

THE ECONOMIC & SOCIAL IMPACT OF HEADQUARTERS AND HEADQUARTER RELOCATIONS

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Economics of Headquarters and Headquarter Cities

1. Preface for Policymakers and Economic Developers

Peoria Mayor Jim Ardis planned to open this year's State of the City speech by thanking Caterpillar for its longtime commitment to the central Illinois town, declaring "We wouldn't be Peoria without Caterpillar."

It's been that way for decades in Peoria and in other company towns across the United States. A major employer provided generations of locals with jobs and gave the cities a central identity, while executives helped keep cultural institutions, Rotary clubs, and higher-end housing markets healthy.

Now many of those midsize communities are looking for a new identity as more companies trade their longtime hometowns for major cities with easier access to global markets and to the lifestyle talented young workers want, with public transit, nightlife and trendy restaurants.¹

The opening above summarizes nicely the reality explored in this report – that headquarters are both mobile and critical to a community's economic and social identity. As Oklahoma City emerges as a major city, its attractiveness as a potential headquarter destination will increase. To capitalize on this opportunity to define and redefine Oklahoma City's economic and social identity, the following recommendations are supported by the research reviewed and conducted in this report.

- In developing policies to attract headquarters to Oklahoma City, don't underestimate the importance of retaining and growing the existing headquarter presence
 - Research conducted suggests significant economic impacts from the relocation of a single headquarter firm. In some cases, the first headquarter firm exerts the strongest economic impact with impacts from successive headquarter firms exerting a diminishing impact. This effect is particularly pronounced in the utilities and arts sectors. Effective policy should recognize that the same economic impacts exist in reverse, that is, losing a headquarter firm in these sectors would exert a significant negative economic impact.
 - Headquarter operations create a demand for support industries which in turn attracts other headquarters. These agglomeration effects suggest that supporting the growth of existing headquarters is an effective strategy to develop the infrastructure that make recruiting the next headquarter firm easier.

¹ *Plight of company towns: Finding a new identity*, Chicago Tribune, February 23, 2017

- There is a positive and statistically significant relationship between changes in wages and earnings in the headquarter sector and the charitable contributions reported by tax filers. Policies that support the strength and health of the headquarter sector simultaneously support an important base of giving for the nonprofit sector.
- In developing policies to attract headquarters to Oklahoma City, don't underestimate the importance of developing the quality of life amenities that attract and retain the skilled workers coveted by headquarter firms
 - Young professionals are increasingly choosing a place to live and then looking for a job in that city rather than choosing a job and moving where the job requires. This reality is changing the landscape of firm location decisions, leaving firms to chase workers to the workers preferred location rather than attract workers to the firm's existing location.
 - Quality of life amenities fall into three general categories: education, transportation, and recreation. Developing a quality of life amenity complex that offers opportunities for successful education, public transit, and density recreation is an important piece of a comprehensive headquarters relocation strategy.
 - Metropolitan areas can increase their headquarter "stickiness". Firms tend to remain in areas that offer workforce quality of life, good airport facilities, low corporate taxes, and the presence of other headquarters.
- In developing policies to attract headquarters to Oklahoma City, local tax and incentive packages matter.
 - Headquarter firms are attracted to and retained by locales that offer a balance between a workforce quality of life infrastructure and low business taxes. After identifying suitable locations, financial incentives often serve an important additional consideration.
 - Because headquarter firms exert an outsized impact on the economic and social identity of the communities in which they reside, headquarter specific economic development policies and practices should be implemented to reflect the economic and social premium headquarters offer.

2. Executive Summary

Economic development efforts focus on retaining, growing, and recruiting businesses into a regional economy. Businesses serve as a hub of economic activity, providing employment opportunities to the local labor market, income to local labor participants, and a tax base to local governments. Regional economic growth is often measured in these very terms – establishments, employment, personal income, and tax base. Within the set of firms to be retained or recruited is a unique business different from all the others, the headquarter firm.

Headquarter firms largely oversee rather than participate in the production of goods and services. They are charged with financial and managerial oversight and establish a strategic direction for the firm. Headquarter firms are so important to the regional economic fabric that cities are often identified by their headquarter firms. That headquarter firms become so deeply engrained in the identity of a city speaks intuitively to the economic importance of headquarters. This report adds analysis to the intuition to investigate the economic and social contributions of headquarters.

