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Location of Headquarter Growth During the 90s

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Abstract

This paper examines the location of headquarter growth of large public companies during the 1990s. Headquarters continue to be attracted by large metropolitan areas. Yet, among that group they continue to disperse into the medium-sized centers. The model results suggest that headquarter growth is elastic with respect to population growth. In addition, average January temperature emerges as a predictor of headquarter growth. Furthermore, the paper identifies 6 different categories of gross flows underlying the net change of headquarters observed during the 90s. There is strong variation among the 50 largest metro areas in terms of the composition of these gross flows. On average, entry and exit represent over 2/3 of all gross flow activity. Including information on the composition of gross flows noticeably improves the formal model.

JEL codes: R 12, R 30, L 20

Key words: Headquarter location, amenities, gross flows

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Motivation

The growth and locational patterns of large corporate headquarters have been a subject of research dating back to the latter half of the twentieth century (see Lichtenberg, 1960, Evans, 1973, and Quante, 1976, for a synopsis of earlier work). Ross (1987) compares corporate headquarter location between 1955 and 1977. Studies using more recent data to track the distribution of headquarters over time tend to rely on Fortune 500 data. Horst and Koropeckyi (2000) and Holloway and Wheeler (1991) base their time-series analysis on data for Fortune 500 companies. Holloway and Wheeler (1991) conduct their empirical analysis for the 1980s using annual data for that decade. Horst and Koropeckyi (2000) utilize the same data from 1975 through 1999 (in five-year intervals). A set of different papers analyzes larger data sets but only utilizes their cross-sectional information. Shilton and Stanley (1999) draw on data for all publicly traded companies, regardless of company size, and Davis (2000) draws on data from the Census Survey of Auxiliary Establishments. Klier and Testa (2002) combine these two aspects of the literature and present information on a panel of all large publicly traded companies they tracked for the 1990s.

A common finding in all these papers is the high degree of concentration among headquarters. For example, Shilton and Stanley (1999) report that 40 percent of their sample is located in only 20 U.S. counties. They explain this stylized fact by the comparative advantage of cities to support headquarters operations. In fact, Horst and Koropeckyi (2000) report a strengthening of that effect during the 1990s as evidenced by a substantial drop of Fortune 500 headquarters located in non-metropolitan counties. In addition, the advantage of certain cities in hosting headquarters operations seems to depend little on the historic and perhaps serendipitous presence of individual companies. For example, despite Boston's ongoing strength as a domicile of Fortune 500 companies headquarters, only two of the 15 present in 1999 had been there since 1975 (Horst and Koropeckyi, 2000).

At the same time, headquarters concentrations continues to be shifting toward metro areas that do not rank at the top of the size distribution. In 1955, the first year the Fortune 500 list was compiled, the New York metro area was home to 31 percent of all

company headquarters on the list, the vast majority of which were located right in the city (28 percent of all Fortune 500 headquarters). While the metro area share of national headquarters remained stable until the early 1970s, the city began to lose headquarters to its surrounding areas in the mid-1960s. For the last 30 years, the share of headquarters domiciled in the New York metro area has been steadily declining. By 1999, it had fallen to 10 percent of Fortune 500 companies (see Quante, 1976, and Horst and Koropeckyi, 2000). Ross (1987) finds the biggest gains not among the largest cities but among other large cities that often experience rapid population growth during the same time period. Holloway and Wheeler (1991) find that "in many ways the changes experienced during the 1980s in location of major corporate headquarters and the assets they control were not qualitatively different from those experienced earlier. New York continued its decline for a third decade and…the chief beneficiaries were other large centers that had large enough infrastructures to be attractive as corporate headquarters locations." (p.72) In their analysis of gross flows of headquarters they find that mergers and acquisitions, as opposed to direct relocations, are a direct mechanism leading to the deconcentration of headquarters. Klier and Testa (2002) analyze a more broadly defined set of observations and find the long-term trend of deconcentration of headquarters to have continued during the 90s.

This paper expands on Klier and Testa (2002) in the following way: it investigates more closely what metro area level characteristics can explain the redistribution of headquarters experienced during the 90s. It also adds information on the gross flow of headquarters, allowing for a much richer discussion of the dynamics of headquarter location during the 90s.

Data

Information on the location and characteristics of companies comes from Compustat data on publicly traded companies for the year 1990 and 2000. The data represent a panel of all public companies whose shares are traded in the U.S., with the exception of American Depositary Receipts (ADRs), closed-end mutual fund index

shares, and pre-Financial Accounting Standards Boards (FASB) companies.[1] Active companies are either publicly traded companies or are required to file with the Securities and Exchange Commission.

The database identifies the headquarter location, the company-wide employment, and the company's assets. This paper focuses on the location of large company headquarters, where large is defined as total worldwide employment of at least 2,500. Headquarter locations are aggregated by metropolitan areas. Specifically, the paper uses the most extensive definition of metropolitan areas, the so-called consolidated metropolitan statistical area (CMSA).[2] Thus, the results are not affected by relocations of headquarters from a central city to a suburban location within the same metropolitan area. The underlying assumption is that a metropolitan area's different locales share common attributes relevant to the siting of a headquarter. Some important attributes include hub airports, access to business service firms, and a common skilled labor pool.

Applying the 2,500 employee cutoff, results in 1,397 metropolitan area based records in 1990 and 1,805 in 2000. The actual data work is performed on a slightly smaller set. After excluding publicly traded subsidiaries as well as banks, there are 1,243 records of large companies in 1990 and 1,700 records in 2000, about 20% of the database.[3] In essence, the data is considerably larger than the Fortune 500, yet it includes essentially all the year 2000 Fortune 500 companies.

Changing distribution of headquarters among the largest 50 MSAs

[1] Compustat created "pre-FASB" company records upon introduction of FASB rule 94 regarding the accounting of financial service subsidiaries to show consistency between current and historical data.
[2] For example, the Chicago CMSA encompasses the primary metropolitan statistical areas (PMSAs) of Chicago, IL, Gary, IN, Kankakee, IL, and Kenosha, WI.
[3] Eliminating publicly traded subsidiaries of publicly traded holding companies avoids double counting. For example, both UAL Corp. and United Airlines, its subsidiary, are included in the database. They are both are headquartered at the same address and report the same employment. Depository institutions, that is SIC group 60, were excluded as the banking sector was impacted systematically different from the rest of the economy by the loosening of bank-specific regulations during the 90s. Large financial institutions gravitated towards larger metropolitan areas during the 90s. This is the result of profound regulatory changes which encouraged firm consolidation and market expansion. At the same time the number of all publicly traded banks, regardless of size, went up by more than 2.5, from 196 to 514, during the 90s, despite the consolidation.

During the 90s the number of large publicly traded companies in the US grew by 37 %. At the same time, the concentration of these companies' headquarters among the most populous of metropolitan areas didn't change at all (see table 1). Yet, the distribution of headquarters within the 50 largest metro areas changed much more noticeably. This is shown by means of a Lorenz curve (see figure 1). A Lorenz curve graphs cumulative frequency distributions. It shows the degree to which a distribution is concentrated by the distance between the actual distribution and the 45 degree line, which represents an egalitarian distribution. Figure 1 graphs the cumulative distribution of headquarters on one axis versus the cumulative distribution of metropolitan areas on the other axis. In that distribution, each metro area is treated as an equally weighted entity. The shape of the plotted line reveals the degree of concentration in the distribution of headquarters. For example, if each of the largest 50 metropolitan areas contained the same number of corporate headquarters, the graph line would be identical to the 45 degree line. In contrast, to the extent that some metropolitan areas host disproportionate numbers of headquarters, the graph curve will be bowed out toward the "southeast," away from the 45 degree line. Figure 1 shows these curves for both 1990 and 2000 to illustrate changes in the concentration of headquarters within the largest 50 metropolitan areas. We can see that for the entire range the distribution became less concentrated during the last decade. In the year 2000 about 60% of large company headquarters reside in the 10 largest of the 50 largest MSAs.

Figures 2 and 3 report the distributions of employment and assets at the large public companies. The distribution of employment at the companies in the data changed to a larger extent than the distribution of headquarters. At the end of the decade it is almost coincident with the headquarter distribution. Assets of large public companies behave quite differently. First, their distribution is noticeably more unequal. Second, it remains essentially unchanged during the 90s, with 80% of all assets attributed to the 10 largest MSAs.[4] Table 1 provides some more detail on the changing distribution of assets.

[4] Halloway and Wheeler (1991) report New York's share of Fortune 500 company's assets at 39% in 1980 and 37% in 1987, over 5.5 times that of the runner up. The Compustat data this paper is based on show New York's assets in the year 2000 to be 6 times the size of the runner up MSA, representing 37% of all MSA headquartered assets.

We can see that despite the loss of headquarters, New York's share of assets remained unchanged during the 90s.

Table 2 breaks out the net flow of headquarters experienced during the 90s by MSA. Column 7 lists each MSAs share of the stock of headquarters in 1990. Column 8 shows the MSAs share of the sum of net flows during the 90s. 18 of the 50 MSAs listed experienced a share of net change that is greater than their share of the stock of headquarters at the beginning of the decade (percentages listed in bold). Only 2 of these, Washington D.C. and San Francisco, are in the 5 most populous MSAs.

Mid-sized metropolitan areas were the gainers not only because of headquarters choices, but also because they also grew faster in population size. They emerged as sizable markets so that their companies and headquarters grew along with them. Nonetheless, the growing prominence of mid-sized metropolitan areas does not account for the entire shift of headquarters toward these places. Figure 4 illustrates the distribution for headquarters across all industries, as well as for population for the largest 50 metro areas in 1990 (Figure 4a) and 2000 (Figure 4b). We can see that headquarters are more concentrated among metro areas than population. This is true for both 1990 and 2000. However, during the 1990s the relative difference between the distribution of headquarters and population narrowed. This is demonstrated in figure 4c, which plots the vertical distance between both distributions at both points in time. While the contour of that distance has not changed much, it narrowed across the entire range of the distribution during the decade. In addition, from panels a and b of Figure 4 we can tell that that movement was driven in large part by a redistribution of headquarters as opposed to a redistribution of population.

Model

The remainder of the paper tries to explain the growth of headquarters across metro areas by means of multiple regression analysis. The dependent variable in the model is the percent change in the number of headquarters in a metropolitan area. In order to minimize the effect of a small base at the start of the decade, the data include only the 50 largest metropolitan areas. The descriptive data presented earlier suggest a

number of influences on the change in the concentration of headquarters during the last decade.

The high degree of concentration of headquarters among a relatively small number of metro areas suggest the existence of scale effects in hosting headquarter operations. This effect is measured by the level of population. While the coefficient for this variable should reflect the scale effect, since the model is estimated only for the largest metro areas it should also pick up the redistribution from the largest to medium-sized metro areas. Hence, the expected sign is ambiguous. Also included is a variable measuring the percent change in population during the decade. This variable is expected to capture the shifting of markets away from the traditional centers of commerce and population and show a positive sign. One might also see such a response to growing population because the universe of large companies is increasingly composed of service rather than manufacturing companies. In addition, service companies tend to be more regional than national or international in market scope.

