- Use range from birth to death/censorship as lifespan.
- Entity type, sector, borough, and allocation status are assigned using the most recent data for each entity.
- Disregard one-year gaps in which an entity does not appear.

Methodology:
Lifespans that Touch Study Endpoints
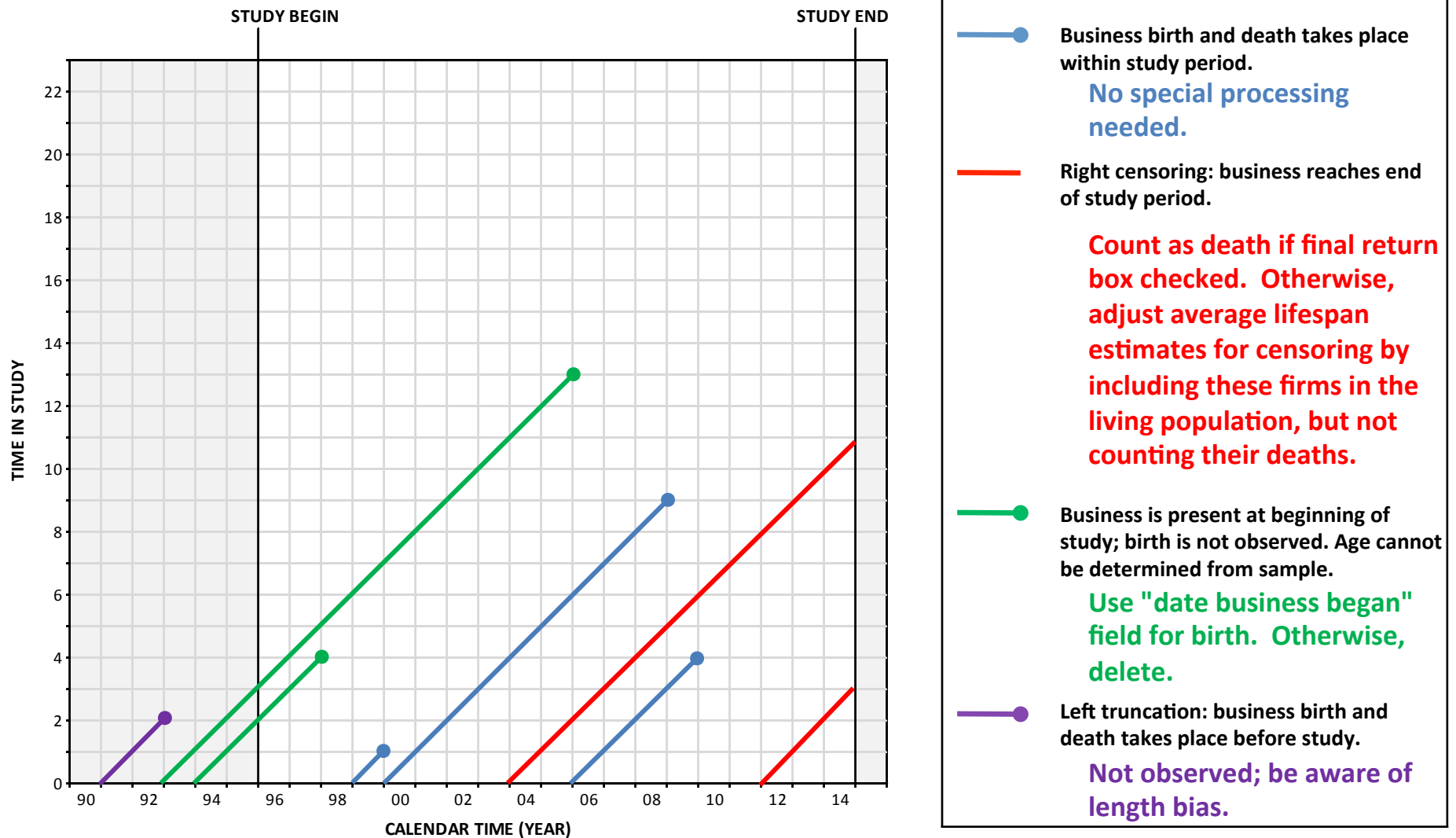
NOTE: Each colored bar represents an imaginary company's lifespan.

Methodology:
Assigning Birth Year, Death Year and Censored Status

	1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014	first year	last year	birth year	death/censor year	lifespan	final return	censored?
ACME		1999	2009	1999	1999	11		NO
BILL'S		2011	2014	2011	2014	4	☐	**YES**
CROWN		1996	1997	**1983**	1997	15		
DOE		1996	2014	**1990**	2014	25	☑	NO
EPIC		2005	2014	2005	2014	10	☐	**YES**

- If first year=1996, birth year cannot be determined from panel, so is instead assigned using "date business began" from NYC tax return (green).

- Censored=YES if entity reaches 2014 and the filer does not check the "final return" box (red). For censored entities, the complete lifespan is not observed, so the assigned lifespan is a lower bound on eventual lifespan. Median lifespan estimates are adjusted for censorship by including censored entities in living population until their censorship, but not registering deaths for them.

- Disregard one-year filing gaps during lifespan.

UBTP Population
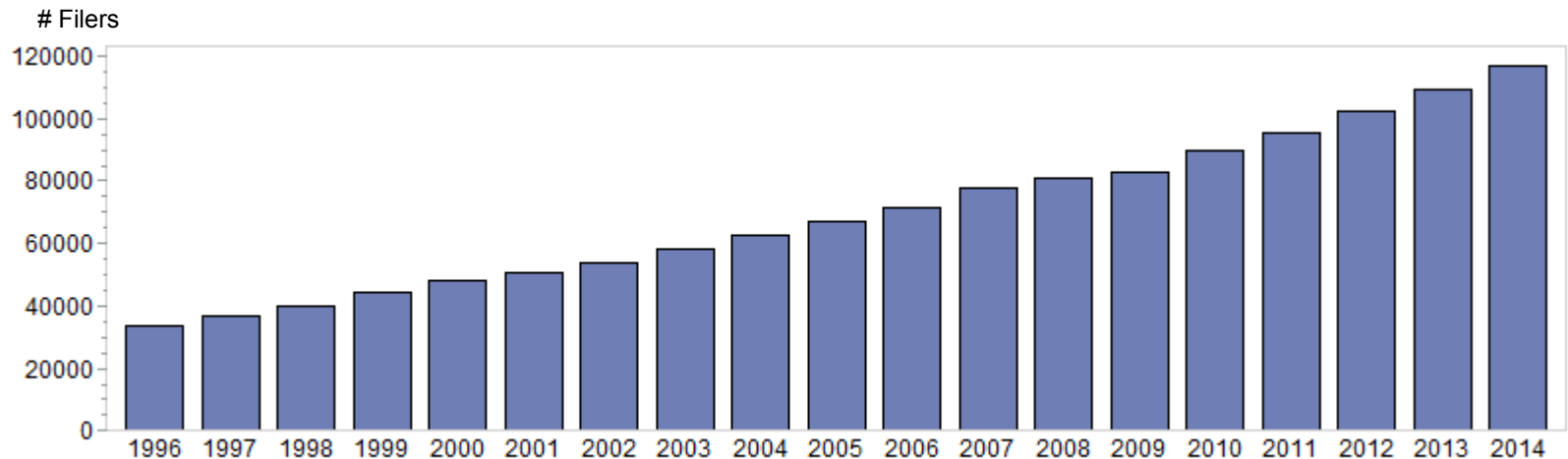
Filers

- 1996 – 2014

- Number of partnerships grew from 34K in 1996 to 117K in 2014.

- Filing requirement is at least $95K in gross receipts, increased from $25K in 2008.   Many entities file even though they are not required to do so.

- Includes all filers, not just those with positive tax liability.

