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Where the Headquarters are – Evidence from Large Public Companies 1990-2000

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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 medium-sized centers. This 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. Pure relocation of headquarters is found to lead to urbanization. Mergers tend to not impact the distributing of headquarters across MSAs. A binomial probability model of the decision to move utilizes company-level as well as MSA-level data and finds that MSA-level amenities impact the choice to move.

JEL codes: R 12, R 30, L 20

Key words: Headquarter location, MSA 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, headquarter concentration 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) and Klier (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.

A second strand in the literature asks what city characteristics are associated with the location of headquarters. Utilizing Census microdata Davis and Henderson (2003) estimate a poisson model of the location pattern of firm births. The underlying presumption is that firms choose locations in order to maximize profit. The authors report evidence of headquarter agglomeration, specifically, positive effects both for the diversity of local service inputs as well as the scale of other headquarters nearby. Lovely and Rosenthal (2003) find evidence of agglomeration among companies that export to foreign markets. Headquarter activities of exporters are more spatially concentrated when information on the foreign market is difficult to obtain.

This paper presents detailed information on the gross flows of headquarters of large publicly traded companies during the 90s. It investigates the effects of pure relocations and mergers and acquisitions on the distribution of headquarters among metropolitan areas. Furthermore, it estimates both a metropolitan area level model of

gross flows as well as a company-level probit model of the probability to move. A number of city-level characteristics as well as company-level control variables are found to significantly influence the location choice of headquarters during the 1990s.

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 a company's headquarter location, its total employment, and assets, both total assets as well as assets held abroad. In addition, by way of Compustat's "mergertracker" data, we obtained detailed records on individual corporate actions such as mergers, companies going private, companies entering bankruptcy etc.[2] This information will be very useful in identifying detailed gross flows of headquarters (see below).

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).[3] 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.

[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] About 80% of corporate actions identified in the data are mergers.

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 holding companies as well as banks, there are 1,245 records of large companies in 1990 and 1,703 records in 2000, about 20% of the database in both years.[4] In essence, the data is considerably larger than the Fortune 500, yet it includes essentially all Fortune 500 companies.

Changing distribution of headquarters among the largest 50 MSAs[5]

During the 90s the number of large publicly traded companies in the U.S. grew by 37%. At the same time, the concentration of these companies' headquarters among the most populous of metropolitan areas hardly changed (see table 1). Yet, the distribution of headquarters within the 50 largest metro areas changed much more noticeably. Specifically, the MSAs ranked 6 through 50 in terms of population in the year 2000 increased their share of large company headquarters from 51% to 54% during the 90s, while the share of the 5 largest MSAs fell from 35% to 33%. This development can also be 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

[3] For example, the Chicago CMSA encompasses the primary metropolitan statistical areas (PMSAs) of Chicago, IL, Gary, IN, Kankakee, IL, and Kenosha, WI.

[4] Publicly traded holding companies were excluded to avoid possible double counting in case a subsidiary is a publicly traded company as well. For example, both UAL Corp. and United Airlines, its subsidiary, are included in the original database. They are both are headquartered at the same address and report the same employment. Our analysis only keeps the record on United Airlines. 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.

[5] The results presented in tables 1 through 4 are very similar to what can be found in Klier (2002). They are, however, not identical. Differences are explained by a "bug" in the geocoding software. It was

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.

Table 1 also provides some information on the changing distribution of assets. We can see that despite the loss of headquarters, New York's share of assets increased during the 90s from 27 to 33%. In 2000, New York's assets are 6 times the size of the runner up MSA.[6]

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. 20 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.

Identifying gross flows of headquarters

This paper also identifies 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). In order to identify the gross flows, we utilize the fact that Compustat uses unique I.D. numbers for each company. Thus one can identify companies that were present in 1990 but no longer in the database in 2000 – i.e. exiters --, and, if the

discovered after completing last year's paper. Results presented in this paper supersede comparable tables in Klier (2002).

change occurred in the opposite direction, entrants. Entrants are represented by newly formed companies as well as private companies having gone public. Exiters are cases where a public company has gone out of business, has gone private, or was bought out by another company. 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.[7] Correspondingly, if a company grows in size but stays in the same metro area, it is classified as "grow". If a company relocated its headquarter during the decade, it is counted as a move. In addition, Compustat data on corporate actions by company allows us to distinguish between pure relocations and, for example, merger-induced relocations later.

Table 3 lists the observations in the gross flow categories thus obtained. They consist of survivors, which break down in *stayers*, which either do or do not cross the "large" size threshold, and *movers*, as well as *entrants* and *exiters*. Table 4 turns the gross flows reported in the previous table into shares of the total gross flow activity. Gross flow activity is obtained by adding the flows across 6 of the 7 categories identified above in each metro area ("stay and large" is not treated as a flow). Several points can be made about the level and composition of gross flows of headquarters for the 50 largest MSAs.

First, the level of gross flows is on average 3.6 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 (see Table 3). Across all 50 metro areas, new entrants and exits represent by far the largest share of gross flows (see Table 4). Together they account for 70% of gross flow activity. The growth of existing companies represents 14% of overall gross flows, with the remaining categories (shrink in size as well as in- and out moves) jointly accounting for only 16% of overall activity.

Second, there are noticeable differences across the 50 metro areas in terms of the composition of gross flows. For example, Detroit, New Orleans, Portland, Oregon, and Salt Lake City, rank high in terms of share of gross flow activity represented by companies exiting the database. Conversely, Nashville, Tennessee, experienced the

[6] Halloway and Wheeler (1991) reported New York's level of Fortune 500 company assets to be over 5.5 times that of the runner up.