Two variables control for the sectoral composition of the metropolitan areas. The first of these two is the share of manufacturing earnings in all nonfarm earnings (1989 data) in each metropolitan area. It is expected to be negatively related to the growth in headquarters as the Northeast and Midwest have been losing their dominance in manufacturing production to other regions. However, as documented by Rees (1978) and others, headquarters tend to remain behind, or follow regional demand shifts only with long lags. Second, a comparable share for employment in the FIRE sector proxies for the degree to which a metro area specializes in the provision of business services. The following suggests a positive relationship to headquarter growth. Much of the activity in FIRE industries is of the type purchased and outsourced by headquarters. Purportedly owing to the forces of globalization, headquarters are increasingly seeking to locate where such services are accessible. The model also controls for the regional composition of headquarters growth by means of a binary variable that measures if the MSA is loacted in the South, as defined by the Census region.

Two variables try to capture metro area level amenities. From the FAA's T100 data one can obtain the number of foreign destinations served by non-stop flights originating at an MSA's airports. The variable included in the model measures the

percent change in destinations during the 90s. A larger choice of international destinations is expected to make a MSA more attractive as a headquarter location. A second variable, the average daily temperature in January, is trying to measure a region's amenities in broader terms. Headquarter operations may want to locate where people want to live.

Finally, the model also includes a variable measuring the education of the MSAs workforce (percent of workforce with bachelor degree). One of the frequently mentioned metro area attributes valued by headquarter operations is the presence of a skilled labor pool.[5]

The regression results point to the effect of the change in population in influencing headquarters growth at the metro area level (see table 4). Headquarter growth is elastic with respect to population growth: An increase in the growth of population by 1 percent is associated with a bigger increase in the growth of headquarters. The variable measuring average daily January temperature turns out to be very powerful. It is consistently highly significant. Its coefficient suggest that an increase in the average daily January temperature by one degree is accompanied by a 0.03 percent increase in the growth rate of headquarters of large public companies. Relative to model two, adding a measure of the growth in international air connections as well as the education of the metro area level workforce does not add explanatory power. In fact, the average temperature variable by itself can explain over 20% percent of the variation in the dependent variable.

Identifying gross flows

This part of the paper adds information on the gross flows of headquarters by MSAs. The underlying idea is that the gross flows resulting in the observed net changes can provide rich information to explain the overall observed net change in headquarters (see Holloway and Wheeler, 1991). The fact that the Compustat uses unique I.D.

[5] The data on temperature can be found at: http://ggweather.com/ccd/meantemp.htm, the data on international destinations can be found at: http://ostpxweb.ost.dot.gov/aviation/international-series/

numbers that do not get recycled after a company drops out allows to identify the gross flows without knowing individual companies' histories. Specifically, one can identify companies that were present in 1990 but no longer in the database in 2000 – i.e.exiters --, and, if the change occurred in the opposite direction, entrants.[6] Furthermore, as the units of observation are individual MSAs, companies can relocate, and will be counted as in- or –outmovers. Finally, because this paper focuses only on large public companies, one has to allow for companies changing size during the decade. That is, a company that was large in 1990 can fall below the 2,500 employment in 2000 (it falls into the "shrink" category if it stays in the same place, if it also relocated, it is counted as an outmove). Correspondingly, if a company grows in size but stays in the same metro area, it is classified as "grow". If it relocates during the decade, it is counted as an inmove.

Table 5 lists the 6 categories of gross flows thus obtained.[7] It also demonstrates the accuracy with which the gross flows add up to the previously obtained net flow. 18 of 1486 records could not be accounted for this way, as for these the employment field was blank in either 1990 or 2000. The following analysis is based only on the positively identified gross flows. Table 6 turns the gross flows reported in the previous table into shares of the total gross flow activity. That number is obtained by adding the flows across the 6 categories identified above in each metro area. Table 6 presents these shares in addition to the headquarter count in 1990, the net change of headquarters as well as the sum of gross flow activity. Several points can be made about that table.

First, the level of gross flows is on average 3.5 times larger than the level of net change. In fact, for the largest metro areas, such as New York and Los Angeles, it is larger by approximately an order of magnitude. Across all 50 metro areas, new entrants and exits represent by far the largest share of gross flows. Together they account for 72% of gross flow activity. The growth of existing companies represents 13% of overall gross

[6] These categories, while uniquely defined, contain several possible separate cases. E.g. a record can be treated as "exit" if the company was bought by another company (the I.D. number of the buying entity survives), or if it went out of business. Similarly, an "entry" can represent an existing private company going public by way of a IPO, or an existing public company spinning off one of its divisions as a separate entity. As these cases can have different policy implications, there might be interest in tracking distinctions like these. Research currently underway will allow me to distinguish these cases.

[7] They are Exit, Move in, Move out, Shrink, Grow, and New. For a given MSA, the stocks at beginning and end of the decade relate to the gross flows in the following way: stock of HQs in 1990 + Move in + Grow + New – Exit – Move out – Shrink = stock of HQs in 2000.

flows, with the remaining categories (shrink in size as well as in- and out moves) jointly accounting for only 15% of overall activity.

Secondly, there are noticeable differences across the 50 metro areas in terms of the composition of gross flows. For example, both Portland, Oregon, and Salt Lake City, rank highly in terms of share of gross activity represented by companies exiting the database as well as existing companies falling below the 2,500 employment threshold during the 90s. Conversely, Nashville, Tennessee, experienced the second highest share of new companies during the 90s. Metro areas that have a level of gross flow activity of 10 and have been experiencing high shares of headquarters moving in are San Diego, Orlando, Greensboro, and West Palm Beach. Incidentally, three of these four metro areas are in the group of 5 with the highest mean January temperatures of the MSAs included in this study. Figures 5 through 10 represent scatter plots of each of the 6 gross flows vs net increase of headquarters.

In Table 4 one can see the effect of including some of the gross flow shares in the regression model (see columns 8-16). The two variables included are the share of inmovers and the share of exiters (for data see Table 6). The direction of the estimated effect is as expected: A larger share of inmovers is associated with an increase in headquarter growth, whereas a larger share of exiters is associated with a decrease in headquarter growth. Unambiguously the inclusion of these variables raises the explanatory power of the regression equation explaining the growth rate of headquarters. At the same time the main effects found in columns 1-7 continue to hold: The elasticity of headquarter growth with respect to population growth; the positive effect of higher average January temperature on headquarter growth (note, however, that the inclusion of the gross flow variables cuts the size of that temperature effect in half); and the positive effect of an increase in the share of FIRE employment on regional headquarter growth.

Conclusion

This paper investigates the location of headquarters growth of large public companies during the 90s. It addresses this question with data that include all publicly traded companies. Two trends, established in previous literature, are confirmed.

Headquarters disproportionately locate in large metropolitan areas. Within that group, headquarters continue to disperse toward medium-sized, fast-growing metropolitan areas. In addition, this paper presents information on the gross flows of headquarters underlying the observed net changes. On average, entry and exit of companies to or from a metro area tend to represent over 2/3 of all gross flow activity for the 50 largest MSAs. Formal modelling establishes the importance of population growth and amenities, as well as the composition of the gross flows in explaining the location of headquarter growth. Future research will disaggregate the largest two gross flow categories further in an effort to explain them directly.

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Table 1 Distribution of population, headquarters, and assets across metro areas

	POPULATION		HEADQUARTERS		ASSETS	
	1990	2000	1990	2000	1990	2000
Top 5 MSAs	28%	27	36	33	49	53
Top 5 x NY	18	18	19	20	16	16
Rank 6 to 22	28	29	36	37	35	27
Rank 23 to 50	15	16	15	17	10	12
Top 50	71	72	87	87	94	93
Remainder	28	28	13	13	6	7
All	100	100	100	100	100	100

Table 2: Net change in headquarters for 50 largest metro areas

MSA	2000 Population	HQs90	HQs2000	Net change	Growth rate	share of base	share of net change
New York--Northern New Jersey--Long Island, NY--NJ--CT--PA CMSA	21,199,865	208	227	19	9%	19%	5%
Los Angeles--Riverside--Orange County, CA CMSA	16,373,645	71	84	13	18%	7%	3%
Chicago--Gary--Kenosha, IL--IN--WI CMSA	9,157,540	88	102	14	16%	8%	3%
Washington--Baltimore, DC--MD--VA--WV CMSA	7,608,070	36	63	27	75%	3%	**7%**
San Francisco--Oakland--San Jose, CA CMSA	7,039,362	46	84	38	83%	4%	**9%**
Philadelphia--Wilmington--Atlantic City, PA--NJ--DE--MD CMSA	6,188,463	51	67	16	31%	5%	4%
Boston--Worcester--Lawrence, MA--NH--ME--CT CMSA	5,819,100	51	63	12	24%	5%	3%
Detroit--Ann Arbor--Flint, MI CMSA	5,456,428	25	30	5	20%	2%	1%
Dallas--Fort Worth, TX CMSA	5,221,801	57	68	11	19%	5%	3%
Houston--Galveston--Brazoria, TX CMSA	4,669,571	38	69	31	82%	4%	**8%**
Atlanta, GA MSA	4,112,198	26	51	25	96%	2%	**6%**
Miami--Fort Lauderdale, FL CMSA	3,876,380	14	30	16	114%	1%	**4%**
Seattle--Tacoma--Bremerton, WA CMSA	3,554,760	18	17	-1	-6%	2%	0%
Phoenix--Mesa, AZ MSA	3,251,876	10	23	13	130%	1%	**3%**
Minneapolis--St. Paul, MN--WI MSA	2,968,806	36	48	12	33%	3%	3%
Cleveland--Akron, OH CMSA	2,945,831	34	32	-2	-6%	3%	0%
San Diego, CA MSA	2,813,833	9	18	9	100%	1%	**2%**
St. Louis, MO--IL MSA	2,603,607	23	39	16	70%	2%	**4%**
Denver--Boulder--Greeley, CO CMSA	2,581,506	13	27	14	108%	1%	**3%**
Tampa--St. Petersburg--Clearwater, FL MSA	2,395,997	8	19	11	138%	1%	**3%**
Pittsburgh, PA MSA	2,358,695	17	19	2	12%	2%	0%
Portland--Salem, OR--WA CMSA	2,265,223	13	13	0	0%	1%	0%
Cincinnati--Hamilton, OH--KY--IN CMSA	1,979,202	15	21	6	40%	1%	1%
Sacramento--Yolo, CA CMSA	1,796,857	1	2	1	100%	0%	0%
Kansas City, MO--KS MSA	1,776,062	16	17	1	6%	1%	0%
Milwaukee--Racine, WI CMSA	1,689,572	17	24	7	41%	2%	2%
Orlando, FL MSA	1644561	2	9	7	350%	0%	**2%**
Indianapolis, IN MSA	1,607,486	7	11	4	57%	1%	1%
San Antonio, TX MSA	1,592,383	5	7	2	40%	0%	0%
Norfolk--Virginia Beach--Newport News, VA--NC MSA	1,569,541	3	5	2	67%	0%	0%
Las Vegas, NV--AZ MSA	1,563,282	7	13	6	86%	1%	1%
Columbus, OH MSA	1,540,157	12	20	8	67%	1%	**2%**
Charlotte--Gastonia--Rock Hill, NC--SC MSA	1,499,293	9	12	3	33%	1%	1%
New Orleans, LA MSA	1,337,726	6	6	0	0%	1%	0%
Salt Lake City--Ogden, UT MSA	1,333,914	6	4	-2	-33%	1%	0%
Greensboro--Winston-Salem--High Point, NC MSA	1,251,509	6	14	8	133%	1%	**2%**
Austin--San Marcos, TX MSA	1,249,763	1	2	1	100%	0%	0%
Nashville, TN MSA	1,231,311	8	25	17	213%	1%	**4%**
Providence--Fall River--Warwick, RI--MA MSA	1,188,613	3	6	3	100%	0%	**1%**
Raleigh--Durham--Chapel Hill, NC MSA	1,187,941	1	3	2	200%	0%	0%
Hartford, CT MSA	1,183,110	13	12	-1	-8%	1%	0%
Buffalo--Niagara Falls, NY MSA	1,170,111	5	5	0	0%	0%	0%
Memphis, TN--AR--MS MSA	1135614	5	7	2	40%	0%	0%
West Palm Beach--Boca Raton, FL MSA	1,131,184	2	13	11	550%	0%	**3%**
Jacksonville, FL MSA	1,100,491	4	6	2	50%	0%	0%
Rochester, NY MSA	1,098,201	6	6	0	0%	1%	0%
Grand Rapids--Muskegon--Holland, MI MSA	1,088,514	3	8	5	167%	0%	**1%**
Oklahoma City, OK MSA	1,083,346	4	6	2	50%	0%	0%
Louisville, KY--IN MSA	1,025,598	6	9	3	50%	1%	1%
Richmond--Petersburg, VA MSA	996,512	12	20	8	67%	1%	**2%**
TOTAL	162,514,411	1077	1486	409	38%	100%	100%