Headquarter firms can be tethered to or separate from their base of operations. The nature of the headquarter (tethered or separate) influences the location decision of the headquarter firm. Headquarters themselves vary a great deal with regard to their purpose, product or service, size, and age to name but a few. A review of headquarter location decisions reveals multiple factors collectively affect headquarter relocation decisions. Relocation influencing factors are both firm specific and location dependent. The literature suggests headquarter location decisions are multi-faceted, complex, and unique decisions.

Workforce, quality of life, and public policy factors come into play when deciding the location of a headquarter. Specifically, housing quality, ease of commuting, educational infrastructure, and telecommunication infrastructure are cited as some of the most significant location decision factors. Relocation decisions are also influenced by firm-specific factors, including size, age, and merger activity. The literature reveals that larger firms and firms with greater foreign assets are less likely to relocate, while mergers increase the likelihood of relocation.

Firm-related factors will determine the extent to which the location-related factors are relevant. In other words, when evaluating the importance of various location-related factors, we must consider the individual firm and its individual motivation for changing locations. This sizable growth in total

headquarter relocations between 2000 and 2014 likely indicates how these factors have an increasing and collective effect shaping the course of major shifts in headquarter location.

A first step to understanding the economic importance of headquarter activity is to examine how the state's existing headquarter sector interacts with the broader state economy. To this end, we examine the state's headquarter structure as defined by the North American Industrial Classification System (NAICS) sector code 551114.

The U.S. Census defines this sector as follows: *This U.S. industry comprises establishments (except government establishments) primarily engaged in administering, overseeing, and managing other establishments of the company or enterprise. These establishments normally undertake the strategic or organizational planning and decision-making role of the company or enterprise.*²

The census offers as illustrative examples of establishments in this sector the following: centralized administrative offices, head offices, corporate offices, holding companies that manage, district and regional offices, and subsidiary management offices. The data collected and reported for the NAICS 551114 sector serves as one measure of headquarter activity. A review of Oklahoma data for this sector reveals encouraging signs of growth during the 2006-2016 period analyzed. Headquarter employees are up 44% to 16,312 while the number of establishments in this sector are up 73% to 457 establishments. Headquarter firms offer high wage jobs for the local economy in which they locate. Total state headquarter wages increased 75% over the 10-year period to almost \$1.4 billion while the average wage per employee increased 21% to \$83,923. Across the state, the headquarter sector accounts for 0.4% of all establishments, 1.3% of all employment, and 2.5% of all private sector wages.

Headquarter activity is decomposed into three geographies: Oklahoma City, Tulsa, and the rest of the state. Headquarter establishments are spread relatively evenly across the state with each geography accounting for approximately one-third of the state's headquarter establishments. The economic reality, however, is that Oklahoma City is emerging as the state's headquarter city. In 2016, Oklahoma City accounted for 53% of all headquarter employees in the state compared to just 40% in 2006. In contrast, Tulsa accounted for 50% of all headquarter employees in 2006 but only 29% of headquarter employees in 2016. Similarly, Tulsa's share of headquarter wages fell from 46%

² For the official definition, see <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?input=551114&search=2017+NAICS+Search&search=2017>.

to 29% over the 10-year period while Oklahoma City's share of headquarter wages increased from 48% to 53%.

The shifting headquarter dynamic has implications for the multiplier impacts from headquarter operations. Changes in headquarter location and activity will change the structure of the economy and the sectors that support the headquarter function. As support firms enter and exit the local economy, multiplier impacts increase and decrease. To establish a baseline economic impact measure for Oklahoma, a multi-regional input-output model is constructed. The model links the three geographies to estimate the economic impact from headquarter activity in one region on all regions.

Statewide, the economic contribution of headquarter operations is significant. Headquarter operations, through the associated multiplier effects, support 39,334 jobs in the state and almost \$3 billion in labor income. Headquarter operations also provide an important base of production with operations supporting almost \$7.5 billion in gross output and more than \$4 billion in value added. The total value added impacts from headquarter operations to Oklahoma City in 2016 represent 3.2% of Oklahoma City's 2016 gross metro product. In comparison, the value added impacts represent only 2.2% of Tulsa's 2016 gross metro product and 2.3% of Oklahoma's gross state product.