[7] In fact, we account for this case for both movers and stayers. Furthermore, a relocation can cross the metro area / non-metro area boundary in either direction.

second highest share of new companies during the 90s. Metro areas that have a level of gross flow activity of at least 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.

Pure relocations

Arguably the most interesting policy questions are related to what MSA-level characteristics attract headquarters. In order to address this question, this section presents detailed information on the directionality of relocation of large company headquarters, or how large companies voted on their headquarter location with their feet during the 90s. In our data set, 149 relocations of headquarters occur during the 1990s. Of these we classify 101 as "pure" or "organic" moves, i.e. relocations we could not associate with a corporate action, such as a merger or acquisition.[8] Table 5 presents a directionality matrix for these 101 cases.[9] The table links origin and destination of each relocation and aggregates MSAs in groups of 10, with New York broken out as its own category. In addition, MSAs not among the 50 most populous ones as well as non-MSA locations are shown as separate categories. The column labelled "New York" shows where companies that relocated to New York had moved from. The row labelled "New York" shows where companies that relocated away from New York had moved to.

In order to interpret this transition matrix, we would like to distinguish three different areas in it. Cells along the diagonal refer to companies that reloacted within the same size category MSA; e.g. a move within the New York MSA. On balance this category is empty, with only 16 of 101 pure relocations being located along the diagonal. The triangle above the diagonal lists the cases where a company moved from a larger to a smaller MSA, resulting in deconcentration of headquarters across the MSAs. The triangle below the diagonal (shaded) lists headquarters that relocated from a smaller to a larger MSA, resulting in urbanization of headquarters. Table 5 illustrates that pure relocations

[8] For example, Boeing's move from Seattle to Chicago would fit that category.

of large public companies in the 90s, on balance, resulted in urbanization of headquarter locations as the direction of the move was towards larger metropolitan areas. Among the 8 categories of MSAs distinguished in that table, only New York, MSAs rank 51 and higher, as well as nonmetropolitan area locations experienced a deconcentration of headquarters due to "organic moves".

Tables 6 and 7 follow up on that analysis. In Table 6, panels A and B, we ask if the urbanization effect holds up after we account for the sectoral composition of the companies who moved. In other words, we are looking for evidence of industry agglomeration effects. It turns out that only in the case of pure relocations of non-manufacturing companies – they account for 54 of the 101 observations in table 5 (see table 6 panel B) – is there evidence of agglomeration. On balance 54% of these moves result in concentration vs 27% leading to deconcentration. On the other hand, pure moves of manufacturing companies on balance lead to deconcentration (49% of observations, vs 38% leading to concentration). That result is driven by companies that were initially located within the 10 largest MSAs.

Finally, table 7, presents evidence on the transition matrix for mergers and acquisitions. There were a total of 181 mergers of large public companies during the 90s. Table 7 lists them by where the acquired company (ACQ) and the acquiring company (ACQNG) were headquartered. In contrast to the move matrixes presented above, the data on mergers show that the largest share of mergers involved companies that were located in the same MSA size group. In other words, observations located on the diagonal in that table represent 42% of all mergers. That is a striking difference to the pure relocation activity, where we found that a move most likely results in the company changing the size of MSA it is located in. In terms of the overall effect on the concentration of headquarters among MSAs, mergers are on balance neutral: in 28% of acquisitions the acquiring company is located in a larger MSA, whereas in 30% of

[9] We also performed the analysis for all 149 moves. Table 9 presents a simple model that estimates the two types of moves separately. See Table 10 for a company level estimation of the probability to move among surviving companies.

acquisitions the acquiring company is located in a smaller MSA than the acquired company.[10]

Estimation results

Gross flows of Headquarters

The remainder of the paper tries to explain the growth of headquarters across metro areas by means of multiple regression analysis. We first estimate the level of gross flows of headquarters at the MSA level. The objective is to formally link metropolitan area characteristics with headquarter location choices. The model is set up as follows:

Level of headquarter gross flows = f(MSA size, MSA industry mix, MSA amenities, MSA workforce characteristics)

The independent variables consist of a number of variables controlling for MSA-level characteristics as well as some amenity and workforce characteristics. 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 headquarters present at the beginning of the decade. 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,

[10] That result differs from what Holloway and Wheeler find on the role of mergers and acquisitions (see quote on page 3 of this paper). While we cannot replicate their methodology, we approximate their approach by considering mergers only among the 50 largest metropolitan areas (included in table 7). In that case, we find an even larger share of transactions to occur within similarly sized MSAs. However, there is a slightly higher incidence of mergers leading to deconcentration (28% of observations) vs leading to concentration (22% of observations). Their reported results do not allow us to quantify their findings of mergers on deconcentration.

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. A larger choice of international destinations is expected to make a MSA more attractive as a headquarter location.[11]
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 two variables measuring workforce characteristics: the education of the MSAs workforce (percent of workforce with bachelor degree) as well as the share of foreign born in an MSAs' population. One of the frequently mentioned metro area attributes valued by headquarter operations is the presence of a skilled labor pool.

[11] 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/

Table 8 show unambiguously that the scale effect of hosting headquarters matters statistically in each of the gross flow estimations. The higher the level of headquarters in a given MSA at the beginning of the 90s, the higher the observed level of gross flows during the decade. Relative to that dominant effect, most of the other variables do not add to the explanatory power of the model. That might well be related to the fact that these equations are estimated only for the 50 most populous MSAs. However, the two regional fixed effects (south, average January temperature) tend to increase the level of moves – both in and out. Curiously, temperature is negatively related to the level of companies staying put. Finally, the measure of workforce education has a statistically significant positive effect on the level of both in-movers as well as entrants. Table 9 breaks out the estimation of in-moves into pure relocation and others. It is interesting that the regional amenities variables impact only pure relocation cases.