Table 3: Summary statistics

Variable	Mean	Std. Dev.	Min	Max
headquarter growth	0.75	0.96	-0.33	5.50
population in 1990	2.84	3.44	0.85	19.55
population growth	0.18	0.15	-0.02	0.83
south	0.42	0.50	0.00	1.00
manufacturing earnings share 1989	0.19	0.08	0.03	0.39
FIRE earnings share 1989	0.07	0.03	0.00	0.15
international air destinations growth	1.02	1.57	-1.00	8.00
average daily temperature in Jan	37.34	13.19	11.80	67.20
percent bachelor degree	22.95	4.74	13.80	38.50
exiter's share of gross flow	0.25	0.13	0.00	0.50
inmover's share of gross flow	0.11	0.16	0.00	1.00

Table 4: regression results

	Models															
Variable	1	2	3	4	5	6	7	8	9	10	11	12	12	14	15	16
intercept	-0.62	**-1.79**	**-1.74**	**-1.73**	-0.59	**-2.37**	**-2.61**	**-1.31**	0.55	-0.07	**-1.95**	-0.38	-0.63	**-2.07**	-0.43	-0.79
	0.67	0.79	0.79	0.86	0.36	1.04	1.08	0.64	0.61	0.66	0.75	0.71	-0.73	0.74	0.72	0.74
population	-0.04	-0.05	**-0.06**	**-0.06**		-0.06	-0.05	-0.01	-0.03	-0.01	-0.04	-0.04	-0.03	-0.02	-0.04	-0.02
	0.04	0.04	0.04	0.95		0.04	0.05	0.04	0.03	0.03	0.04	0.03	0.03	0.04	0.03	0.03
change in population	**2.31**	**1.68**	**1.59**	1.58		**1.57**	1.43	**2.55**	**1.65**	**1.92**	**1.87**	1.17	**1.35**	**2.06**	**1.22**	**1.5**
	0.95	0.93	0.93	0.95		0.94	0.94	0.85	0.79	0.78	0.88	0.77	0.77	0.87	0.78	0.78
Manuf. Share	1.21	3.17	2.9	2.77		**3.48**	**3.38**	2.62	0.95	1.81	**3.33**	2.34	2.62	**3.86**	2.48	**2.96**
	1.89	1.96	1.94	2.12		1.99	2	1.75	1.56	1.56	1.84	1.6	1.6	1.81	1.63	1.62
FIRE share	**8.5**	6.76	6.24	6.54		5.89	5.71	**7.88**	**8.83**	**8.41**	5.9	**7.24**	**6.97**	6.7	**7.47**	**7.32**
	4.99	4.77	4.76	5.1		4.89	4.91	4.48	4.1	3.97	4.5	3.92	3.88	4.39	3.96	3.88
South	**0.61**	0.32				0.27		**0.75**	0.36	**0.49**				**0.52**	0.15	0.28
	0.28	0.29				0.29		0.25	0.23	0.24				0.27	0.24	0.25
Avg. Jan temp.		**0.03**	**0.04**	**0.04**	**0.04**	**0.03**	**0.05**				**0.03**	**0.03**	**0.03**	**0.02**	**0.02**	**0.02**
		0.01	0.01	0.01	0.01	0.01	0.01				0.01	0.01	0.01	0.01	0.01	0.01
change internat. Destinations				0.01												
				0.08												
% foreign born							-1.85									
							2.9									
% bachelor degree						0.02	0.02									
						0.03	0.03									
share of inmovers								**2.4**		**1.38**	**1.75**		0.89	**2.08**		1.12
								0.7		0.68	0.7		0.64	0.7		0.67
share of exiters									**-3.82**	**-3.09**		**-3.63**	**-3.25**		**-3.56**	**-3**
									0.81	0.87		0.77	0.81		0.79	0.84
R squared	0.29	0.38	0.36	0.36	0.24	0.39	0.38	0.44	0.53	0.57	0.44	0.58	0.6	0.49	0.58	0.61
Adj. R squared	0.21	0.29	0.29	0.27	0.22	0.29	0.28	0.37	0.47	0.5	0.37	0.52	0.53	0.4	0.51	0.53

standard errors listed below coefficient estimates
statistically significant coefficients in bold

Table 5: Gross flows of headquarters for 50 largest MSAs

MSA	**HQs90**	EXIT	*SURVIVE*	Move in	Move out	SHRINK	GROW	NEW	zero empl 1990	zero empl 2000	discrepancy	**HQs2000**
New York--Northern New Jersey--Long Island, NY--NJ--CT--PA CMSA	208	87	90	13	18	14	25	95	5	1	1	227
Los Angeles--Riverside--Orange County, CA CMSA	71	30	28	3	10	3	9	44			0	84
Chicago--Gary--Kenosha, IL--IN--WI CMSA	88	32	51	6	1	4	10	35			0	102
Washington--Baltimore, DC--MD--VA--WV CMSA	36	14	17	6	0	5	10	31	1	1	-1	63
San Francisco--Oakland--San Jose, CA CMSA	46	18	24	2	3	1	27	31			0	84
Philadelphia--Wilmington--Atlantic City, PA--NJ--DE--MD CMSA	51	17	27	3	5	2	11	26			0	67
Boston--Worcester--Lawrence, MA--NH--ME--CT CMSA	51	25	22	2	2	2	10	29			0	63
Detroit--Ann Arbor--Flint, MI CMSA	25	11	13	1	1	0	3	13			0	30
Dallas--Fort Worth, TX CMSA	57	26	27	2	1	2	7	31			0	68
Houston--Galveston--Brazoria, TX CMSA	38	15	20	4	1	2	12	33			0	69
Atlanta, GA MSA	26	7	16	2	1	2	4	29			0	51
Miami--Fort Lauderdale, FL CMSA	14	4	6	3	3	1	5	16			0	30
Seattle--Tacoma--Bremerton, WA CMSA	18	6	10	0	1	1	1	6			0	17
Phoenix--Mesa, AZ MSA	10	5	5	1	0	0	4	13			0	23
Minneapolis--St. Paul, MN--WI MSA	36	13	23	0	0	0	10	15			0	48
Cleveland--Akron, OH CMSA	34	11	18	1	2	2	3	9			0	32
San Diego, CA MSA	9	4	3	6	2	0	1	8			0	18
St. Louis, MO--IL MSA	23	5	13	1	3	2	4	20	1		0	39
Denver--Boulder--Greeley, CO CMSA	13	8	5	3	0	0	0	19			0	27
Tampa--St. Petersburg--Clearwater, FL MSA	8	5	2	0	0	1	3	13	1		0	19
Pittsburgh, PA MSA	17	8	7	2	2	0	1	9			0	19
Portland--Salem, OR--WA CMSA	13	5	7	1	0	1	0	5			0	13
Cincinnati--Hamilton, OH--KY--IN CMSA	15	5	10	2	0	0	2	8	1	2	0	21
Sacramento--Yolo, CA CMSA	1	0	1	1	0	0	0	0	2	2	0	2
Kansas City, MO--KS MSA	16	4	11	1	0	1	2	3			0	17
Milwaukee--Racine, WI CMSA	17	4	12	2	0	1	2	8			0	24
Orlando, FL MSA	2	2	0	3	0	0	1	5			0	9
Indianapolis, IN MSA	7	3	3	2	1	0	1	5			0	11
San Antonio, TX MSA	5	3	2	1	0	0	2	2			0	7
Norfolk--Virginia Beach--Newport News, VA--NC MSA	3	1	2	0	0	0	0	3			0	5
Las Vegas, NV--AZ MSA	7	3	2	2	1	1	1	8			0	13
Columbus, OH MSA	12	3	9	2	0	0	2	7			0	20
Charlotte--Gastonia--Rock Hill, NC--SC MSA	9	2	7	1	0	0	1	3			0	12
New Orleans, LA MSA	6	3	3	1	0	0	0	2			0	6
Salt Lake City--Ogden, UT MSA	6	5	0	0	0	1	1	3			0	4
Greensboro--Winston-Salem--High Point, NC MSA	6	2	4	4	0	0	3	3			0	14
Austin--San Marcos, TX MSA	1	1	0	0	0	0	1	1			0	2
Nashville, TN MSA	8	2	6	1	0	0	2	16			0	25
Providence--Fall River--Warwick, RI--MA MSA	3	0	3	1	0	0	1	1			0	6
Raleigh--Durham--Chapel Hill, NC MSA	1	0	1	0	0	0	0	2			0	3
Hartford, CT MSA	13	5	7	1	1	0	1	3			0	12
Buffalo--Niagara Falls, NY MSA	5	3	2	1	0	0	0	2			0	5
Memphis, TN--AR--MS MSA	5	3	1	2	1	0	1	3			0	7
West Palm Beach--Boca Raton, FL MSA	2	0	2	5	0	0	2	3	1		0	13
Jacksonville, FL MSA	4	1	2	0	0	1	1	3			0	6
Rochester, NY MSA	6	2	2	0	1	1	3	1			0	6
Grand Rapids--Muskegon--Holland, MI MSA	3	1	1	1	1	0	1	5			0	8
Oklahoma City, OK MSA	4	0	4	0	0	0	2	0			0	6
Louisville, KY--IN MSA	6	2	2	2	1	1	1	4			0	9
Richmond--Petersburg, VA MSA	12	2	9	0	0	1	3	8			0	20
TOTAL	1077	418	542	92	60	53	195	642				1486