Changes in headquarter activity exert both an economic and social impact. Economic impacts begin with the relocation of a headquarter into or out of a regional economy. As the firm relocates, it exerts a direct effect on the employment and earnings in that sector. The direct employment and earnings effect can be pulled into an economic impact model to estimate the total effect of the relocation. Headquarter firms and their employees may also be more tied to the communities in which they locate as the city and the headquarter community forge a common social and economic identity. One way to examine the social implications of changes in headquarter activity is to examine the relationship between changes in headquarter wages and employment and changes in federal income tax reported charitable contributions.

Examining the economic impact of headquarter relocations begins with shifting our attention from the city level to a much finer level of resolution, namely the two-digit North American Industry Classification System (NAICS) occurring at the city or CBSA (Core Based Statistical Area) level. By looking at an industry within a city, we can develop a more nuanced perspective of the economic

impact of headquarter relocation decisions; particularly as we are able to discern specific effects that a relocation decision may have without the confounding factors of unrelated growth in other sectors. To this end, annual headquarter count, earnings, and employment data have been collected for each CBSA and NAICS category to examine the earnings-headquarter count and employment-headquarter count relationships.

Using a nationwide panel of data and controlling for state fixed effects, the analysis suggests that the marginal impact of a change in headquarters varies across industries. For certain categories, such as Utilities or Arts, having an additional headquarters generates a large percentage change on that NAICS category when the number of headquarters in that sector is small. As the number of headquarters increases in these sectors, the impact of additional headquarters decays quite rapidly. For example, while the addition of a single utility HQ yields large changes in earnings, the impact of additional HQ's beyond two or three has a much diminished effect. Other industries start with more moderate changes in earnings, but their effect decays much more slowly. Industries that fit this bill include Management, Mining, and Scientific. Their much lower decay rates suggest that additional HQ's are going to contribute at a higher rate even when the number of headquarters is large.

Headquarter activity also influences social outcomes through impacts to charitable contributions and social capital formation. While some of the social impact of headquarter relocations are institutional specific, much of the impact is the result of the collective efforts of the individuals that makeup the headquarter. Headquarter employees are often characterized both by a higher degree of connectivity to the local community as well as above median wages and salaries. This combination makes headquarter employees an important addition to the base of giving and volunteerism in a community.

Because so much of the headquarter social impact stems through individuals, a review of the literature on individual giving seems particularly relevant. A review of the literature reveals that charitable giving is driven by, among other mechanisms, need, solicitation, costs/benefits, and altruism. Key takeaways include that degree of need is positively correlated with likelihood of help given, majority of donations occur in response to a solicitation, and lower costs are associated with greater giving. From an economic perspective, charitable giving is examined using four approaches: individuals, charitable sector as a market, giving as a social act, and giver's mind. These approaches look at giving as individual economic decisions, strategic interactions, social interactions, and responses to conscious or unconscious empathic, moral, or cultural urges.

To assess the responsiveness of charitable giving to changing headquarter activity, statistics of income (SOI) data is collected for each state and the District of Columbia. The SOI data gives the charitable contributions claimed on individual tax returns by income class. Combining the annual data on charitable contributions with annual data on wages paid to the headquarter sector (NAICS 551114 as reported by the Bureau of Labor Statistics) we examine how changes to the giving base of a state through headquarter wage fluctuations affect charitable contributions claimed by tax filers in the state. The data set runs from 2001 to 2015 and covers 47 geographies after dropping states with missing data. We estimate a panel fixed effects model to assess the relationship between charitable contributions and headquarters with 658 observations. Across various model specifications the results consistently indicate that for every \$1 increase in headquarter wages, there is an increase in total charitable contributions in the range of \$0.16 to \$0.20.

3. HQ Location Decisions – Literature Review

A review of the literature related to corporate headquarters relocations reveals a number of factors related to the decision to relocate and the choice of location. The most relevant and salient research work is described more thoroughly.

3.1 Management, Organizational Behavior, and Decisions to Relocate

O'Mara (1999) focuses on the internal location decision process for information-age organizations, “organizations for whom information is a product or component of production”. Exploratory research (interviews with 40 companies) reveals workforce factors to be more important than financial incentives when choosing a location. “Consistently, the quality of the local workforce in the new location and the appeal of the new location to the existing employee base were rated as more important in the final decision than were financially-based economic development incentives.” Regarding quality of life factors—housing quality, ease of commuting, access to parking and overall visual attractiveness—appear to be important. Meanwhile, educational institutions are the most important public policy factor. Educational infrastructure for employees and families are the most critical factor. “Access to other major public institutions (such as libraries, parks, sports venues) are far less acknowledged as key decision variables.” Because the interviewed companies are information-age companies (companies emphasizing knowledge work, rather than manufacturing), “access to suppliers, customers or natural resources were rarely cited as influencing location decisions...”. A strong telecommunications infrastructure was described as “table stakes”, a basic expectation. Within the 40 interviews, telecommunications infrastructure is frequently mentioned as a location decision factor.