Probability of moving

Table 10 presents evidence on a second approach to estimating headquarter location. In light of the rather large number of observations we estimate a probit model of the probability for a company to move its headquarter during the 90s. This model utilizes both MSA-level as well as company-level data. A unit of observation is a company that survived from 1990 to 2000. If it relocated its headquarter, it is coded as "1", otherwise as "0". About 13% of surviving companies moved during the 90s.[12] In addition to the MSA level variables introduced above, this probit estimation utilizes a number of company level independent variables. We control for company size by way of its operating income. A company's degree of global exposure is measured by the share of its assets haled abroad. We control by means of dummy variables if the company was large during the entire decade, as well if it grew into a large company. Finally, we control for the number of corporate actions (mergers) a company undertook during the decade as well as its sector. Furthermore, we added a measure of the cost of doing business in a

[12] Equations 1 and 3 in Table 10 are estimated for 1009 observations. In essence that includes all the records on surviving companies except for a small number (56) for which some of the independent variables had missing values. Equations 2 and 4 are currently constrained by the fact that the MSA-level variables are collected only for the 50 largest MSAs. Hence the difference in the number of observations.

metropolitan area. The actual variable measures the MSA-level wage bill in 1990 and divides that by the size of the workforce.

Among the company-level variables, both the measure of globalness (share of foreign assets) as well as the count of corporate actions are consistently significant in influencing the choice to move. More global companies are less likely to move during the 90s. On the other hand, companies active in mergers are more likely to move. As far as the MSA-level variables are concerned, there are a number of interesting findings as well. Growing MSAs are more likely to lose companies. A more educated workforce, however, makes out-moves less likely. Similary, a more global MSA (defined by foreign share of MSA aggregate assets) as well as a higher number of foreign destinations that can be reached from an MSAs airport(s) also make outmoves of large companies less likely. To sum up, this model allows a much richer empirical result in terms of relating MSA-level variables to a company's decision to relocate its headquarters.

Conclusion

This paper addresses two questions: How did the concentration of large public companies' headquarters across metropolitan areas change during the 90s. Second, what city characteristics are associated with gross flows of company headquarters across metropolitan areas. It addresses these questions 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 6 categories of gross flows of headquarters underlying the observed net changes. There is strong variation among the 50 largest MSAs in terms of the composition of these gross flows. On average, entry and exit of companies to or from a metro area tend to represent around 2/3 of all gross flow activity for the 50 largest MSAs.

Detailed investigation of 101 pure relocations of headquarters during the 90s finds evidence of urbanization in headquarter location. Companies that move locate, on balance, in differently sized metropolitan areas. Yet, manufacturing companies are found, on net, to move out of the 10 largest MSAs, especially New York. The evidence on the effect of mergers on the distribution of headquarters is noticeable different. The majority of mergers involves companies that are located in similarly sized cities. On net, mergers foster neither concentration nor deconcentration of headquarters.

Two models of headquarter location are estimated. A MSA-level model of the gross flows of headquarters during the 90s find limited evidence of the role of MSA-level amenities on headquarter location. A company-level probit estimation of the probability to move produces fairly strong results on the importance of company- as well as city-level characteristics in driving headquarter location. For example, a higher number of mergers that a company has gone through make it more likely to have moved. Conversely, the degree of globalness of an MSA as well as the number of international destinations reachable from its airport(s) reduce the likelihood of a company moving out of that MSA.

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Table 1 **Dsitribution of population, headquarters, and assets across metro areas**

	POPULATION		HEADQUARTERS		ASSETS	
	1990	**2000**	**1990**	**2000**	**1990**	**2000**
Top 5 MSAs	0.28	0.27	0.35	0.33	0.44	0.51
Top 5 x NY	*0.18*	*0.18*	*0.19*	*0.19*	*0.17*	*0.18*
Rank 6 to 22	0.27	0.28	0.36	0.38	0.36	0.28
Rank 23 to 50	0.16	0.17	0.15	0.17	0.12	0.13
Top 50	0.71	0.72	0.86	0.87	0.92	0.92
Remainder	0.29	0.28	0.14	0.13	0.08	0.08
Total	1	1	1	1	1	1