Exit: 1990 ID not found in 2000
Survive: same ID at both points in time; breaks up into movers and nonmovers (survive)
Shrink: large in 1990, not in 2000; distinguish outmovers
Grow: not large in 1990, large in 2000; breaks into inmovers and nonmovers (grow)
New: 2000 ID not found in 1990, includes spinoffs etc.
zero employment 1990: either "survive" or "shrink"
zero employment 2000: either "survive" or "grow"

Table 6: Shares of gross flow by MSA

MSA	HQs90	Net change	sum of gross flows	exit share	move in share	move out share	shrink share	grow share	new share
New York--Northern New Jersey--Long Island, NY--NJ--CT--PA CMSA	208	19	252	0.35	0.05	0.07	0.06	0.10	0.38
Los Angeles--Riverside--Orange County, CA CMSA	71	13	99	0.30	0.03	0.10	0.03	0.09	0.44
Chicago--Gary--Kenosha, IL--IN--WI CMSA	88	14	88	0.36	0.07	0.01	0.05	0.11	0.40
Washington--Baltimore, DC--MD--VA--WV CMSA	36	27	66	0.21	0.09	0.00	0.08	0.15	0.47
San Francisco--Oakland--San Jose, CA CMSA	46	38	82	0.22	0.02	0.04	0.01	0.33	0.38
Philadelphia--Wilmington--Atlantic City, PA--NJ--DE--MD CMSA	51	16	64	0.27	0.05	0.08	0.03	0.17	0.41
Boston--Worcester--Lawrence, MA--NH--ME--CT CMSA	51	12	70	0.36	0.03	0.03	0.03	0.14	0.41
Detroit--Ann Arbor--Flint, MI CMSA	25	5	29	0.38	0.03	0.03	0.00	0.10	0.45
Dallas--Fort Worth, TX CMSA	57	11	69	0.38	0.03	0.01	0.03	0.10	0.45
Houston--Galveston--Brazoria, TX CMSA	38	31	67	0.22	0.06	0.01	0.03	0.18	0.49
Atlanta, GA MSA	26	25	45	0.16	0.04	0.02	0.04	0.09	0.64
Miami--Fort Lauderdale, FL CMSA	14	16	32	0.13	0.09	0.09	0.03	0.16	0.50
Seattle--Tacoma--Bremerton, WA CMSA	18	-1	15	0.40	0.00	0.07	0.07	0.07	0.40
Phoenix--Mesa, AZ MSA	10	13	23	0.22	0.04	0.00	0.00	0.17	0.57
Minneapolis--St. Paul, MN--WI MSA	36	12	38	0.34	0.00	0.00	0.00	0.26	0.39
Cleveland--Akron, OH CMSA	34	-2	28	0.39	0.04	0.07	0.07	0.11	0.32
San Diego, CA MSA	9	9	21	0.19	0.29	0.10	0.00	0.05	0.38
St. Louis, MO--IL MSA	23	16	35	0.14	0.03	0.09	0.06	0.11	0.57
Denver--Boulder--Greeley, CO CMSA	13	14	30	0.27	0.10	0.00	0.00	0.00	0.63
Tampa--St. Petersburg--Clearwater, FL MSA	8	11	22	0.23	0.00	0.00	0.05	0.14	0.59
Pittsburgh, PA MSA	17	2	22	0.36	0.09	0.09	0.00	0.05	0.41
Portland--Salem, OR--WA CMSA	13	0	12	0.42	0.08	0.00	0.08	0.00	0.42
Cincinnati--Hamilton, OH--KY--IN CMSA	15	6	17	0.29	0.12	0.00	0.00	0.12	0.47
Sacramento--Yolo, CA CMSA	1	1	1	0.00	1.00	0.00	0.00	0.00	0.00
Kansas City, MO--KS MSA	16	1	11	0.36	0.09	0.00	0.09	0.18	0.27
Milwaukee--Racine, WI CMSA	17	7	17	0.24	0.12	0.00	0.06	0.12	0.47
Orlando, FL MSA	2	7	11	0.18	0.27	0.00	0.00	0.09	0.45
Indianapolis, IN MSA	7	4	12	0.25	0.17	0.08	0.00	0.08	0.42
San Antonio, TX MSA	5	2	8	0.38	0.13	0.00	0.00	0.25	0.25
Norfolk--Virginia Beach--Newport News, VA--NC MSA	3	2	4	0.25	0.00	0.00	0.00	0.00	0.75
Las Vegas, NV--AZ MSA	7	6	16	0.19	0.13	0.06	0.06	0.06	0.50
Columbus, OH MSA	12	8	14	0.21	0.14	0.00	0.00	0.14	0.50
Charlotte--Gastonia--Rock Hill, NC--SC MSA	9	3	7	0.29	0.14	0.00	0.00	0.14	0.43
New Orleans, LA MSA	6	0	6	0.50	0.17	0.00	0.00	0.00	0.33
Salt Lake City--Ogden, UT MSA	6	-2	10	0.50	0.00	0.00	0.10	0.10	0.30
Greensboro--Winston-Salem--High Point, NC MSA	6	8	12	0.17	0.33	0.00	0.00	0.25	0.25
Austin--San Marcos, TX MSA	1	1	3	0.33	0.00	0.00	0.00	0.33	0.33
Nashville, TN MSA	8	17	21	0.10	0.05	0.00	0.00	0.10	0.76
Providence--Fall River--Warwick, RI--MA MSA	3	3	3	0.00	0.33	0.00	0.00	0.33	0.33
Raleigh--Durham--Chapel Hill, NC MSA	1	2	2	0.00	0.00	0.00	0.00	0.00	1.00
Hartford, CT MSA	13	-1	11	0.45	0.09	0.09	0.00	0.09	0.27
Buffalo--Niagara Falls, NY MSA	5	0	6	0.50	0.17	0.00	0.00	0.00	0.33
Memphis, TN--AR--MS MSA	5	2	10	0.30	0.20	0.10	0.00	0.10	0.30
West Palm Beach--Boca Raton, FL MSA	2	11	10	0.00	0.50	0.00	0.00	0.20	0.30
Jacksonville, FL MSA	4	2	6	0.17	0.00	0.00	0.17	0.17	0.50
Rochester, NY MSA	6	0	8	0.25	0.00	0.13	0.13	0.38	0.13
Grand Rapids--Muskegon--Holland, MI MSA	3	5	9	0.11	0.11	0.11	0.00	0.11	0.56
Oklahoma City, OK MSA	4	2	2	0.00	0.00	0.00	0.00	1.00	0.00
Louisville, KY--IN MSA	6	3	11	0.18	0.18	0.09	0.09	0.09	0.36
Richmond--Petersburg, VA MSA	12	8	14	0.14	0.00	0.00	0.07	0.21	0.57
TOTAL	1077	409	1471	0.28	0.07	0.04	0.04	0.13	0.44