Davies (2005) addresses firms with fragmented headquarter services. Using a firm’s level of foreign direct investments in the wages of such services as a marker, he finds that headquarters are willing to relocate some of their headquarters internationally to take advantage of the imperfect substitutability of different countries’ skilled labor force. In other words, workforce is seen again as a guiding factor in headquarter relocation but does not necessarily lead to a total relocation of the headquarter but instead a relocation of specific functions within the headquarter.

Belderbos, et al. (2017) consider global cities’ “connectivity” as one of the contributing factors within multinational regional headquarters location choices. Connectivity is defined as, “the ease and intensity with which people, goods, capital, and knowledge flow across space.” They find the

relationship between connectivity and location choice stronger among regional headquarters with an entrepreneurial role, rather than an administrative role. Moreover, the authors attribute this connectivity finding is due to a reduction in spatial transaction costs for firms. Connectivity reduces the effects of distance. The authors' "estimates suggest that a 20 percent increase in connectivity leads to a 45 percent increase in the probability that a given city is chosen as the location for the regional headquarters investment."

Pan, et al. (2014) consider how Chinese headquarter geography within a city, not just between cities, is important in terms of headquarter development. They assert the interplay between both market and strong state forces shapes headquarter clusters. Agglomeration is largely supported by the government's push to create a headquarter economy zone within a city in relation to city planning, where land prices along with other cost benefit analysis is applicable. In their study of spatial distribution of headquarters, regression analysis somewhat surprisingly shows that smaller and state-owned firms are more likely to be located on the outskirts of major Chinese cities or in the suburbs compared to the large firms that showed the predicted agglomeration. Moreover, headquarter firms in finance and insurance industries were more densely concentrated in city centers compared to other industries. Finally, firms that went public earlier were more likely to be located centrally within cities.

Kunisch, et al. (2015) reviews 25 years of research on changes at corporate headquarters. One component of their literature review is changes to the firm's "physical domain" (corporate headquarters' relocations). Several factors are identified as particularly relevant. Our review incorporates several of the relevant articles identified by Kunisch.

Birkinshaw, et al. (2006) consider factors causing corporate headquarters to relocate overseas. The authors distinguish between business unit headquarters and corporate headquarters, finding different results for each. Authors conclude that business unit headquarters tend to move where the organization already has a presence, either manufacturing facilities or market for their product(s). The business climate and agglomeration within the new country play a role in these decisions. Corporate headquarters tend to move instead in response to overseas shareholders and capital markets. Authors label this as the key finding of their research: "it underlines the importance of the externally facing role of the corporate HQ, as the interface between the activities of the MNC's business units and the capital markets."

Strauss-Kahn and Vives (2009) analyze the relocation decisions from 25,000 U.S. headquarters that occurred from 1996 through 2001. Of these 25,000, roughly 1500 moved during this time frame. In order to better understand these decisions, the authors considered the following factors: agglomerations variables, corporate taxes, congestion, cost of transmitting headquarters' services, and firm-specific factors. Firm-specific factors included "merger activity, size, and age of the headquarters." Congestion is "proxied by high wages, and the cost of transmitting headquarters' services by, among other factors, transportation facilities." Authors' results indicated:

"Headquarters relocate to metropolitan areas with good airport facilities – with a dramatic impact, low corporate taxes, low average wages, high levels of business services, same industry specialization, and agglomeration of headquarters in the same sector of activity..."

"Headquarters that are larger (in terms of sales) and younger tend to relocate more often (corporate history matters), as do firms that are larger (in terms of the number of headquarters), are foreign, or are the outcome of a merger."

"Headquarters in locations with good airport facilities, low corporate taxes, and with agglomeration of headquarters in the same sector of activity tend to stay put."