Figure 1: Distribution of Large Company HQs

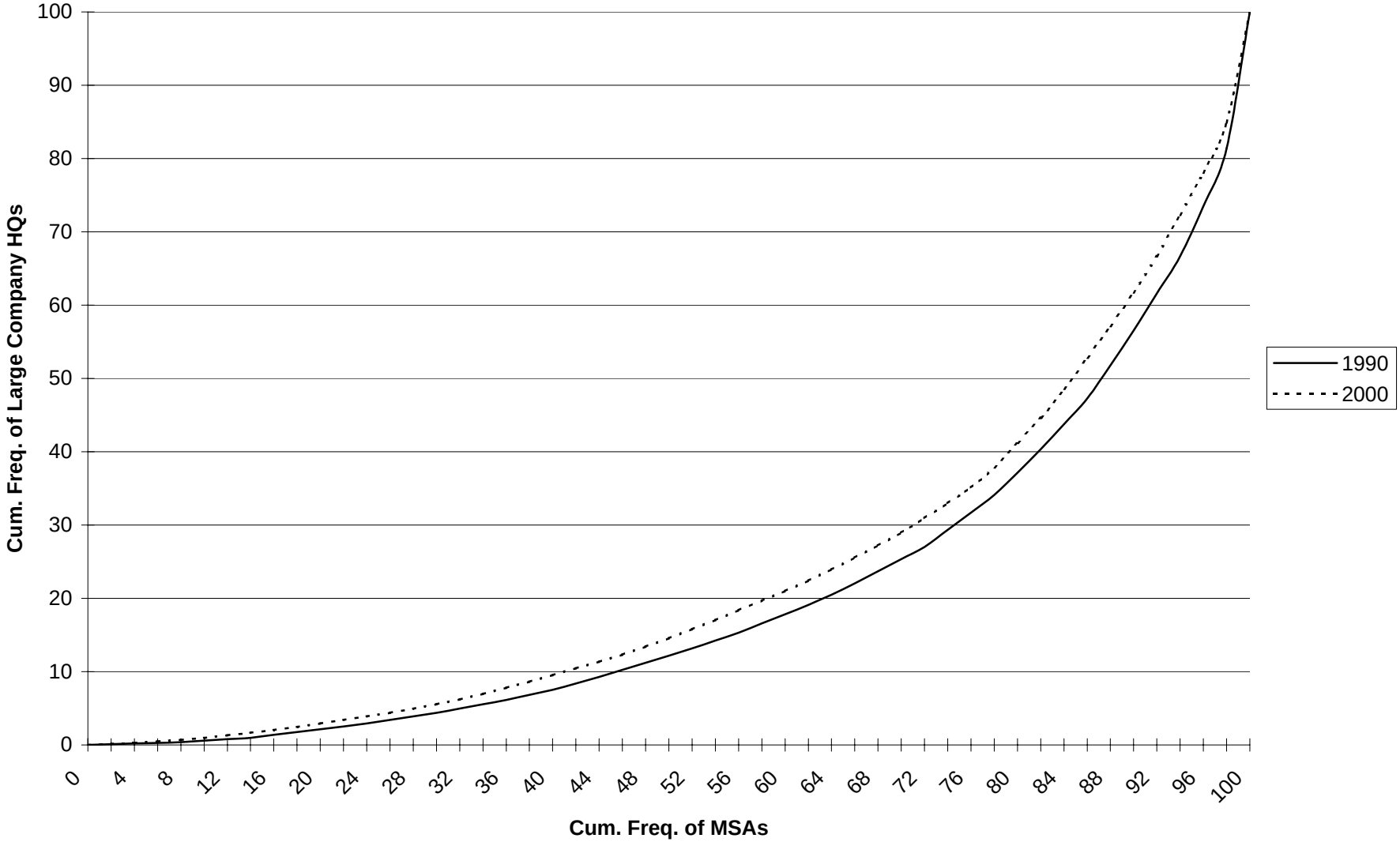

Table 2: Net Change in HQs

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	191	217	26	14%	19%	6%
Chicago--Gary--Kenosha, IL--IN--WI CMSA	9,157,540	81	98	17	21%	8%	4%
San Francisco--Oakland--San Jose, CA CMSA	7,039,362	46	83	37	80%	4%	**9%**
Los Angeles--Riverside--Orange County, CA CMSA	16,373,645	70	81	11	16%	7%	3%
Dallas--Fort Worth, TX CMSA	5,221,801	52	71	19	37%	5%	5%
Philadelphia--Wilmington--Atlantic City, PA--NJ--DE--MD CMSA	6,188,463	52	66	14	27%	5%	3%
Houston--Galveston--Brazoria, TX CMSA	4,669,571	33	62	29	88%	3%	**7%**
Boston--Worcester--Lawrence, MA--NH--ME--CT CMSA	5,819,100	49	61	12	24%	5%	3%
Washington--Baltimore, DC--MD--VA--WV CMSA	7,608,070	35	57	22	63%	3%	**5%**
Atlanta, GA MSA	4,112,198	24	49	25	104%	2%	**6%**
Minneapolis--St. Paul, MN--WI MSA	2,968,806	36	48	12	33%	4%	3%
St. Louis, MO--IL MSA	2,603,607	24	39	15	63%	2%	**4%**
Cleveland--Akron, OH CMSA	2,945,831	31	31	0	0%	3%	0%
Detroit--Ann Arbor--Flint, MI CMSA	5,456,428	25	29	4	16%	2%	1%
Miami--Fort Lauderdale, FL CMSA	3,876,380	13	29	16	123%	1%	**4%**
Denver--Boulder--Greeley, CO CMSA	2,581,506	10	25	15	150%	1%	**4%**
Nashville, TN MSA	1,231,311	7	24	17	243%	1%	**4%**
Phoenix--Mesa, AZ MSA	3,251,876	10	23	13	130%	1%	**3%**
Milwaukee--Racine, WI CMSA	1,689,572	17	22	5	29%	2%	1%
Cincinnati--Hamilton, OH--KY--IN CMSA	1,979,202	16	20	4	25%	2%	1%
Columbus, OH MSA	1,540,157	11	19	8	73%	1%	**2%**
Richmond--Petersburg, VA MSA	996,512	10	19	9	90%	1%	**2%**
Tampa--St. Petersburg--Clearwater, FL MSA	2,395,997	9	19	10	111%	1%	**2%**
Pittsburgh, PA MSA	2,358,695	17	18	1	6%	2%	0%
San Diego, CA MSA	2,813,833	9	18	9	100%	1%	**2%**
Seattle--Tacoma--Bremerton, WA CMSA	3,554,760	17	16	-1	-6%	2%	0%
Kansas City, MO--KS MSA	1,776,062	14	16	2	14%	1%	0%
Greensboro--Winston-Salem--High Point, NC MSA	1,251,509	6	14	8	133%	1%	**2%**
Portland--Salem, OR--WA CMSA	2,265,223	13	13	0	0%	1%	0%
Charlotte--Gastonia--Rock Hill, NC--SC MSA	1,499,293	11	13	2	18%	1%	0%
West Palm Beach--Boca Raton, FL MSA	1,131,184	2	13	11	550%	0%	**3%**
Hartford, CT MSA	1,183,110	13	12	-1	-8%	1%	0%
Las Vegas, NV--AZ MSA	1,563,282	7	12	5	71%	1%	1%
Indianapolis, IN MSA	1,607,486	10	11	1	10%	1%	0%
Louisville, KY--IN MSA	1,025,598	6	9	3	50%	1%	1%
Orlando, FL MSA	1,644,561	2	9	7	350%	0%	**2%**
Grand Rapids--Muskegon--Holland, MI MSA	1,088,514	4	8	4	100%	0%	**1%**
Memphis, TN--AR--MS MSA	1,135,614	5	7	2	40%	0%	0%
Rochester, NY MSA	1,098,201	5	7	2	40%	0%	0%
San Antonio, TX MSA	1,592,383	4	7	3	75%	0%	**1%**
Jacksonville, FL MSA	1,100,491	4	7	3	75%	0%	**1%**
Oklahoma City, OK MSA	1,083,346	4	6	2	50%	0%	0%
New Orleans, LA MSA	1,337,726	5	5	0	0%	0%	0%
Buffalo--Niagara Falls, NY MSA	1,170,111	4	5	1	25%	0%	0%
Norfolk--Virginia Beach--Newport News, VA--NC MSA	1,569,541	2	5	3	150%	0%	**1%**
Salt Lake City--Ogden, UT MSA	1,333,914	6	4	-2	-33%	1%	0%
Providence--Fall River--Warwick, RI--MA MSA	1,188,613	1	3	2	200%	0%	0%
Raleigh--Durham--Chapel Hill, NC MSA	1,187,941	1	3	2	200%	0%	0%
Sacramento--Yolo, CA CMSA	1,796,857	1	2	1	100%	0%	0%
Austin--San Marcos, TX MSA	1,249,763	1	2	1	100%	0%	0%
Total	162,514,411	1,026	1,437	411	40%	100%	100%
other		219	266				
TOTAL		1245	1703				