Figure 1: Distribution of Large Company HQs

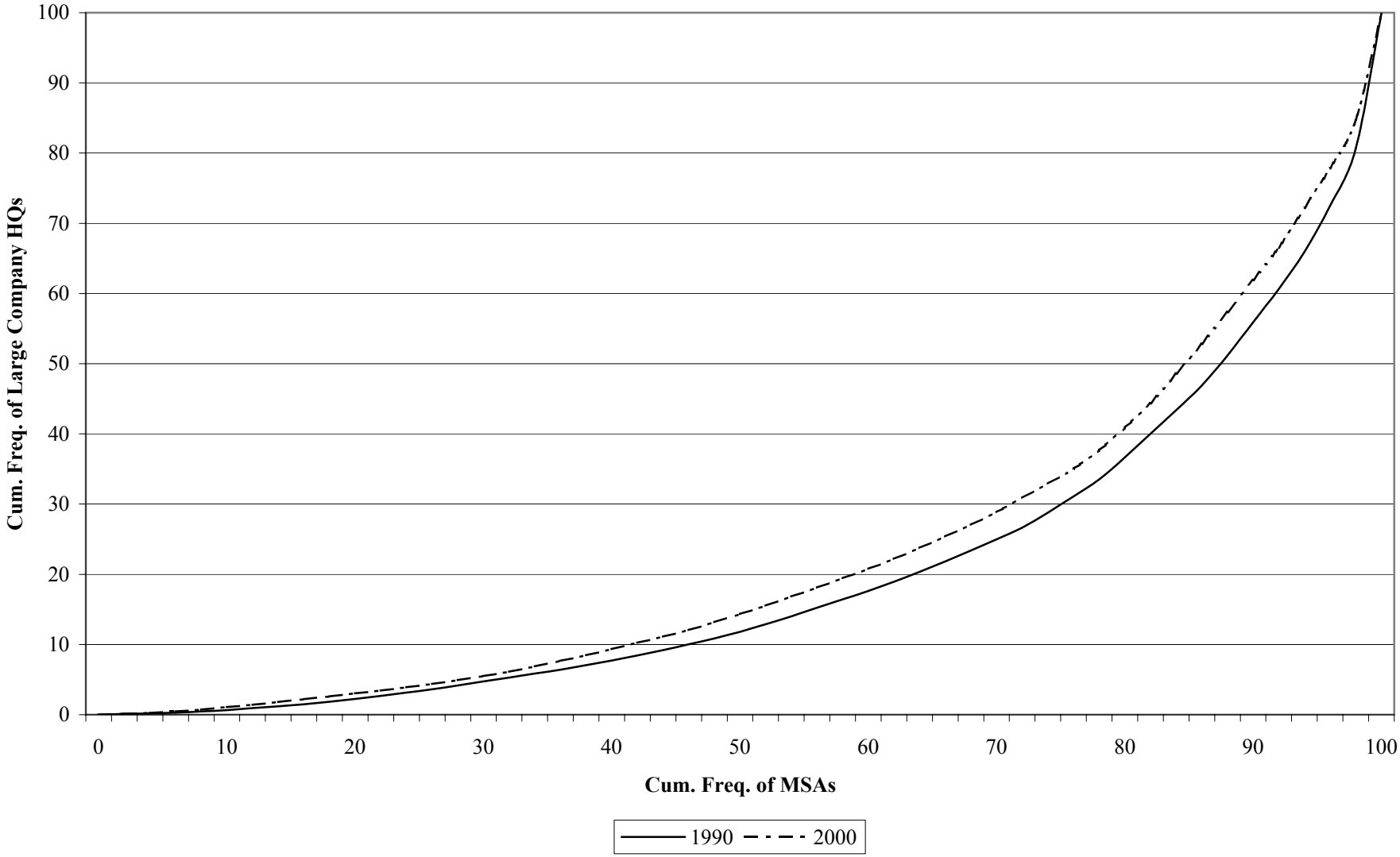


Figure 2: Distribution of Large Company Employment

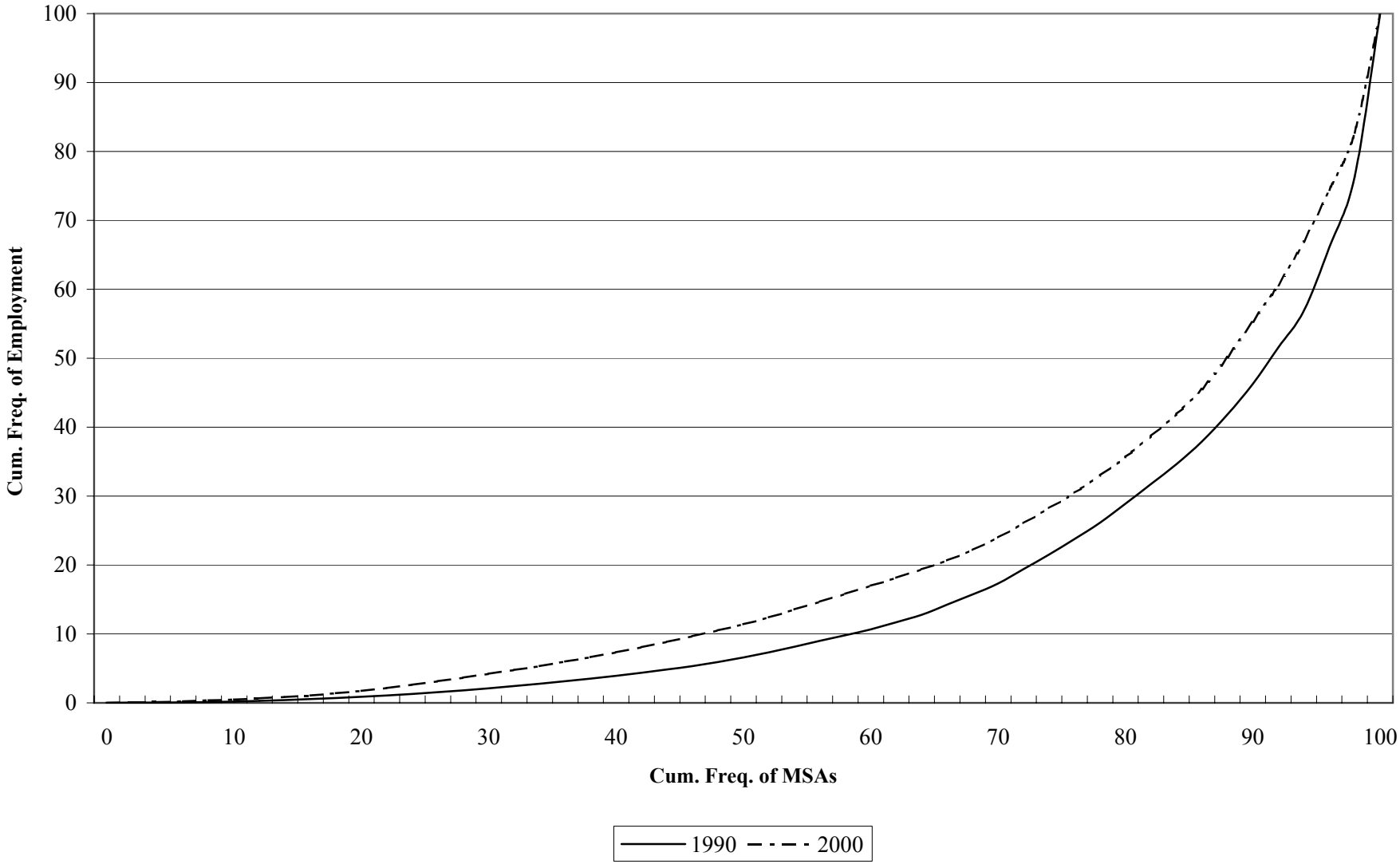


Figure 3: Distribution of Large Company Assets