Brouwer et al. (2004) explore relocation decisions for large firms (more than 200 employees) from twenty-one mainly European countries between 1997 and 1999. Eight percent of these firms relocated during this period. Authors consider: age, size (number of employees), industrial sector, market size, region, and type of organization. In addition, authors consider increases or decreases in employees, acquisitions, take-overs, and mergers. Authors find that larger firms are less likely to relocate. Firms experiencing a change in the number of employees (this change serving as a proxy for either positive or negative growth of the firm) and firms that serve larger markets are more likely to relocate. Firms that are part of an acquisition were much more likely to relocate. Finally, mergers and take-overs increase the likelihood of relocation as well.

Alli et al. (1991) examine the financial and geographical factors that influence headquarter relocations. Their logit analysis indicates that the probability of a firm relocating is "partially determined by the firm size and the rental expenses/sales ratio." Furthermore, their results indicate that "firm size, the employment/asset ratio levels, and listing in the NYSE/AMEX" affect the decision to relocate to a Fortune-ranked city. Finally, authors claim firms relocating to Fortune-ranked cities are characterized by a "high level of insider ownership relative to firms moving to non-ranked cities."

Baaij, et al. (2004) seek to answer the question, “Are Corporate Centres Sticky?” More specifically, are corporate headquarters as mobile as business unit locations? Authors focus on Fortune Global 500 companies from 1994 through 2002. Nineteen relocations occurred among these companies during this time frame. Of these 19 relocations, one company moved across nations (Daimler-Chrysler’s merger resulted in move to Stuttgart, Germany); 9 relocations were across states within the U.S.; and 9 relocations were outside of the U.S. Of the 9 relocations within the U.S., 5 were due to mergers and acquisitions, and of the 9 relocations outside of the U.S., 3 were due to mergers and acquisitions. In explaining the relatively rare relocation of firms, authors propose a conceptual framework of “stickiness” consisting of four categories of factors influencing relocation: company-specific factors, metropole-specific factors, industry-specific factors, and nation- and region-specific factors.

Company specific factors include “parenting styles” and “legacy”. A company’s parenting style describes how a headquarters tends to oversee and interact with subordinate business unit locations. Authors describe three parenting styles: strategic planning, strategic control, or financial control. A strategic planning style is associated with a “hands on” relationship to business unit locations throughout the company (the corporate headquarters is heavily involved in planning and decisions with respect to business units); this hands-on approach lends itself to headquarters staying physically closer to business units. With the strategic control parenting style, planning is decentralized, but headquarters monitors these decisions and physical proximity is somewhat less important. Finally, with a financial control parenting style, the corporate headquarters is “hands off” and proximity to the financial community takes priority over proximity to the corporate headquarters.

Legacy refers to the challenges of relocating an organization’s headquarters, given the headquarter’s deep roots. “Besides the employees existing social networks between the corporate centre and key stakeholders like suppliers, customers, regulatory agencies, and the government create path dependencies. These path dependencies may hinder a corporate centre relocation or at least raise the costs of such an operation.” Authors also indicate that legacy may cause relocation. As companies expand, their core functionalities may be located far from the company’s original location. Relocation may be necessary in order to be closer to functional units, primarily if the parenting style is strategic planning or strategic control.

Metropole-specific factors include the workforce, quality of living, infrastructure, business services, representative office space, and the presence of other corporations. Industry-specific factors

include: integration and differentiation advantages and industry clusters. Similar to parenting style, integration and differentiation advantages pertain to the fact that that firm's international strategy has implications for the degree of dependence of business units, which in turn has implications for corporate location's proximity to these business units. Specifically, within the multi-domestic corporation, business units carry a low degree of dependence, and therefore proximity is less important; while the global corporation is associated with greater dependence and proximity is of greater importance accordingly. Industry clusters reflect agglomeration effects discussed elsewhere.

Nation- and region-specific factors include diamond, taxation, corporate governance, and legislation. "Diamond" refers to Porter's diamond of national advantage, which pertains to the national business environment and the government's influence on this environment. The diamond of national advantage will cause some nations, regions or states to be more attractive to business than others, affecting location decisions. Taxation, corporate governance and legislation of a nation or region obviously tend to play a role in location decisions as well. While cross-state corporate relocations are not uncommon in the U.S., relocations across European nations were found to be nonexistent.