Table3: Gross Flows

MSA	HQ Count 90	Stay and Grow	Stay and Shrink	Stay and Large	Move In	Move Out	Entry	Exit	Net Change	Gross Flow	Gross Flow divided by Net Change
New York--Northern New Jersey--Long Island, NY--NJ--CT--PA CMSA	191	30	12	79	12	20	96	80	26	250	9.6
Los Angeles--Riverside--Orange County, CA CMSA	70	9	3	25	3	13	44	29	11	101	9.2
Chicago--Gary--Kenosha, IL--IN--WI CMSA	81	10	3	46	5	1	37	31	17	87	5.1
Washington--Baltimore, DC--MD--VA--WV CMSA	35	10	5	11	5	2	31	17	22	70	3.2
San Francisco--Oakland--San Jose, CA CMSA	46	26	1	23	3	3	31	19	37	83	2.2
Philadelphia--Wilmington--Atlantic City, PA--NJ--DE--MD CMSA	52	11	2	27	3	3	25	20	14	64	4.6
Boston--Worcester--Lawrence, MA--NH--ME--CT CMSA	49	10	2	21	2	2	28	24	12	68	5.7
Detroit--Ann Arbor--Flint, MI CMSA	25	4	0	11	1	1	13	13	4	32	8.0
Dallas--Fort Worth, TX CMSA	52	7	4	22	11	3	31	23	19	79	4.2
Houston--Galveston--Brazoria, TX CMSA	33	12	3	15	4	0	31	15	29	65	2.2
Atlanta, GA MSA	24	4	1	15	5	2	25	6	25	43	1.7
Miami--Fort Lauderdale, FL CMSA	13	5	0	6	2	3	16	4	16	30	1.9
Seattle--Tacoma--Bremerton, WA CMSA	17	1	1	8	0	2	7	6	-1	17	-17.0
Phoenix--Mesa, AZ MSA	10	4	0	5	2	0	12	5	13	23	1.8
Minneapolis--St. Paul, MN--WI MSA	36	10	0	23	0	0	15	13	12	38	3.2
Cleveland--Akron, OH CMSA	31	3	2	17	2	2	9	10	0	28	NA
San Diego, CA MSA	9	1	0	3	6	2	8	4	9	21	2.3
St. Louis, MO--IL MSA	24	4	2	13	2	3	20	6	15	37	2.5
Denver--Boulder--Greeley, CO CMSA	10	0	0	4	2	1	19	5	15	27	1.8
Tampa--St. Petersburg--Clearwater, FL MSA	9	4	1	1	1	2	13	5	10	26	2.6
Pittsburgh, PA MSA	17	1	0	6	2	2	9	9	1	23	23.0
Portland--Salem, OR--WA CMSA	13	0	1	7	1	0	5	5	0	12	NA
Cincinnati--Hamilton, OH--KY--IN CMSA	16	3	3	8	2	0	7	5	4	20	5.0
Sacramento--Yolo, CA CMSA	1	0	0	1	1	0	0	0	1	1	1.0
Kansas City, MO--KS MSA	14	4	2	8	1	0	3	4	2	14	7.0
Milwaukee--Racine, WI CMSA	17	2	1	10	1	0	9	6	5	19	3.8
Orlando, FL MSA	2	1	0	0	3	0	5	2	7	11	1.6
Indianapolis, IN MSA	10	1	0	3	2	2	5	5	1	15	15.0
San Antonio, TX MSA	4	2	0	2	1	0	2	2	3	7	2.3
Norfolk--Virginia Beach--Newport News, VA--NC MSA	2	0	0	2	0	0	3	0	3	3	1.0
Las Vegas, NV--AZ MSA	7	1	1	2	2	1	7	3	5	15	3.0
Columbus, OH MSA	11	2	0	8	3	0	6	3	8	14	1.8
Charlotte--Gastonia--Rock Hill, NC--SC MSA	11	1	0	9	1	0	2	2	2	6	3.0
New Orleans, LA MSA	5	0	0	2	1	0	2	3	0	6	NA
Salt Lake City--Ogden, UT MSA	6	1	1	0	0	0	3	5	-2	10	-5.0
Greensboro--Winston-Salem--High Point, NC MSA	6	3	0	4	4	0	3	2	8	12	1.5
Austin--San Marcos, TX MSA	1	1	0	0	0	0	1	1	1	3	3.0
Nashville, TN MSA	7	2	0	5	1	0	16	2	17	21	1.2
Providence--Fall River--Warwick, RI--MA MSA	1	1	0	1	1	0	0	0	2	2	1.0
Raleigh--Durham--Chapel Hill, NC MSA	1	0	0	1	0	0	2	0	2	2	1.0
Hartford, CT MSA	13	1	1	6	1	1	4	5	-1	13	-13.0
Buffalo--Niagara Falls, NY MSA	4	0	0	2	1	0	2	2	1	5	5.0
Memphis, TN--AR--MS MSA	5	1	0	1	2	1	3	3	2	10	5.0
West Palm Beach--Boca Raton, FL MSA	2	3	0	2	5	0	3	0	11	11	1.0
Jacksonville, FL MSA	4	1	1	2	1	0	3	1	3	7	2.3
Rochester, NY MSA	5	3	1	3	0	0	1	1	2	6	3.0
Grand Rapids--Muskegon--Holland, MI MSA	4	1	0	2	1	1	4	1	4	8	2.0
Oklahoma City, OK MSA	4	2	0	4	0	0	0	0	2	2	1.0
Louisville, KY--IN MSA	6	1	1	2	2	1	4	2	3	11	3.7
Richmond--Petersburg, VA MSA	10	3	1	7	0	0	9	2	9	15	1.7
	1026	207	56	485	111	74	634	411	411	1493	3.6