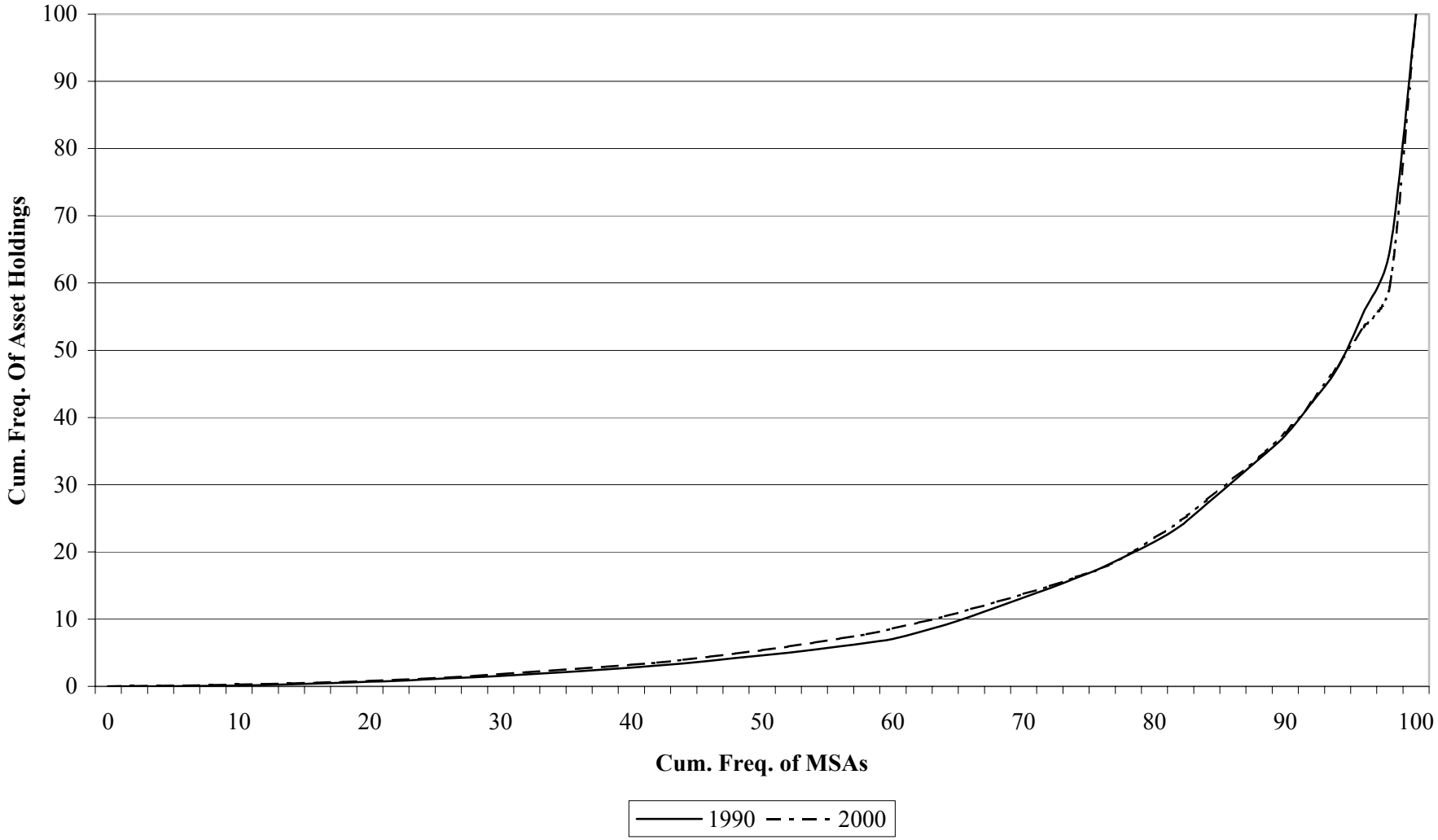


Figure 4a: Distribution of headquarters and population, 1990

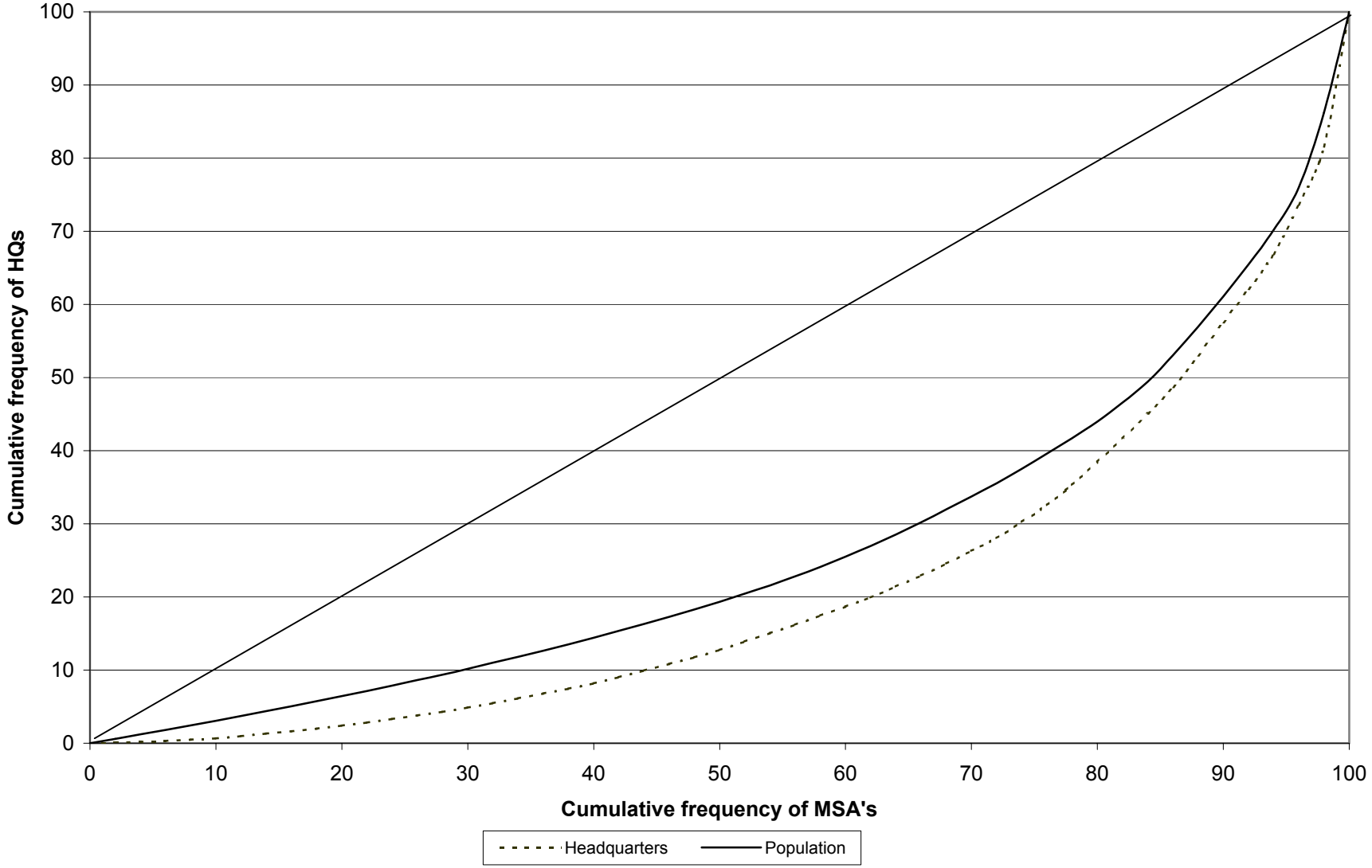


Figure 4b: Distribution of headquarters and population, 2000

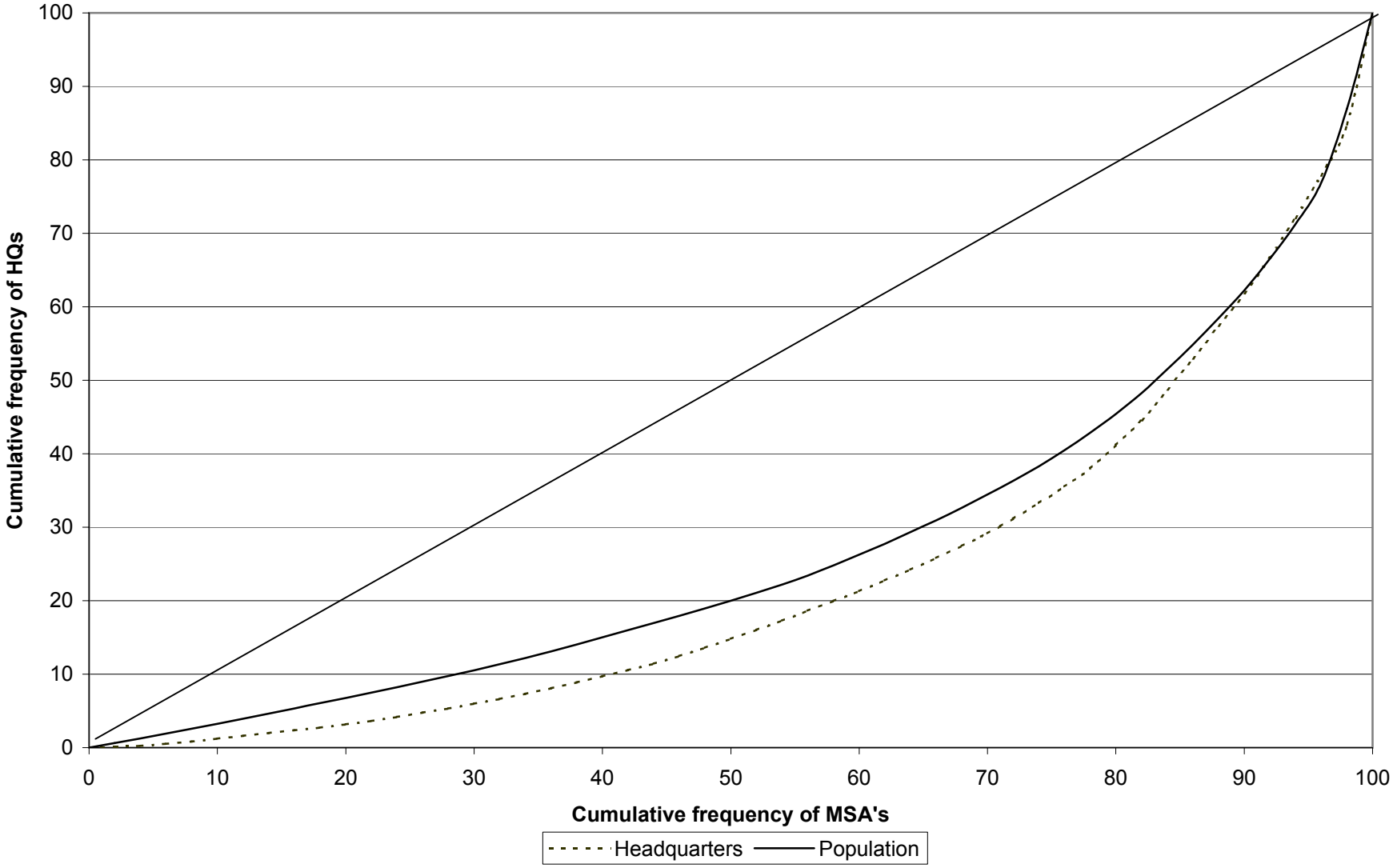