- 226,310 unique entities included in the study
  - Deleted 14K entities without birth dates
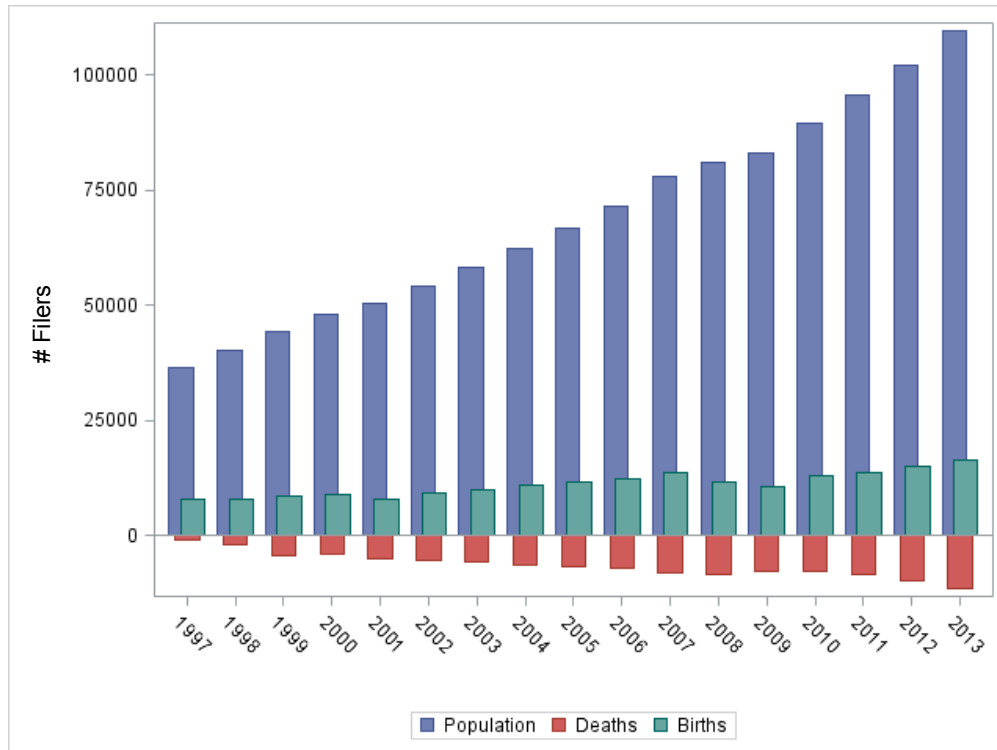
UBTP: First Year in Panel v. Birth Year

Entities present in panel in 1996 are assigned birth year from the tax return.
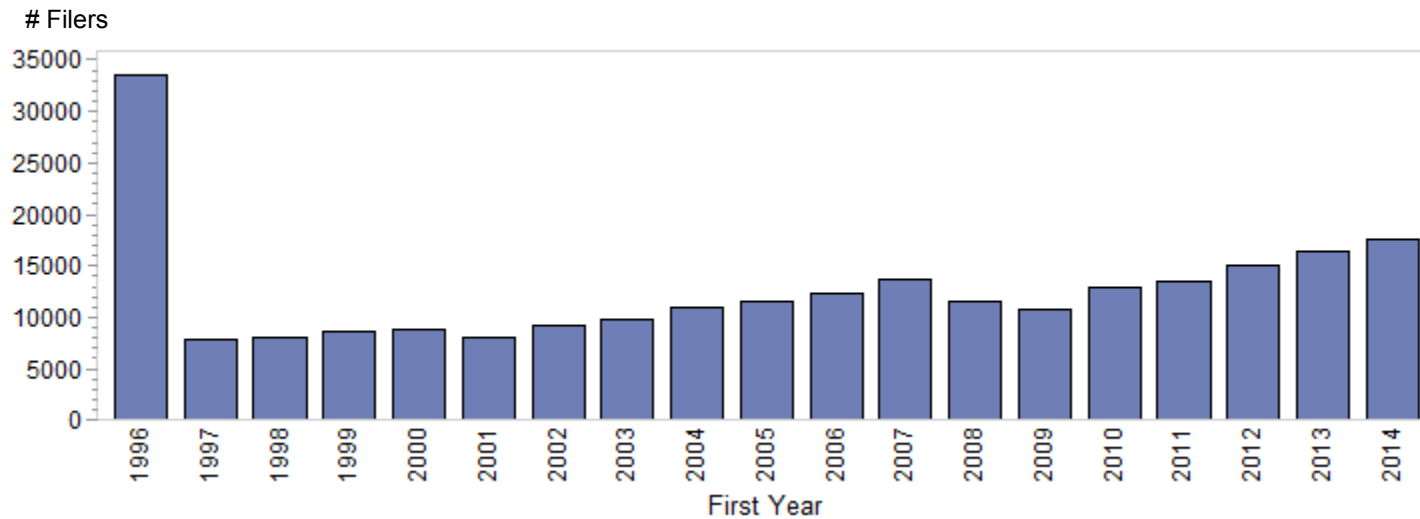
Entities with birth year prior to 1966 are assigned 1966, the year the UBT was enacted.
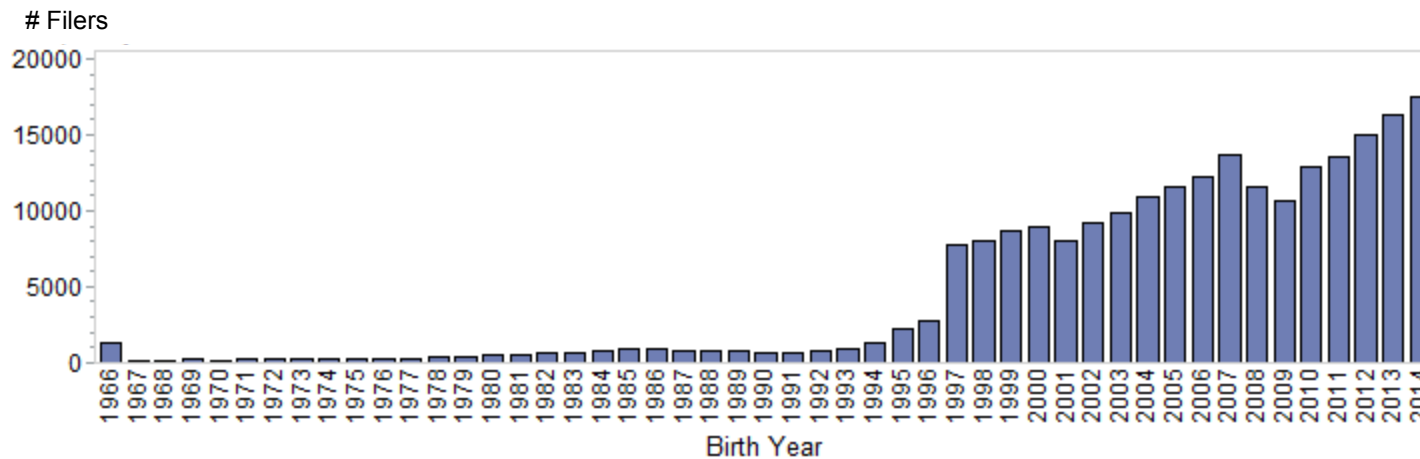
UBTP Population: Births and Deaths

- $Population_t \approx Population_{t-1} - Deaths_{t-1} + Births_t$

- Recessions decrease the growth rate of firm population both by slowing birth rates and increasing death rates.

- Minimum birth rate as percentage of population: 2009 - 12.9%

- Maximum death rate as a percentage of population: 2007 - 10.4%

UBTP First-Year Survival Rates by Birth Cohort

- Percentages indicate the percentage of the birth cohort that lived past the first year.

- First-year survival rate has generally increased over time.