Table 4: 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	191	26	250	0.32	0.05	0.08	0.05	0.12	0.38
Los Angeles--Riverside--Orange County, CA CMSA	70	11	101	0.29	0.03	0.13	0.03	0.09	0.44
Chicago--Gary--Kenosha, IL--IN--WI CMSA	81	17	87	0.36	0.06	0.01	0.03	0.11	0.43
Washington--Baltimore, DC--MD--VA--WV CMSA	35	22	70	0.24	0.07	0.03	0.07	0.14	0.44
San Francisco--Oakland--San Jose, CA CMSA	46	37	83	0.23	0.04	0.04	0.01	0.31	0.37
Philadelphia--Wilmington--Atlantic City, PA--NJ--DE--MD CMSA	52	14	64	0.31	0.05	0.05	0.03	0.17	0.39
Boston--Worcester--Lawrence, MA--NH--ME--CT CMSA	49	12	68	0.35	0.03	0.03	0.03	0.15	0.41
Detroit--Ann Arbor--Flint, MI CMSA	25	4	32	0.41	0.03	0.03	0.00	0.13	0.41
Dallas--Fort Worth, TX CMSA	52	19	79	0.29	0.14	0.04	0.05	0.09	0.39
Houston--Galveston--Brazoria, TX CMSA	33	29	65	0.23	0.06	0.00	0.05	0.18	0.48
Atlanta, GA MSA	24	25	43	0.14	0.12	0.05	0.02	0.09	0.58
Miami--Fort Lauderdale, FL CMSA	13	16	30	0.13	0.07	0.10	0.00	0.17	0.53
Seattle--Tacoma--Bremerton, WA CMSA	17	-1	17	0.35	0.00	0.12	0.06	0.06	0.41
Phoenix--Mesa, AZ MSA	10	13	23	0.22	0.09	0.00	0.00	0.17	0.52
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	31	0	28	0.36	0.07	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	24	15	37	0.16	0.05	0.08	0.05	0.11	0.54
Denver--Boulder--Greeley, CO CMSA	10	15	27	0.19	0.07	0.04	0.00	0.00	0.70
Tampa--St. Petersburg--Clearwater, FL MSA	9	10	26	0.19	0.04	0.08	0.04	0.15	0.50
Pittsburgh, PA MSA	17	1	23	0.39	0.09	0.09	0.00	0.04	0.39
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	16	4	20	0.25	0.10	0.00	0.15	0.15	0.35
Sacramento--Yolo, CA CMSA	1	1	1	0.00	1.00	0.00	0.00	0.00	0.00
Kansas City, MO--KS MSA	14	2	14	0.29	0.07	0.00	0.14	0.29	0.21
Milwaukee--Racine, WI CMSA	17	5	19	0.32	0.05	0.00	0.05	0.11	0.47
Orlando, FL MSA	2	7	11	0.18	0.27	0.00	0.00	0.09	0.45
Indianapolis, IN MSA	10	1	15	0.33	0.13	0.13	0.00	0.07	0.33
San Antonio, TX MSA	4	3	7	0.29	0.14	0.00	0.00	0.29	0.29
Norfolk--Virginia Beach--Newport News, VA--NC MSA	2	3	3	0.00	0.00	0.00	0.00	0.00	1.00
Las Vegas, NV--AZ MSA	7	5	15	0.20	0.13	0.07	0.07	0.07	0.47
Columbus, OH MSA	11	8	14	0.21	0.21	0.00	0.00	0.14	0.43
Charlotte--Gastonia--Rock Hill, NC--SC MSA	11	2	6	0.33	0.17	0.00	0.00	0.17	0.33
New Orleans, LA MSA	5	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	7	17	21	0.10	0.05	0.00	0.00	0.10	0.76
Providence--Fall River--Warwick, RI--MA MSA	1	2	2	0.00	0.50	0.00	0.00	0.50	0.00
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	13	0.38	0.08	0.08	0.08	0.08	0.31
Buffalo--Niagara Falls, NY MSA	4	1	5	0.40	0.20	0.00	0.00	0.00	0.40
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	11	0.00	0.45	0.00	0.00	0.27	0.27
Jacksonville, FL MSA	4	3	7	0.14	0.14	0.00	0.14	0.14	0.43
Rochester, NY MSA	5	2	6	0.17	0.00	0.00	0.17	0.50	0.17
Grand Rapids--Muskegon--Holland, MI MSA	4	4	8	0.13	0.13	0.13	0.00	0.13	0.50
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	10	9	15	0.13	0.00	0.00	0.07	0.20	0.60
TOTAL	1026	411	1493	0.28	0.07	0.05	0.04	0.14	0.42