Figure 4c: Vertical distance between the two distributions

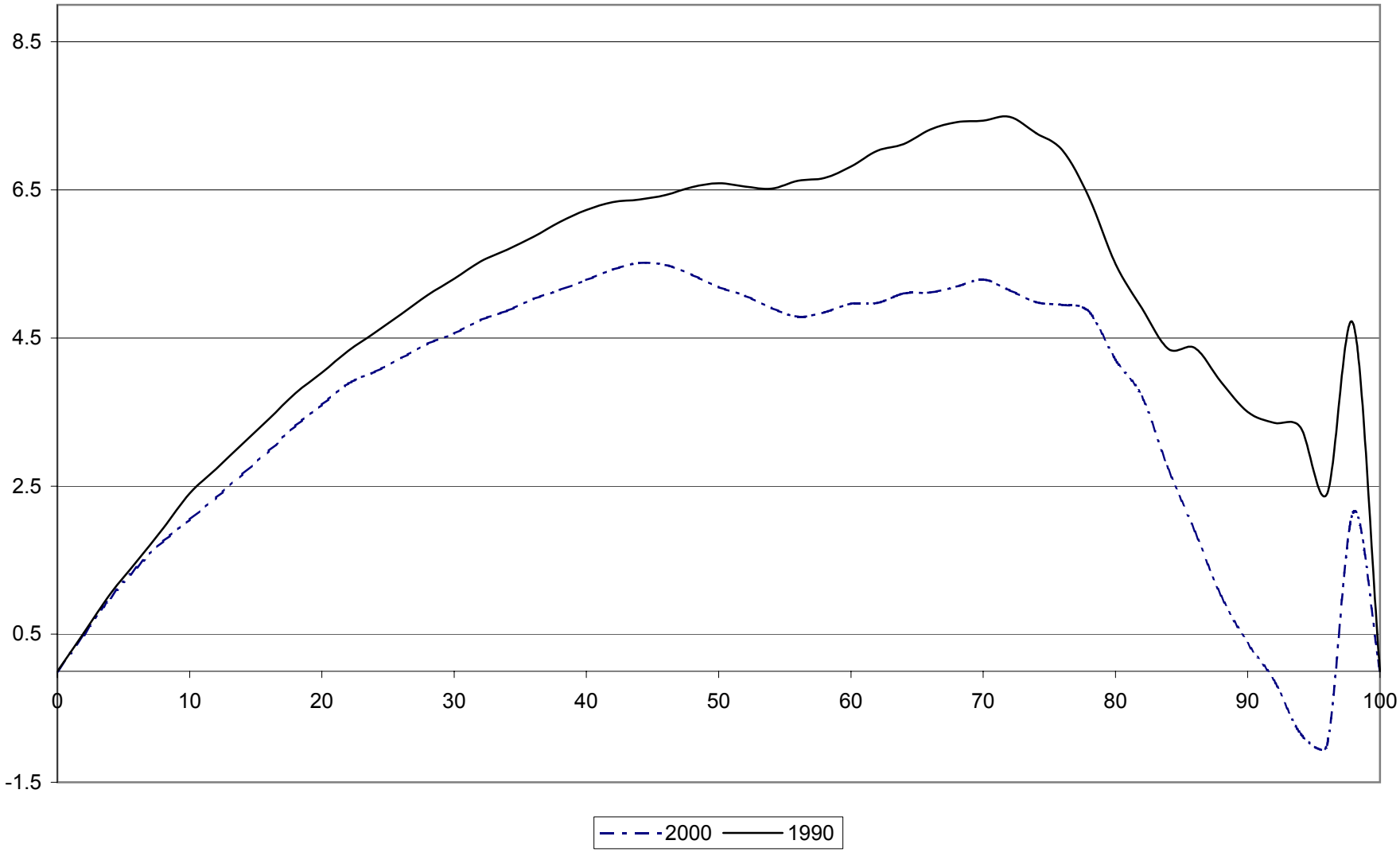


Figure 5: Exit

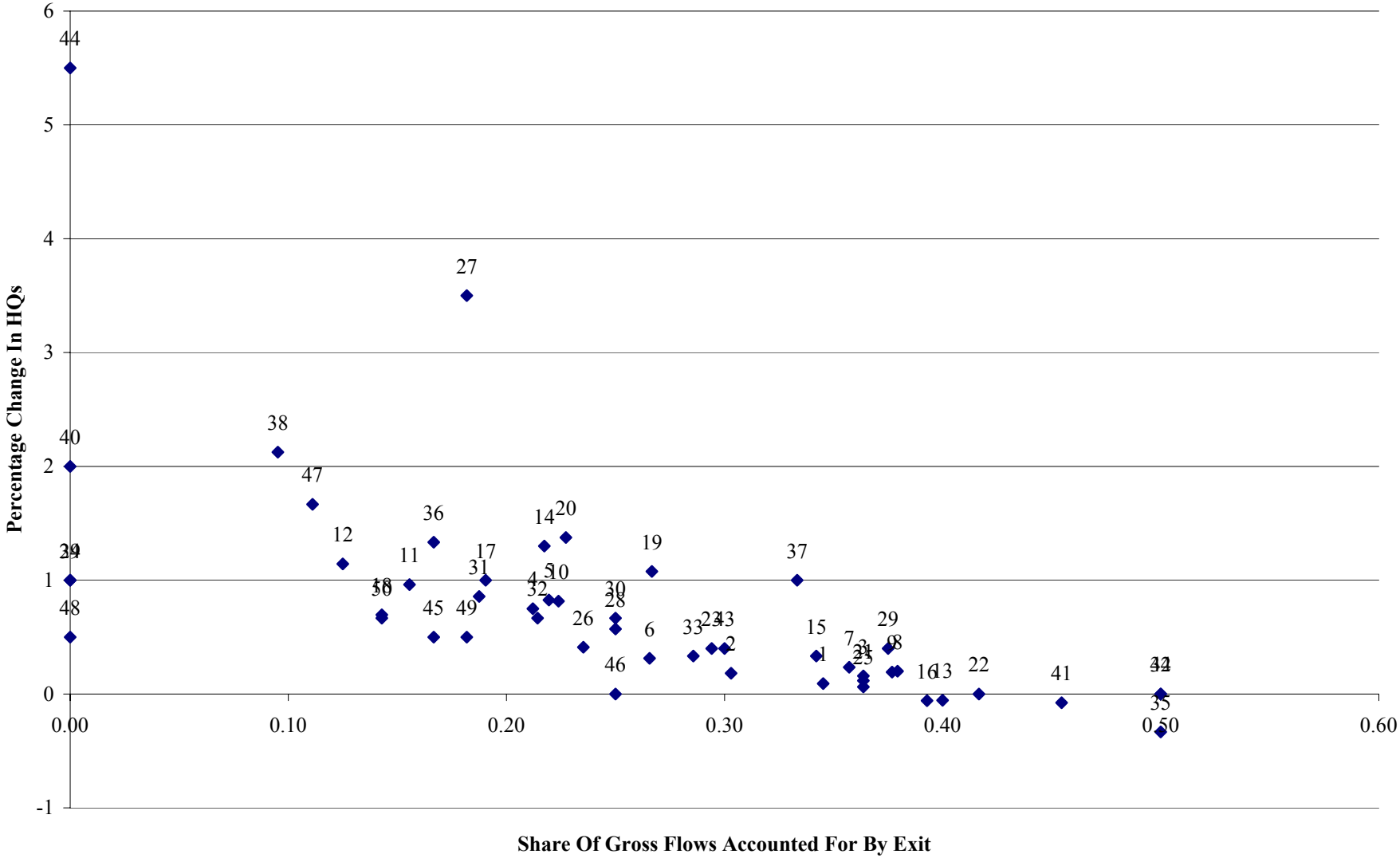


Figure 6: Move Out

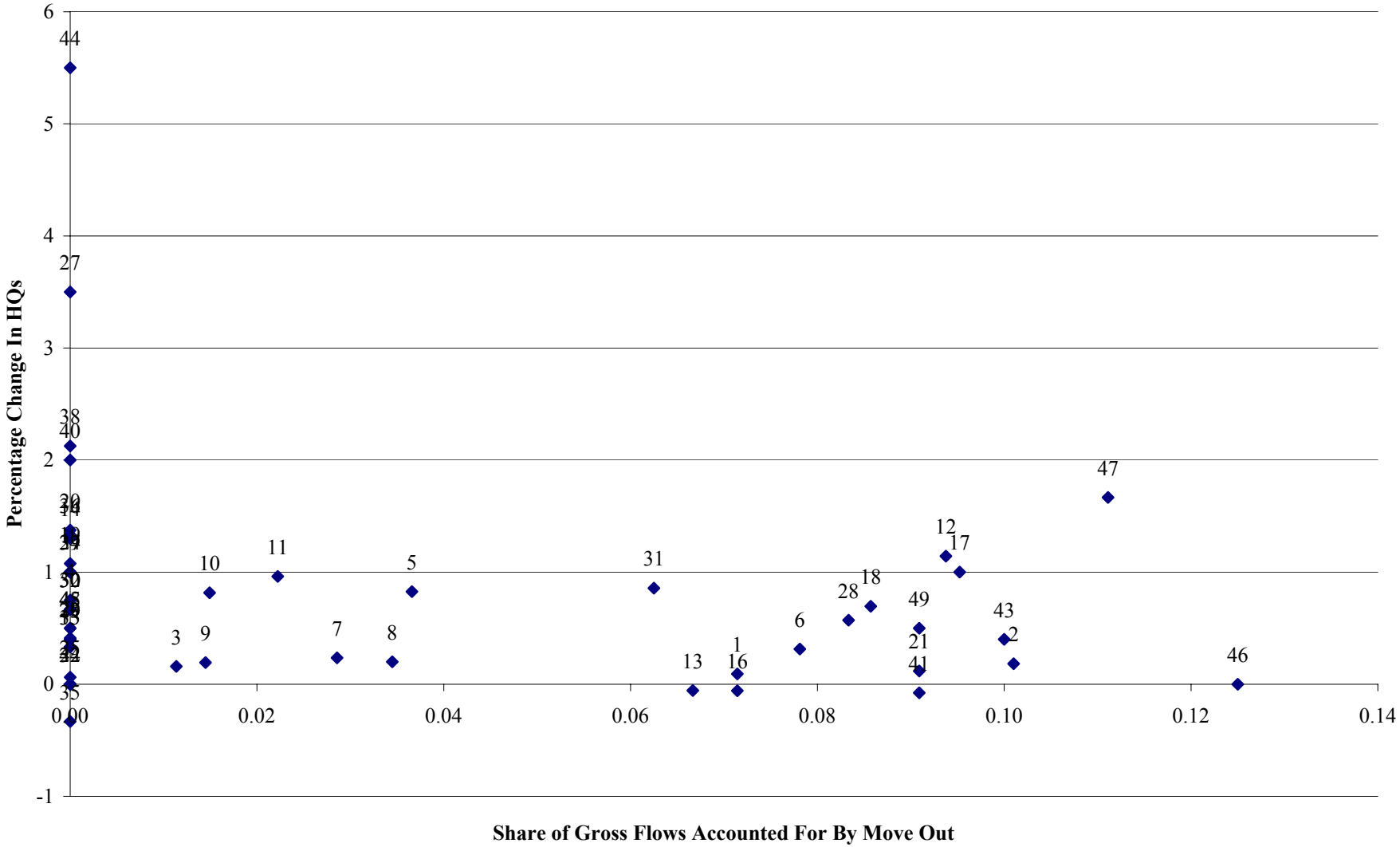


Figure 7: Move In

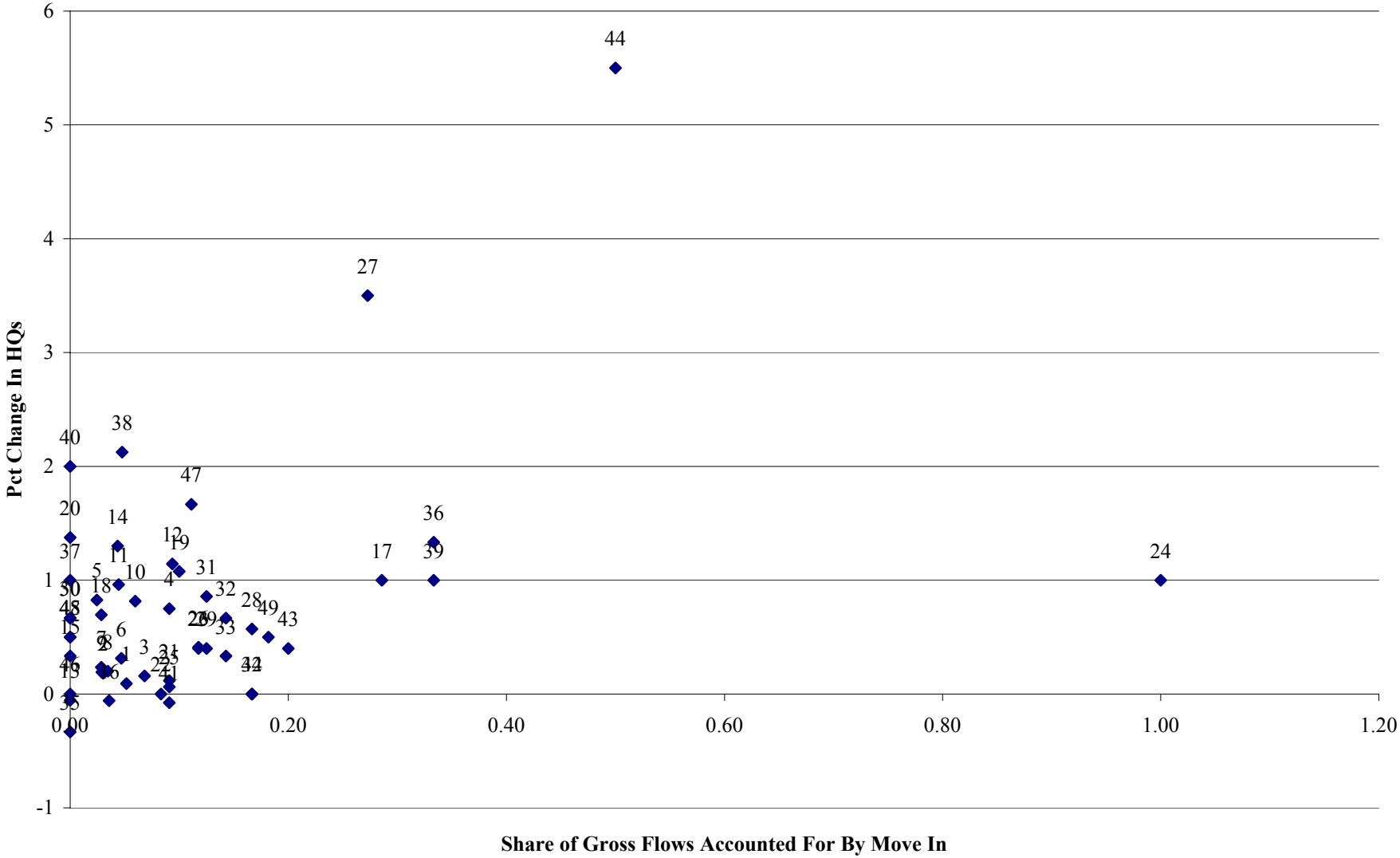