- Median first-year survival rate is 90 percent, higher than other studies indicate, perhaps due to filing threshold.
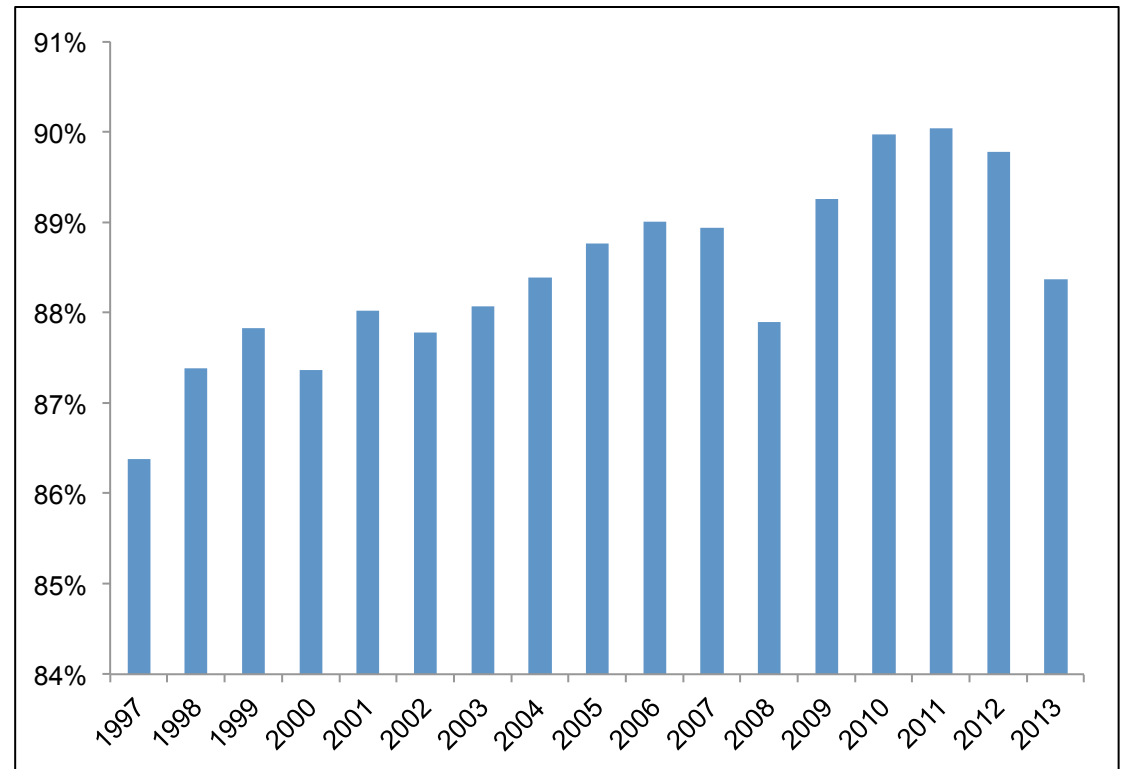
UBTP Survival Function

- Survival function presents the probability that a random company will live until time t.
- Approximately 10 percent of partnerships fail in their first year.

Kaplan-Meier Plot
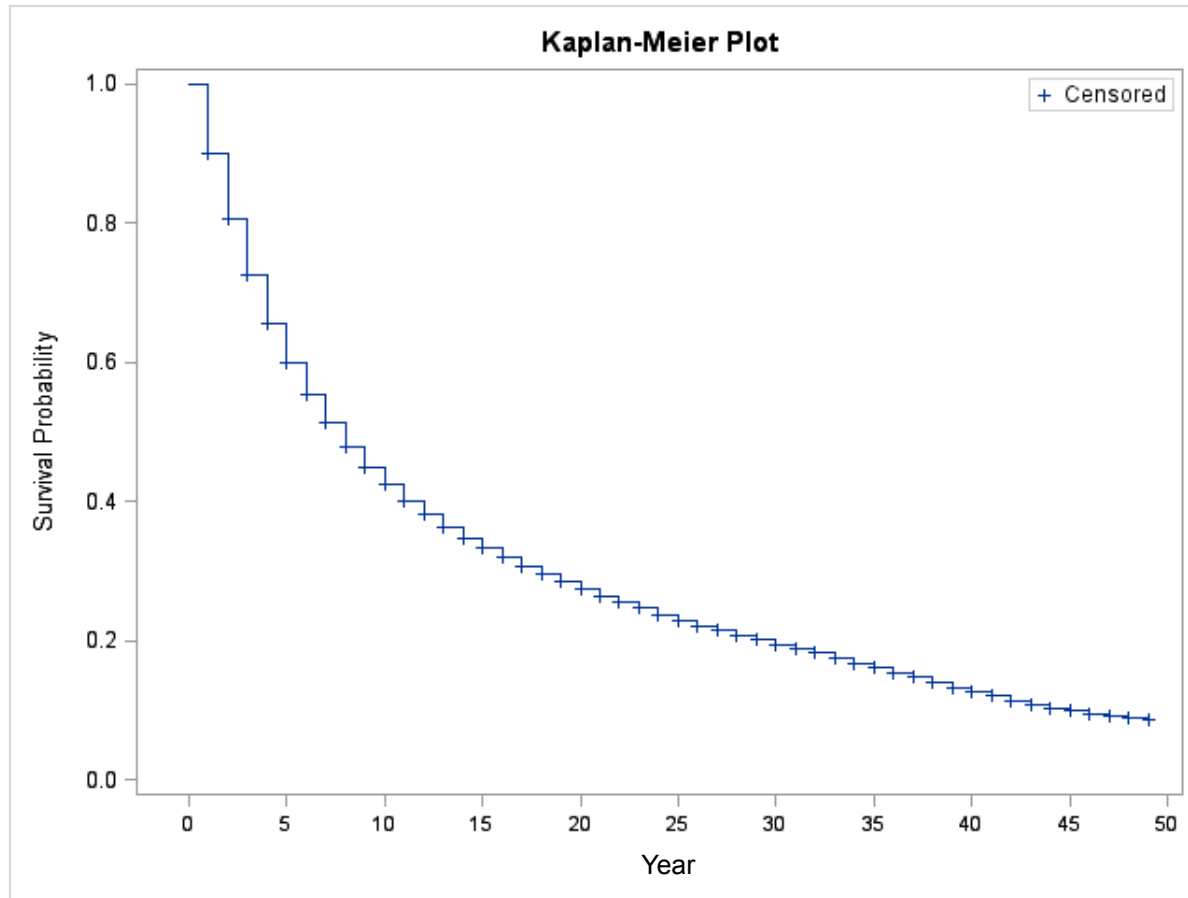
Lifespan Statistics		
	Full Population (shown)	1997+ Births Only
P25	3	3
P50	8	7
P75	23	16