Table 5: Organic Move Matrix (counts)										
		Move In								
		New York	2-10	11-20	21-30	31-40	41-50	Other MSA	Nonmetro	**Totals**
Move Out	New York Ci	**0**	5	4	2	2	3	2	1	19
	2-10	6	**10**	4	1	0	2	4	0	27
	11-20	0	7	**0**	2	1	1	1	0	12
	21-30	0	2	1	**0**	0	1	1	0	5
	31-40	1	0	0	0	**0**	1	0	0	2
	41-50	2	0	4	0	0	**0**	0	0	6
	Other MSA	1	6	4	5	1	1	**6**	0	24
	Nonmetro	1	1	3	0	1	0	0	**0**	6
	Totals	11	31	20	10	5	9	14	1	101

Table 6: MFG vs NonMFG (organic moves)

A: MFG										
		Move In								
		NYC	**2-10**	**11-20**	**21-30**	**31-40**	**41-50**	**Other MSA**	**Elsewhere**	**Total**
Move Out	**NYC**	**0**	2	2	2	2	2	1	1	12
	2-10	3	**3**	3	1	0	1	2	0	13
	11-20	0	2	**0**	1	0	0	1	0	4
	21-30	0	1	1	**0**	0	1	1	0	4
	31-40	0	0	0	0	**0**	0	0	0	0
	41-50	0	0	0	0	0	**0**	0	0	0
	Other MSA	1	2	1	2	0	0	**3**	0	9
	Elsewhere	0	1	3	0	1	0	0	**0**	5
	Total	4	11	10	6	3	4	8	1	47
B: NonMFG										
		Move In								
		New York City	**2-10**	**11-20**	**21-30**	**31-40**	**41-50**	**Other MSA**	**Elsewhere**	**Totals**
Move Out	**NYC**	**0**	3	2	0	0	1	1	0	7
	2-10	3	**7**	1	0	0	1	2	0	14
	11-20	0	5	**0**	1	1	1	0	0	8
	21-30	0	1	0	**0**	0	0	0	0	1
	31-40	1	0	0	0	**0**	1	0	0	2
	41-50	2	0	4	0	0	**0**	0	0	6
	Other MSA	0	4	3	3	1	1	**3**	0	15
	Elsewhere	1	0	0	0	0	0	0	**0**	1
	Totals	7	20	10	4	2	5	6	0	54

Table 7: Acquisitions matrix

		ACQ NYC	2-10	11-20	21-30	31-40	41-50	Non top 50	Nonmetro	Totals
ACQNG	NYC	12	3	3	2	0	1	1	0	22
	2-10	8	38	8	4	5	0	7	1	71
	11-20	3	5	9	2	1	0	6	0	26
	21-30	2	4	2	5	1	0	0	1	15
	31-40	0	5	3	0	3	0	1	0	12
	41-50	0	3	1	0	2	2	2	0	10
	Non top 50	1	8	0	0	3	1	5	1	19
	Nonmetro	1	2	0	0	1	0	0	2	6
	Totals	27	68	26	13	16	4	22	5	181

Table 8: Gross Flow Regressions

	Dependent Variable										
	Stay		**Move In**			**Move Out**		**Entry**		**Exit**	
Variable	Model 1	Model 2	Model 1	Model 2	Model 3	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Intercept	-1.55		-0.72	-3.32	-3.80	1.08	-1.40	1.39	-6.13	0.47	0.45
	(2.61)		(1.44)	(2.49)	(2.44)	(2.11)	(3.25)	(3.50)	(5.95)	(1.56)	(2.72)
HQs in 1990	**0.55**	**0.55**	**0.06**	**0.07**	**0.06**	**1.06**	**0.11**	**0.43**	**0.42**	**0.35**	**0.35**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)
Change in Population	0.53	2.24	2.25	1.08	**4.18**	0.04	-1.68	5.85	4.01	-0.57	-0.45
	(3.70)	(3.71)	(2.04)	(2.16)	(2.29)	(2.99)	(2.89)	(4.96)	(5.15)	(2.21)	(2.35)
MFG Share	8.85	2.54	-0.08	1.34	3.91	-6.02	0.42	-10.40	-5.20	-2.83	-3.44
	(7.36)	(7.92)	(4.06)	(4.60)	(5.02)	(5.96)	(6.23)	(9.87)	(11.00)	(4.40)	(5.02)
FIRE Share	7.53	14.86	11.46	8.68	-2.03	-3.94	-9.82	5.14	-11.22	-3.59	-1.81
	(20.00)	(19.85)	(1.16)	(11.54)	(12.78)	(16.19)	(15.68)	(26.81)	(27.59)	(11.94)	(12.59)
South	0.80	1.62	**0.60**		**1.56**	-0.49	-1.34	2.03		-0.32	
	(1.09)	(1.14)	(0.60)		(0.62)	(0.88)	(0.89)	(1.46)		(0.65)	
Avg. Jan Temp.		**-0.10**		**0.07**			**0.10**		0.08		-0.01
		(0.05)		(0.03)			(0.04)		(0.08)		(0.04)
% Foreign Born				**-10.51**	-3.38				4.98		-3.35
				(6.23)	(4.80)				(14.88)		(6.79)
% Bachelors Degree				0.05	**0.14**		-0.07		**0.25**		0.01
				(0.06)	(0.07)		(0.08)		(0.15)		(0.07)
% Organic					0.44						
					(0.82)						
R-Squared	0.98	0.98	0.63	0.64	0.72	0.70	0.75	0.93	0.94	0.98	0.98
Adj. R-Squared	0.97	0.97	0.59	0.58	0.65	0.67	0.71	0.92	0.93	0.98	0.98
No. Observations	50	50	50	50	41	50	50	50	50	50	50