Laamanen, et al. (2012) consider 52 European cross-border relocations along with 200 European firms that stayed put from 1996 through 2006. Authors find support for high taxation associated with a likelihood of relocation. Export-oriented firms (firms with a relatively high proportion of exports) are found to be more likely to relocate (global markets may make the move attractive). Finally, regional headquarters are found to be more likely to relocate, relative to global headquarters. The authors believe the cost of moving a regional headquarter should be less significant, and the reason for a regional location is more likely to be cost optimization.

Barner-Rasmussen, et al. (2007) research the relocations of nineteen European companies. These case studies, along with previous research, became the basis for their conceptualization of six key drivers of the relocation decision. Key drivers include: control and integration of subsidiaries, inducing HR-related change, responding to owners and other stakeholders, physical presence in relevant area, costs and spatial structure of management, and quality of life. These drivers are seen in two dimensions: pragmatic and symbolic. For example, with control and integration of subsidiaries, travel times may be shorted with relocation (pragmatic), and symbolically show commitment to the area of relocation.

Marian (2015) uses case studies to explore the effects of corporate inversions, described as changes in corporate residence for tax purposes. While the case studies are far from conclusive, the research suggest the following: “It seems that some factors – such as personal affiliation of executives, business interests in foreign jurisdictions, and a large foreign investor base – may support meaningful dislocations. Other factors – such as conflicts of interests, substantive presence in the home jurisdiction, and reputational issues – may deter dislocations.”

Klier (2006) considers corporate headquarters relocations that occurred within publically traded companies during the 1990s. The author seeks to answer the question, “...from a policy perspective, what city characteristics can be linked to headquarters location choices?” The author finds that of companies that did not cease to exist during the 1990s, about 13% relocated during the 1990s. He models the probability of a company moving during the 1990s. The findings are as follows. A company’s “globalness,” or share of foreign assets, reduces the likelihood of moving (greater foreign assets was associated with less likelihood of moving), while companies active in mergers are, not surprisingly, more likely to move. Larger metropolitan statistical areas (MSAs) are more likely to have relocations. A more educated workforce also makes moves less likely. A more global MSA along with a higher number of foreign flight options make large companies less likely to move.

Davis and Henderson (2004) investigate two competing theories of scale externalities: “own industry” scale externalities (the effects of having similar companies located together) and “diversity” scale externalities (the effects of having diverse intermediate input service sectors). Authors look at the existence and magnitude of each effect and find “strong positive effects both for the diversity of local service inputs and for the scale of other HQ nearby. Results show that a 10% increase in the number of local intermediate business service providers increases the expected HQ births in a county by 3.6%.”

Klier and Testa (2002) consider large U.S. company headquarter location changes from 1990 to 2000. Authors find that, as in the past, the largest urban areas are preferred for headquarters locations. However, the largest metropolitan areas lost headquarters to middle tier cities during the 1990s.

A 1999 study by Shilton and Stanley find clustering of headquarters. Their study reveals that forty percent of the nation’s headquarters are located within only 20 counties. Specific industries found to

cluster included technology and machining, oil and gas, business services, and money-communications related companies.

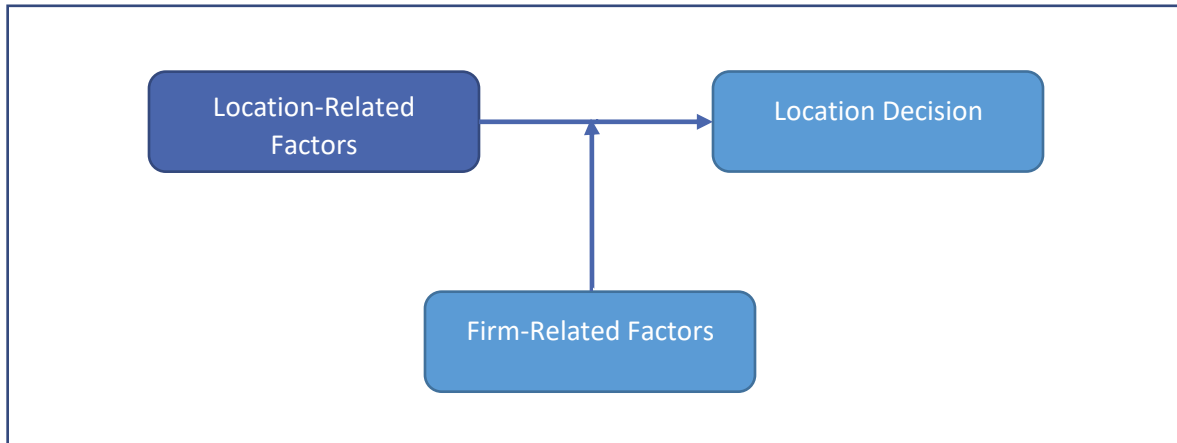
Boyle’s (1988) early work studying relocations addresses many of the same factors more thoroughly researched by more recent projects of authors discussed. He argues that ultimately the selection of headquarter location is “a process of elimination.” Moreover, he asserts that the absence of any serious deficiency is more important than the presence of a few outstanding attributes.