Mean	15	9

First-year survival rate	90%	89%

UBTP Survival Function Subpopulation: Sector

Kaplan-Meier Plot

SECTOR
- 1. LEGAL
- 2. FINANCE AND INSURANCE
- 3. INFORMATION
- 4. PROF/TECH/MANAGERIAL
- 5. ARTS/ENTER/ACCOM/FOOD
- 6. OTHER SERVICES
- 7. TRADE
- 8. REAL ESTATE
- 9. OTHER
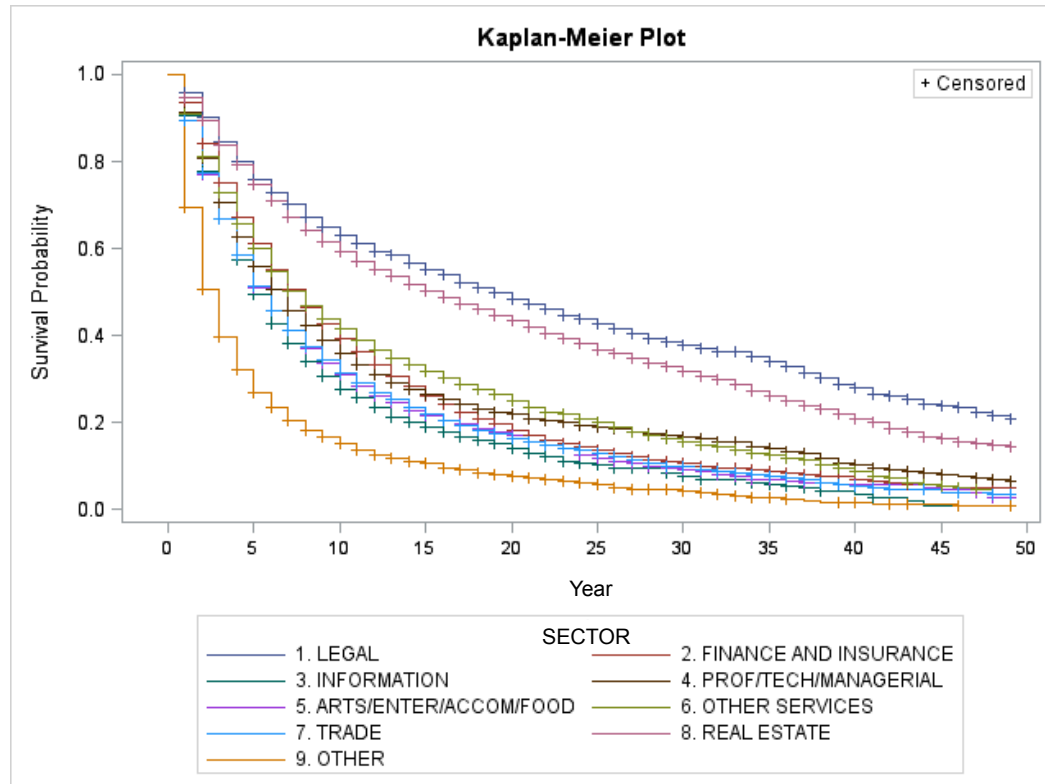
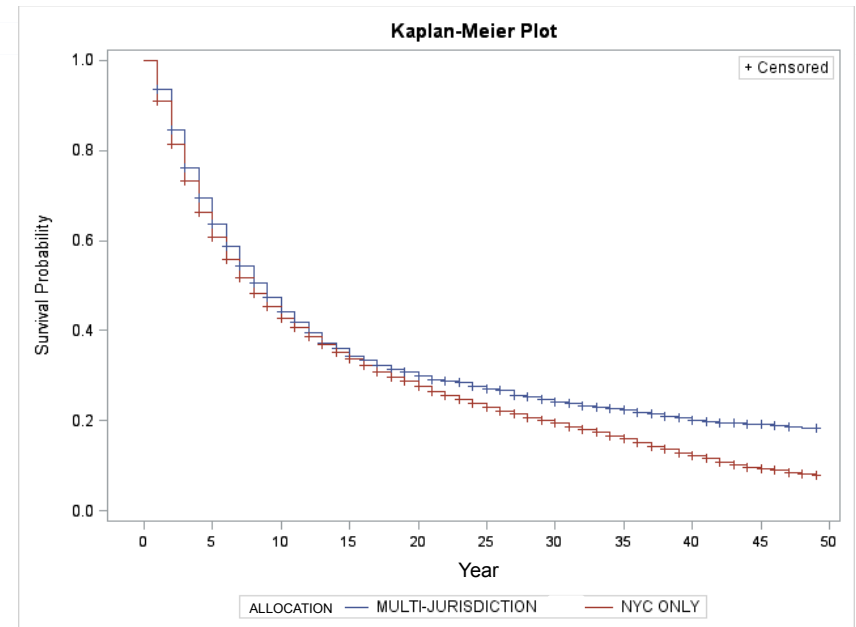|	Count	Mean	P25	Med	P75	1st Year Survival Rate
LEGAL	4,289	24	6	19	44	96%
REAL ESTATE	74,422	21	5	17	37	95%
FINANCE AND INSURANCE	51,610	12	4	8	16	94%
OTHER SERVICES	13,867	14	3	8	21	91%
PROF/TECH/MANAGERIAL	21,555	13	3	7	17	91%
TRADE	15,693	11	3	6	14	90%
ARTS/ENTERTAINMENT/ACCOM/FOOD	15,585	11	3	6	13	89%
INFORMATION	6,556	10	3	5	12	90%
OTHER	21,577	6	1	3	6	69%
N/A	1,156	.	.	.	.	.
Total	226,310	15	3	8	23	90%

UBTP Survival Function
Subpopulations: Borough and Allocation

Borough

Allocation Status
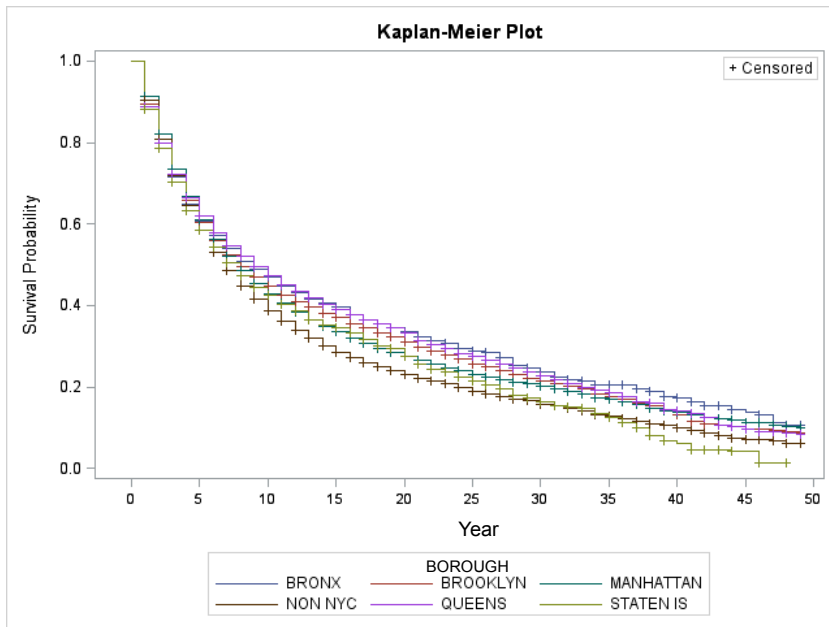
	Count	Mean	P25	Med	P75	1st Year Survival Rate
MANHATTAN	111,168	15	3	8	23	92%
BRONX	6,151	17	3	9	29	88%
BROOKLYN	32,235	16	3	8	26	89%
QUEENS	21,100	17	3	9	28	89%
STATEN IS	5,440	14	3	8	22	88%
NON NYC	49,198	14	3	7	18	90%
N/A	1,018	.	.	.	.	.
Total	226,310	15	3	8	23	90%

|	Count	Mean	P25	Med	P75	1st Year Survival Rate
MULTI-JURISDICTION	17,489	17	4	9	29	94%
NYC ONLY	205,787	15	3	8	23	91%
N/A	3,034	.	.	.	.	.
Total	226,310	15	3	8	23	90%

GCT Population

Filers
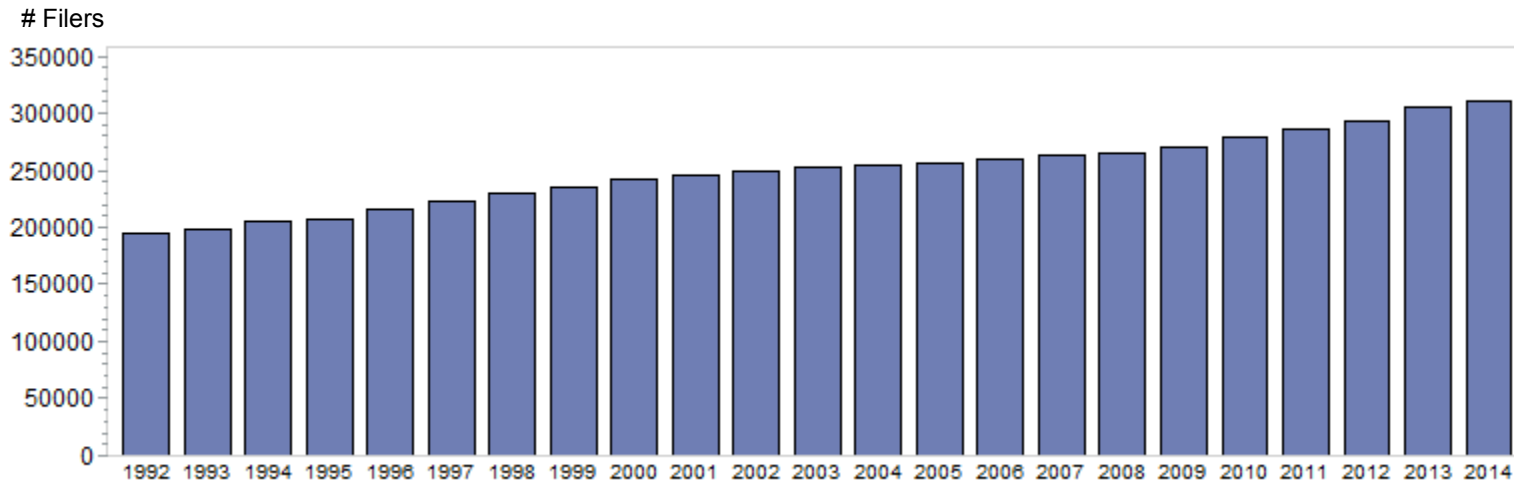
- 1992 – 2014

- Number of corporations grew from 195K in 1992 to 310K in 2014.