standard error in parentheses

Table 9: Organic and Inorganic Move In Regression

Variable	**Move In** Model 1	Model 2	Model 3	**Move In (Organic)** Model 1	Model 2	Model 3	**Move In (Inorganic)** Model 1	Model 2
Intercept	-0.72	-3.32	-3.80	-0.95	**-3.99**	-1.64	0.23	0.67
	(1.44)	(2.49)	(2.44)	(1.17)	(2.00)	(1.61)	(0.69)	(1.20)
HQs in 1990	**0.06**	**0.07**	**0.06**	**0.04**	**0.05**	**0.04**	**0.02**	**0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Change in Population	2.25	1.08	**4.18**	0.89	-0.29	0.82	1.36	1.37
	(2.04)	(2.16)	(2.29)	(1.66)	(1.73)	(1.70)	(0.98)	(1.04)
MFG Share	-0.08	1.34	3.91	-1.35	0.88	-0.97	1.27	0.46
	(4.06)	(4.60)	(5.02)	(3.31)	(3.70)	(3.56)	(1.96)	(2.22)
FIRE Share	11.46	8.68	-2.03	**18.08**	14.05	**16.90**	-6.62	-5.37
	(1.16)	(11.54)	(12.78)	(8.99)	(9.27)	(9.43)	(5.31)	(5.56)
South	**0.60**		**1.56**	**1.01**		**1.00**	0.15	
	(0.60)		(0.62)	(0.49)		(0.50)	(0.29)	
Avg. Jan Temp.		**0.07**			**0.07**			0.00
		(0.03)			(0.03)			(0.02)
% Foreign Born		**-10.51**	-3.38		-7.60	0.71		-2.91
		(6.23)	(4.80)		(5.00)	(4.13)		(3.00)
% Bachelors Degree		0.05	**0.14**		0.06	0.03		-0.01
		(0.06)	(0.07)		(0.05)	(0.05)		(0.03)
% Organic			0.44					
			(0.82)					
R-Squared	0.63	0.64	0.72	0.61	0.63	0.62	0.33	0.35
Adj. R-Squared	0.59	0.58	0.65	0.57	0.57	0.55	0.26	0.24
No. Observations	50	50	41	50	50	50	50	50

standard error in parentheses

Table 10: Probability of moving

	Model 1	Model 2	Model 3	Model 4
variable				
Comp. Level				
Co-operating income	-0.00003	-0.000029	-0.00003	-0.00003
	(-1.36)	(-1.29)	(-1.42)	(-1.29)
% foreign assets	**-0.26**	**-0.26**	**-0.284**	**-0.26**
	(-2.24)	**(-2.11)**	**(-2.69)**	**(-2.10)**
Large	-0.04	**-0.07**	-0.031	**-0.069**
	(-1.06)	**(-2.57)**	(-0.89)	**(-2.58)**
Grow	-0.03	**-0.05**	-0.024	**-0.049**
	(-0.84)	**(-1.84)**	(-0.69)	**(-1.80)**
# of corporate actions	**0.02**	**0.02**	**0.021**	**0.024**
	(-2.14)	**(2.20)**	**(1.96)**	**(2.21)**
MFG	-0.041	0.03	-0.047	0.029
	(-0.88)	(0.64)	(-0.98)	(0.67)
TRANSP.	0.006	**0.12**	0.003	**0.12**
	(0.11)	**(2.05)**	(0.06)	**(2.04)**
TRADE	-0.084	-0.03	**-0.087**	-0.028
	(-1.73)	(-.62)	**(-1.86)**	(-0.58)
FIRE	-0.55	-0.004	-0.056	0.0004
	(-1.01)	(-0.07)	(-1.04)	(-0.06)
SERVICE	-0.15	0.034	-0.02	0.036
	(-0.25)	(0.51)	(-0.32)	(-0.6)
MSA level				
NY			**0.69**	-0.04
			(2.96)	(-0.6)
level Pop in 90		**0.0096**		**0.012**
		(4.16)		**(4.50)**
% foreign born		**0.52**		0.397
		(1.84)		(1.20)
northeast		**0.087**		**0.091**
		(2.27)		**(2.34)**
Avg. Jan temp		0.0008		0.001
		(0.54)		(0.65)
% bachelor's degree		**-0.44**		**-0.45**
		(-2.23)		**(-2.30)**
# foreign air destinations 1990		**-0.001**		-0.0008
		(-2.65)		(-1.06)
MSA % foreign assets		**-0.436**		**-0.45**
		(-1.81)		**(-1.86)**
wage cost 1990		-0.000006		-0.000005
		-(0.06)		(-1.03)
Pseudo Rsquared	0.04	0.12	0.04	0.12
# observ.	1009	851	1009	851
Logl.hood	-389.3	-282.3	-387.1	-282.1

tstats in parentheses

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