The literature suggests HQ location decisions are multi-faceted, complex, and unique decisions. The following table summarizes the literature above by categorizing HQ location decision factors as either a) location-related or b) firm-related.

Factors related to Decision to Relocate	
Location-related Factor	Firm-related Factor
Size of metropolitan statistical area (MSA) ¹⁰	Role of firm ⁵
Global nature of MSA ^{5,10}	(entrepreneurial vs administrative)
Quality of life ^{3,4,14} (housing, ease of commuting, access to parking, visual attractiveness)	Nature of Product ^{1,12} (physical product vs information product/service)
Educational infrastructure ^{10,14}	Industry ^{8,15,16,17}
Access to major public institutions ¹⁴ (libraries, parks, etc.)	Function of firm at location ^{3,4,6} (corporate headquarter versus business unit or regional headquarters)
Workforce ^{3,9,10,14}	Merger, take-over, or acquisition activity ^{3,8,17}
Telecommunications infrastructure ^{3,14}	Size of headquarters ^{1,8,15,17} (number of employees)
Market (consumers) ^{4,15}	Age of headquarters ^{8,15,17}
Financial incentives ¹⁴	Growth of firm ^{3,8} (change in number of employees)
Connectivity ⁵	Size of market served ³
Business climate ⁶	Parenting style ^{3,4} (strategic planning, strategic control, or financial control)
Agglomeration factors ^{3,15,16,17}	Legacy ³
Corporate taxes ^{13,17}	Proportion of revenues from exports ¹³
Congestion ¹⁷	Personal affiliations of executives ¹³
Airport facilities ^{10,17}	Employment / Asset Ratio ¹
Corporate taxes ^{12,17}	Share of foreign assets ¹⁰
Available business services ^{3,17}	
Average wages ¹⁷	
Government policy or legislative support ^{3,15}	
Fortune Ranked City ¹	
Cost of transmitting headquarters’ services ¹⁷	
Access to suppliers, customers, or natural resources ¹⁴	

*Subscripts refer to reference list

Headquarters themselves vary a great deal. Consider the organization's purpose, product or service, size, and age to name but a few. Furthermore, the motivation for relocating a headquarters also varies. A partial list includes mergers or acquisitions, movement towards markets served, access to workforce, and access to service industries.



Not all of the location-related factors identified in the literature are relevant to an individual firm facing a relocation decision. Perhaps often most are not. Firm-related factors will determine the extent to which the location-related factors are relevant. In other words, when evaluating the importance of various location-related factors, we must consider the individual firm and its individual motivation for changing locations.

3.2 Policy Implications for Oklahoma City

Many of the relocation principles discussed above are particularly relevant as Oklahoma City strives to transform into a regional innovation hub that encourages and supports entrepreneurship. Much of the research strikes a common theme around the importance of regional amenities. Financial incentives and a low tax jurisdiction are important, but only as complements to a full set of relocation considerations. It is also worth emphasizing the relocation decisions are not too different from retention decisions. The more attractive the full set of community offerings is to prospective headquarters the more attractive the community is to existing headquarters. A focus on the potential importance of corporate headquarters in the Oklahoma City economy is not limited to relocated headquarters only. Effective policy would simultaneously seek to encourage the growth and retention of existing headquarters.

The literature review also discusses the importance to headquarters of the quality of the labor pool of potential employees in the relocation city as well as the quality of life offered to relocating employees. Again, these two considerations are related. Developing a robust regional amenity package is key to being an attractive relocation option to existing employees while also attracting and retaining a qualified labor force. The foundation of any regional amenity package is formed by education, transportation, and recreation amenities. The literature review identifies education infrastructure as the most importance public amenity. Recreation amenities are also importance, specifically as it applies to the visual attractiveness of the region.