- The GCT has a minimum tax, so all corporations must file.

- 752,183 unique entities included in the study.

  - Deleted 122K entities without birth dates.

  - 41% S corporations, 57% C corporations, 2% unclassified

GCT: First Year in Panel v. Birth Year

Entities present in panel in 1992 are assigned birth year from the tax return.
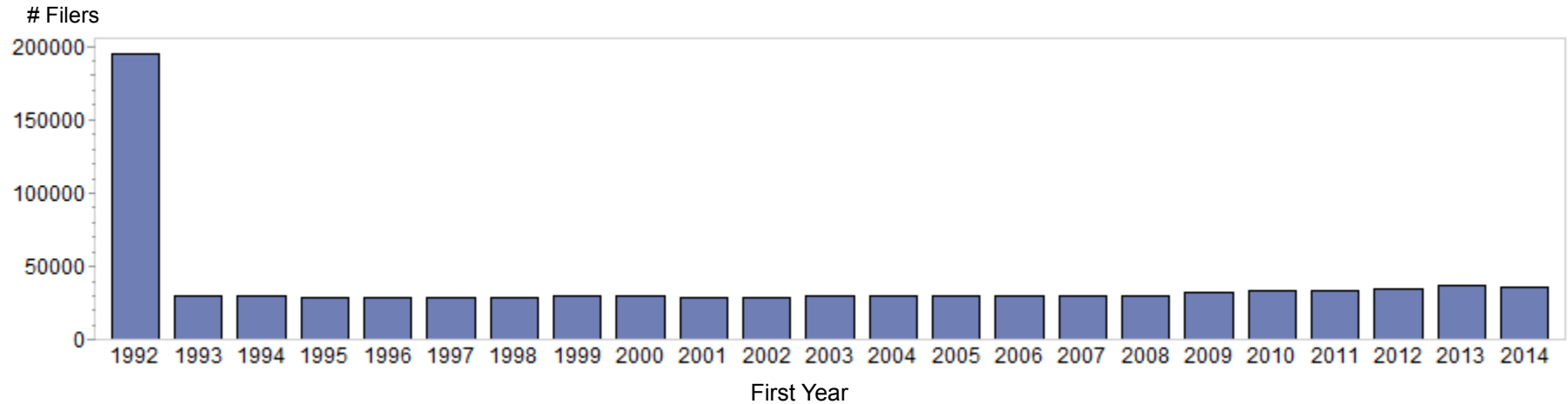
Entities with birth year prior to 1966 are assigned 1966, the year the GCT was enacted.
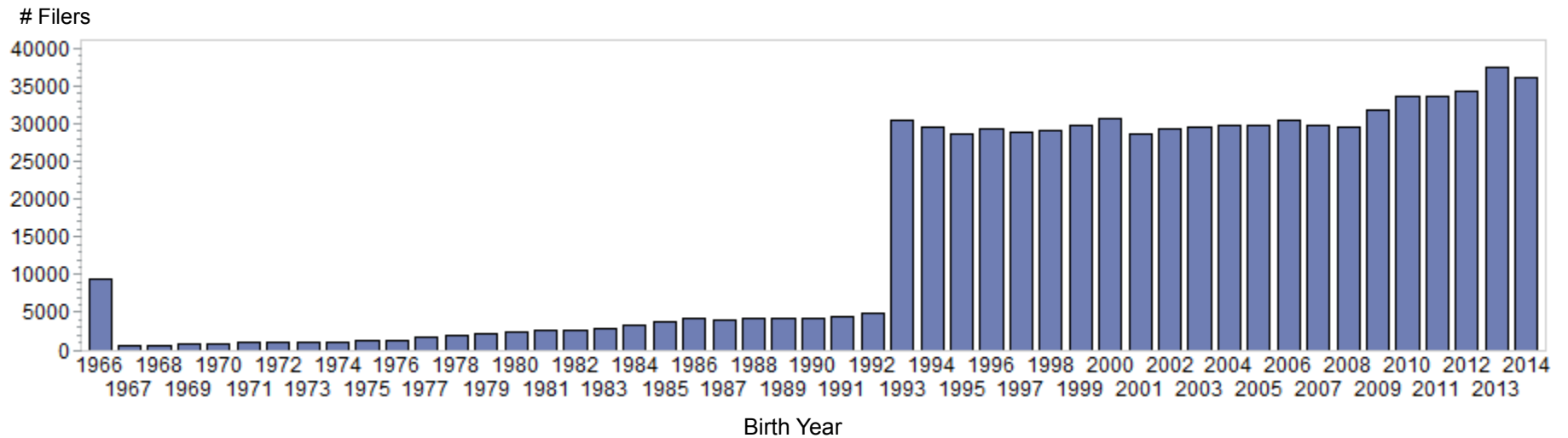
GCT Population: Births and Deaths

- $Population_t \approx Population_{t-1} - Deaths_{t-1} + Births_t$

- Recessions decrease the growth rate of firm population both by slowing birth rates and increasing death rates.

- Business cycle aside, the annual count of births is broadly flat until 2009, and then increases.

- Minimum birth rate as percentage of population: 2008 - 11.2%

- Maximum death rate as a percentage of population: 2007: 10.0%
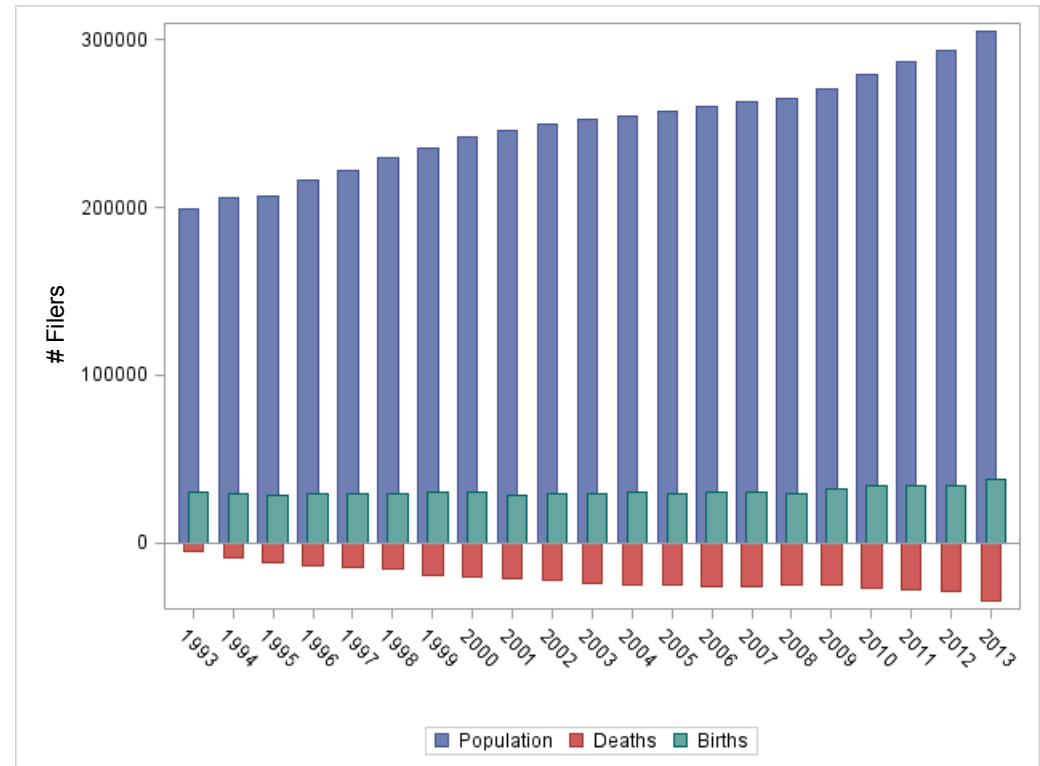
GCT First-Year Survival Rates By Birth Cohort