Figure 8: Shrink

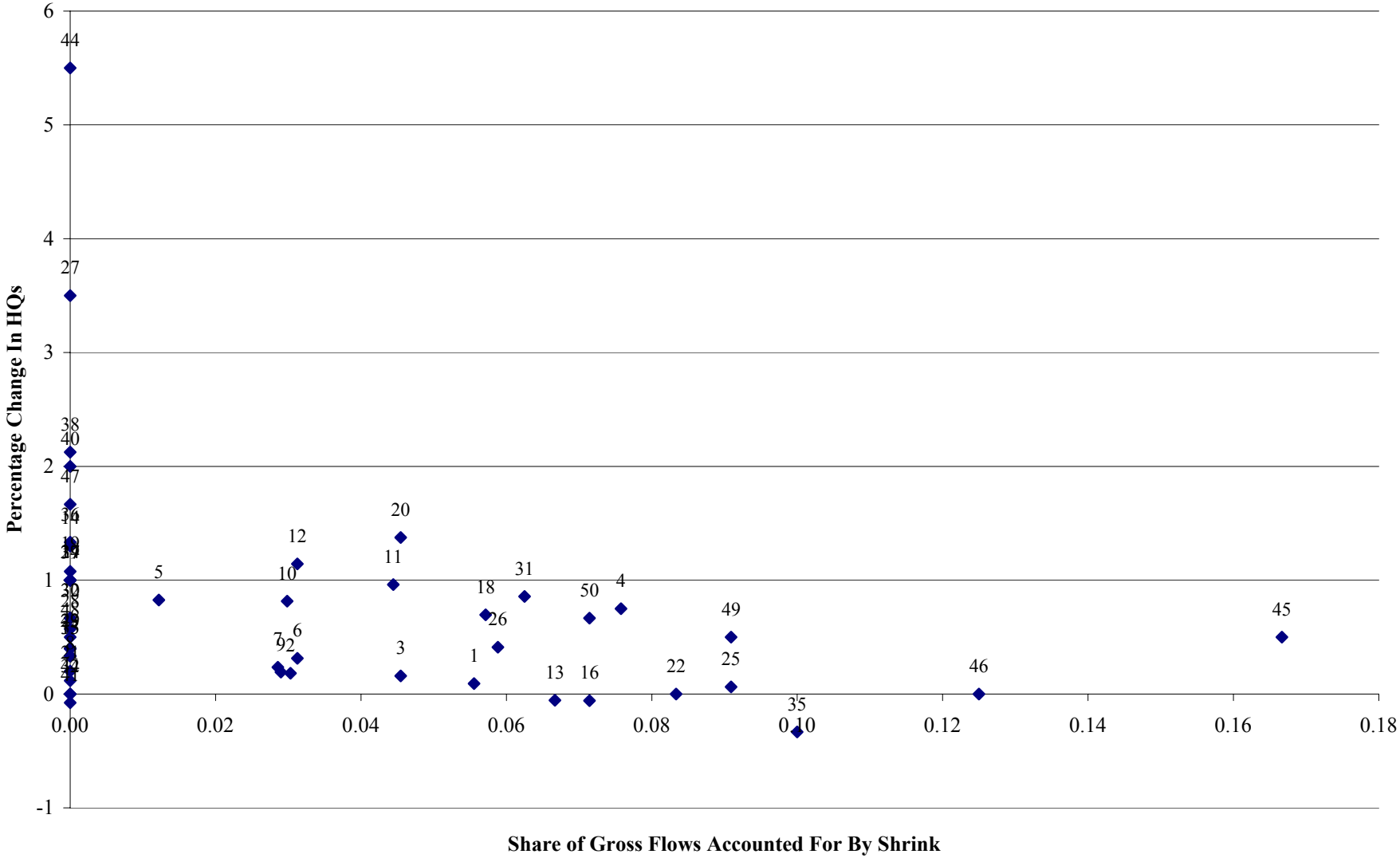


Figure 9: Grow

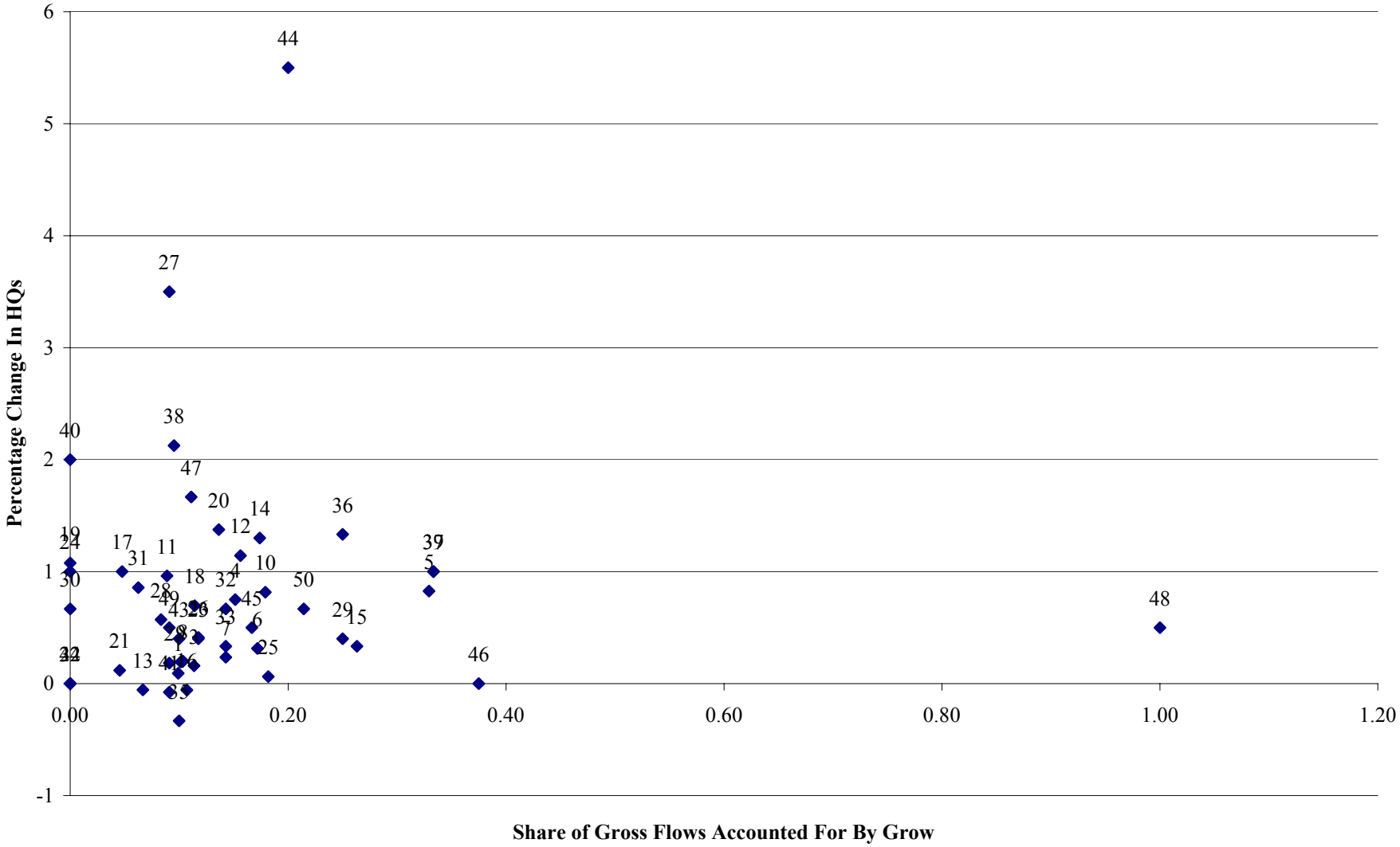
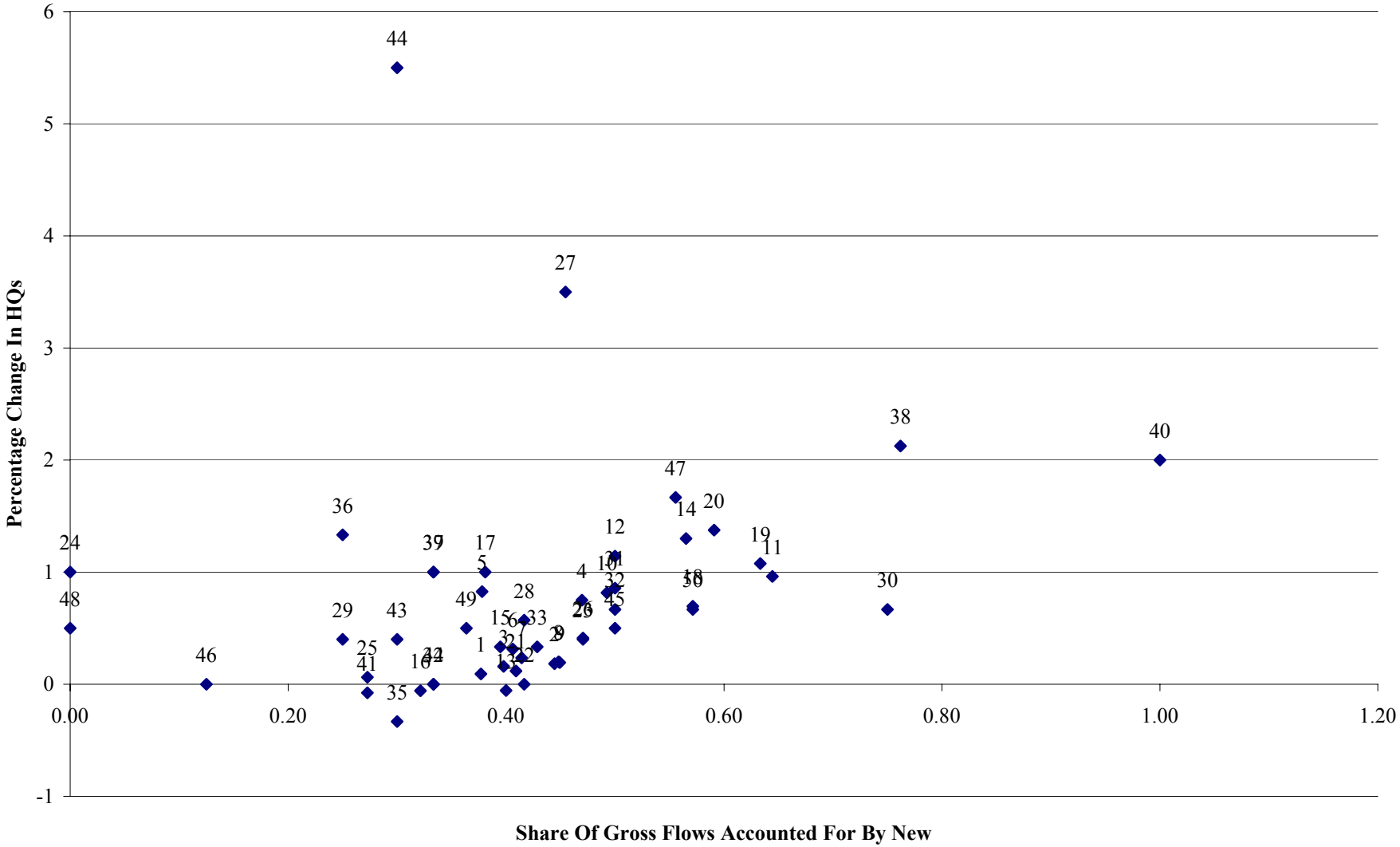


Figure 10: New



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