- Percentages indicate the percentage of the birth cohort that lived past the first year.
- First-year survival rate declined in 2007, rather than 2008.
- Median first-year survival rate is 87 percent.
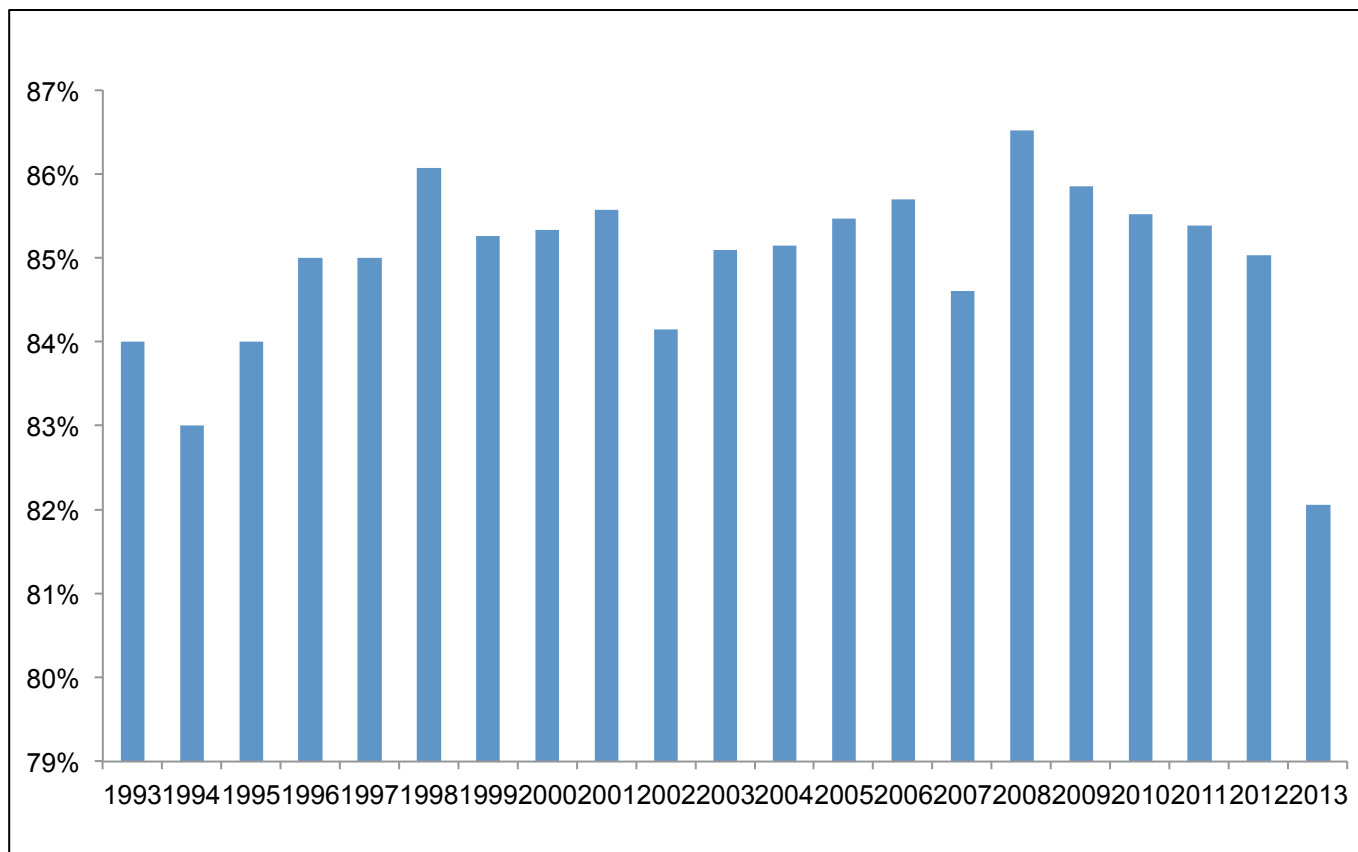
GCT Survival Function

- Survival function presents the probability that a random company will live until time *t*.
- On average, 13 percent of corporations fail in their first year.

Kaplan-Meier Plot
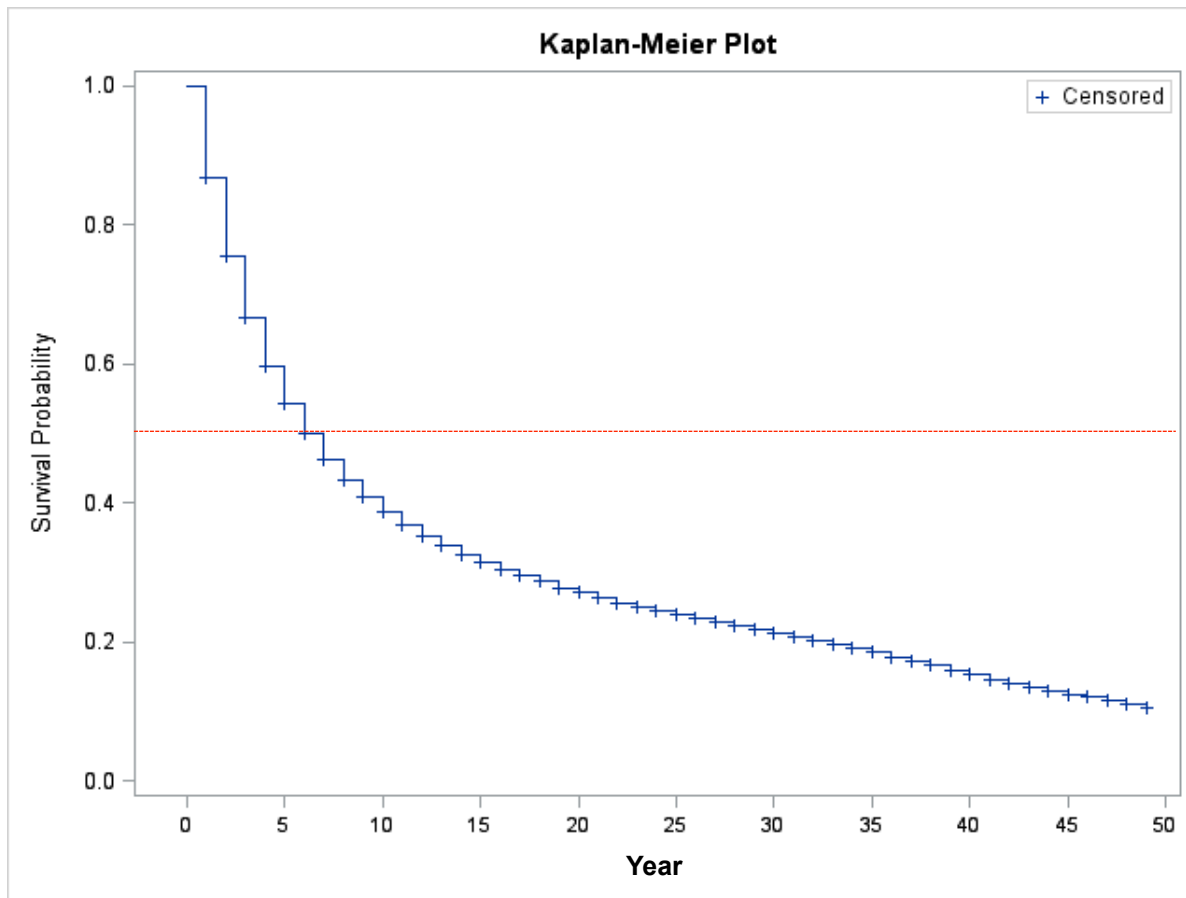
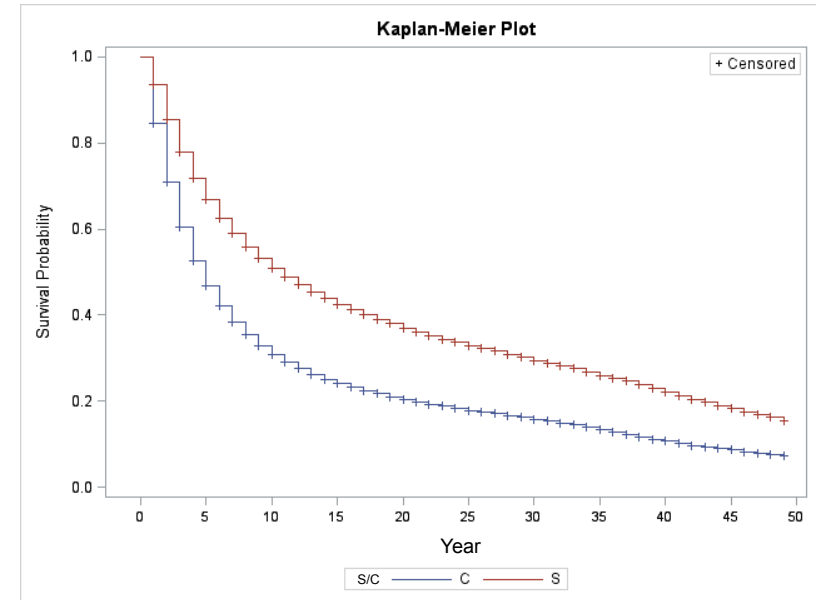| Lifespan Statistics		
	Full Population (shown)	1993+ Births Only
P25	3	2
P50	6	5
P75	24	13
Mean	15	8
First-year survival rate	87%	85%

GCT Survival Function
Subpopulations: Sector and S/C Status

Sector
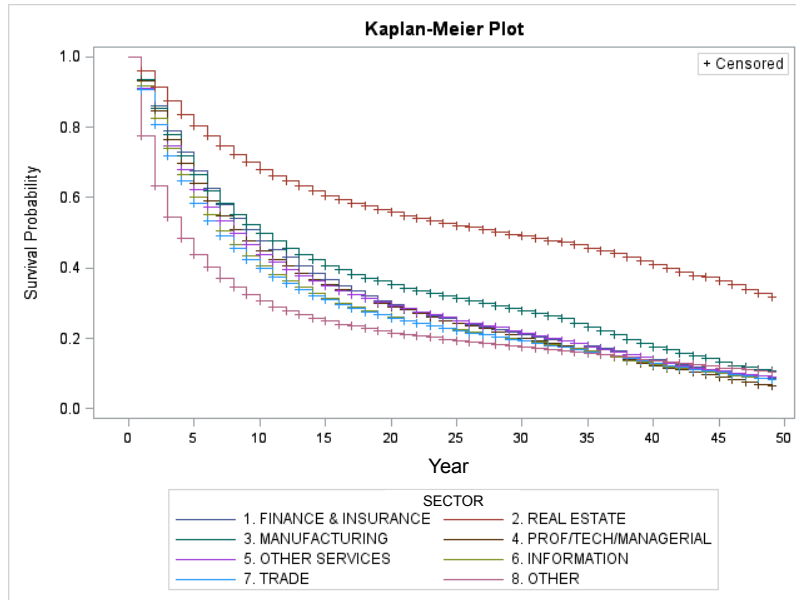
S corp/C corp

	Count	Mean	P25	Med	P75	1st Year Survival Rate
REAL ESTATE	79,144	28	7	29	.	96%
FINANCE & INSURANCE	28,515	16	4	10	25	93%
MANUFACTURING	20,911	18	4	10	34	94%
PROF/TECH/MANAGERIAL	91,076	16	4	9	25	93%
OTHER SERVICES	165,674	16	3	8	26	91%
INFORMATION	20,672	15	3	8	22	92%
TRADE	148,169	15	3	7	21	91%
OTHER	112,735	13	2	4	15	78%
N/A	85,287	.	.	.	.	.
Total	752,183	15	3	6	24	87%

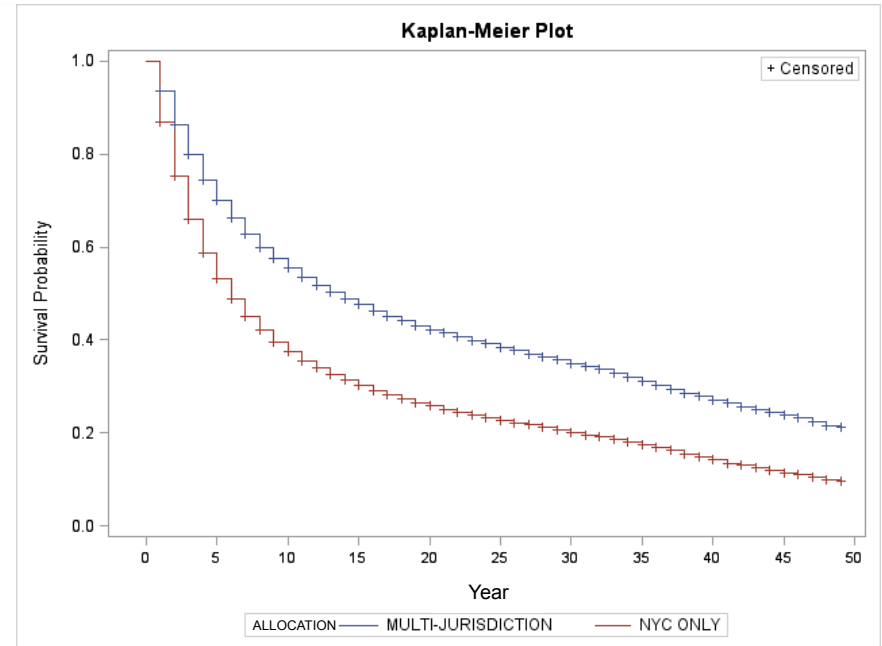|	Count	Mean	P25	Med	P75	1st Year Survival Rate
S corp	308,599	19	4	11	37	94%
C corp	429,373	12	2	5	15	84%
N/A	14,211	.	.	.	.	.
Total	752,183	15	3	6	24	87%

GCT Survival Function
Subpopulations: Borough and Allocation

Borough

Kaplan-Meier Plot
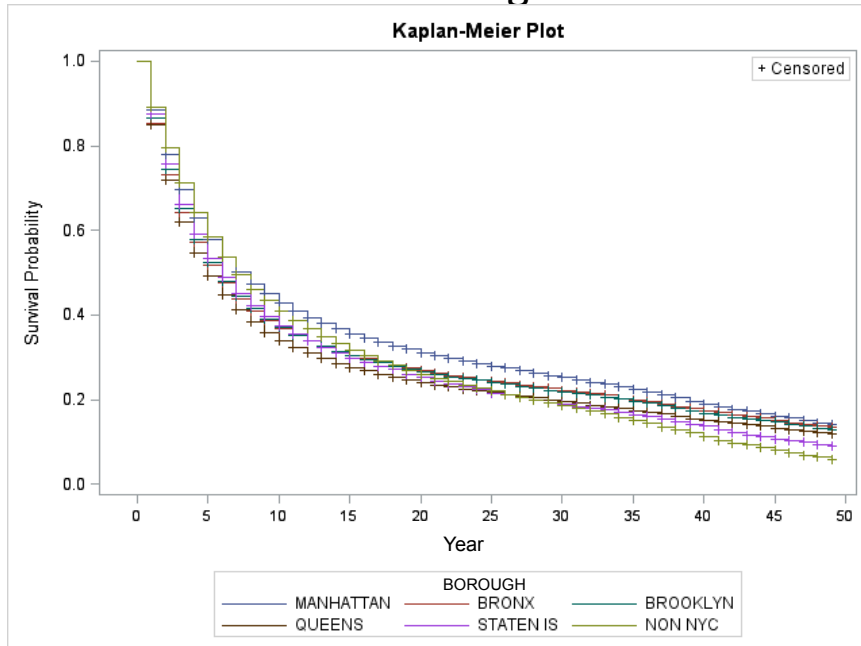
	Count	Mean	P25	Med	P75	1st Year Survival Rate
MANHATTAN	225,774	17	3	8	31	88%
BRONX	39,865	15	2	6	24	85%
BROOKLYN	151,437	14	2	6	23	86%
QUEENS	155,517	14	2	5	19	85%
STATEN IS	30,556	14	3	6	21	88%
NON NYC	144,324	14	3	7	22	89%
N/A	4,710	.	.	.	.	.
Total	752,183	15	3	6	24	87%

Allocation Status

Kaplan-Meier Plot

	Count	Mean	P25	Med	P75	1st Year Survival Rate
MULTI-JURISDICTION	67,951	22	4	14	43	94%
NYC ONLY	677,582	14	3	6	22	87%
N/A	6,650	.	.	.	.	.
Total	752,183	15	3	6	24	87%

Conclusion:
Survival by Entity Type

- Partnerships have a longer median lifespan (8 years) than corporations (6 years).
- Among corporations, S corps have a longer median lifespan (11 years) than C corps (5 years).

|	Count of entities	Lifespan (years)				First-year survival rate
		Mean	P25	Med	P75	
Partnership	226,310	15	3	8	23	90%
Corporation	752,183	15	3	6	24	87%
S corp	308,599	19	4	11	37	94%
C corp	429,373	12	2	5	15	84%

NOTE: Corporation subpopulations do not sum to population because not all corporations could be classified as S corp or C corp.
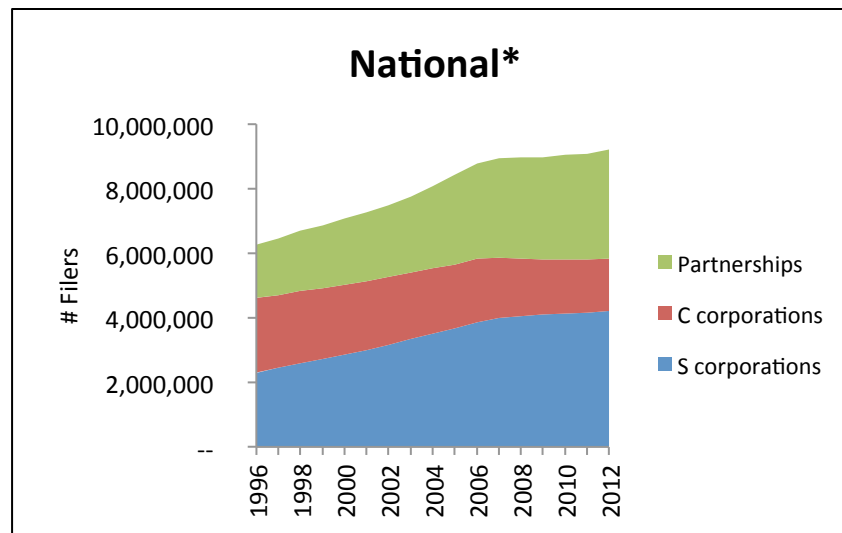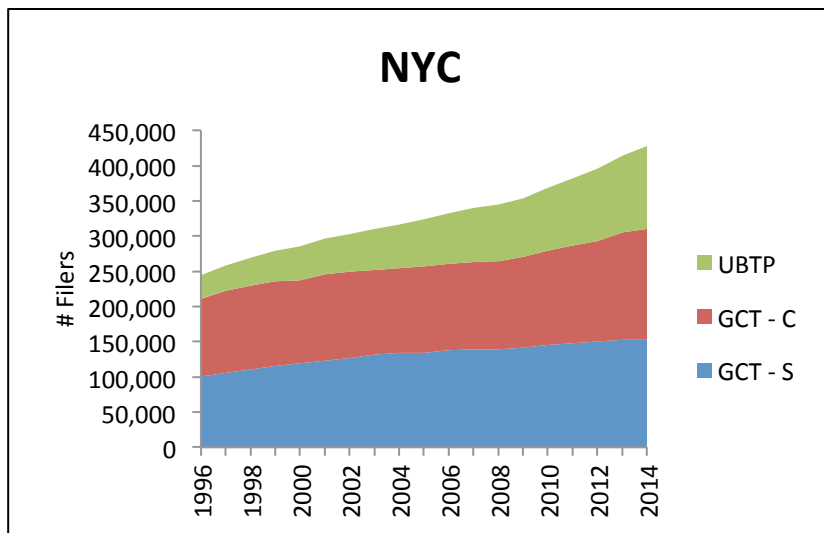
Conclusion:
BIT Birth Trends and Composition

Annual new firm formation has remained stable for S corps, and has increased for UBT generally and for C corps since the Great Recession.

New BIT Filers, By Entity Type
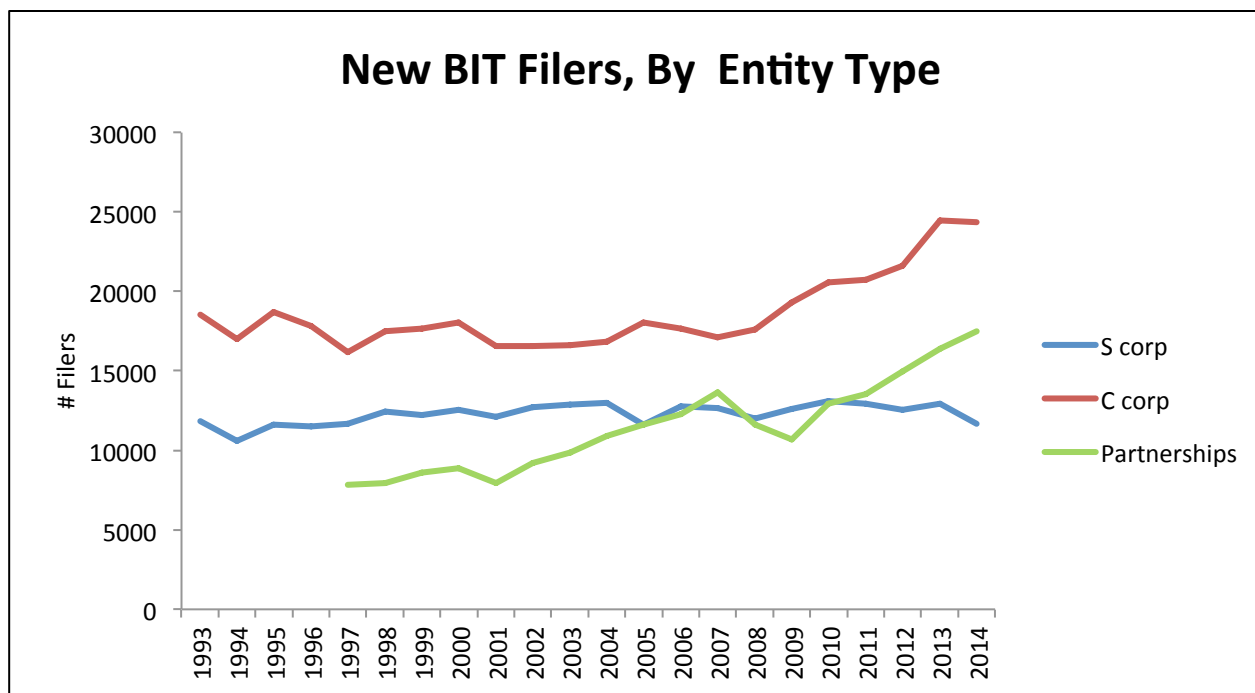
Conclusion:
BIT Birth Trends and Composition

- The share of NYC entities (excluding proprietorships) that are partnerships almost doubled from 1996 to 2014. The national data shows an increase, as well, albeit less dramatic.
- NYC's entity-level tax on flow-throughs serves to stabilize BIT revenues.

* Source: IRS SOI data, excludes RICs and REITs.

Conclusion: TCJA and Potential Changes

- The observed growth in partnerships is consistent with broad national trends away from the corporate form.

- The Tax Cut and Jobs Act may reverse that trend by dropping the top marginal corporate rate from 35 to 21 percent.

- However, the Section 199A deduction for qualified pass-through business income makes pass-through structures attractive.

- There is not yet a consensus on TCJA impact from the practitioner or research communities.

Appendix: Survival Function

- Survival function is probability that a random firm's death takes place after time t: that is $S(t) = \Pr(X > t)$, where X is individual's age at death. Decreasing function of time.

- Kaplan-Meier estimator produces an empirical, stepwise survival function

$$S(t) = \prod_{i:\ t_i \leq t} (1 - d_i / n_i)$$

where t_i is a time where at least one death occurred, d_i is the number of deaths at that time, and n_i is the number of individuals known to have survived up to t_i.

- Right censored entities are included in n_i until censorship time, but not included in d_i.