Transportation amenities include both public transportation and ease of commute for private transportation. Transportation amenities merit specific consideration because they are so closely tied to the most importance characteristic of a successful regional entrepreneurial headquarter hub – connectivity. Connectivity refers to the ease and intensity with which people, goods, capital, and knowledge move. Oklahoma City is ideally located along the fast growing I-35 corridor and aspires to develop as an innovative and entrepreneurial connection between the southern and northern edges of the megalopolis region. Perhaps no factor is more important in determining the city’s success than its connectivity to the corridor and to the markets the corridor serves.

Policies and initiatives to further the city’s amenity package will serve to both retain the quality workforce that is already here as well as attract the quality employees following the relocating headquarter. Advancing the connectivity of the city with the I-35 corridor will facilitate the movement of people, capital, goods, and knowledge both within the corridor and beyond. The economic future of Oklahoma City is likely to be defined, in one way or another, by amenities and connectivity. Finally, headquarter activity attracts and supports headquarter activity. Policies and initiatives that recognize the value of existing headquarters are critical.

4. The Economic Impact of Oklahoma's Headquarter Sector

4.1 The Headquarter Sector and Oklahoma City's Headquarter Profile

Headquarter establishments can exert an outsized impact on the local economy. Headquarter employees may feel an attachment to the local community that increases the community's endowment of social capital, increasing the pace of economic growth. Headquarter employees may be more engaged in local philanthropic efforts. Headquarter movements into and out of the local economy result in direct changes to earning and employment in the headquarter industry. The direct change to industry employment and earnings of the headquarter industry results in a spillover (or multiplier) effect on the local economy. A concentration of headquarters encourages development of a services support sector, including financial, accounting, and legal services. As the services sector develops, the economic multiplier associated with headquarter activity grows. The various avenues by which headquarters exhibit an economic premium on the local economy are examined in this report, with this section focused on the multiplier impact of headquarter operations.

The headquarter function of a firm can be either tethered to or severed from the firm's base of operations. When the firm's headquarter functions are separate from the base of operations, the headquarter is placed in its own NAICS sector. The NAICS sector associated with the headquarter functions of the firm is 551114. This sector is relatively new. Prior to the 1997 SIC to NAICS conversion, firms were attached to the sectors that they served. A corporate headquarters serving a retail operation would be classified under a retail SIC code.³ With the transition to the NAICS system, firms were classified not by the sector they served, but rather by the sector that most closely described their function. Firms serving a distinctly headquarter function and being located separate from the operations of the firm are now classified together according to their common function.

The U.S. Census defines this sector as follows: This U.S. industry comprises establishments (except government establishments) primarily engaged in administering, overseeing, and managing other establishments of the company or enterprise. These establishments normally undertake the strategic or organizational planning and decision-making role of the company or enterprise.⁴

³ For a review of industrial classification systems, see <https://www.census.gov/eos/www/naics/faqs/faqs.html>.

⁴ For the official definition, see <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?input=551114&search=2017+NAICS+Search&search=2017>.

The census offers as illustrative examples of establishments in this sector the following: centralized administrative offices, head offices, corporate offices, holding companies that manage, district and regional offices, and subsidiary management offices. The data collected and reported for the NAICS 551114 sector serves as one measure of headquarter activity.

Data on the number of establishments, total employment, and total wages paid from this industry are reported at the state, metropolitan statistical area, and county level through the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW). The current economic summary and recent economic patterns in this industry in Oklahoma are presented below.

Oklahoma Headquarters, NAICS 551114				
Year	All Employees	Number of Establishments	Total Wages	Wages per Employee
2006	11,306	265	\$783,475,000	\$69,297
2007	11,879	288	\$821,158,000	\$69,127
2008	12,378	304	\$838,664,000	\$67,754
2009	11,997	320	\$815,569,000	\$67,981
2010	13,646	323	\$999,731,000	\$73,262
2011	13,292	351	\$1,277,444,000	\$96,106
2012	14,210	382	\$1,244,449,000	\$87,576
2013	14,537	393	\$1,308,367,000	\$90,003
2014	16,650	411	\$1,349,444,000	\$81,048
2015	16,556	437	\$1,455,744,000	\$87,928
2016	16,312	457	\$1,368,944,000	\$83,923
<i>10-Year Growth</i>	<i>44.3%</i>	<i>72.5%</i>	<i>74.7%</i>	<i>21.1%</i>

Source: Bureau of Labor Statistics; Steven C. Agee Economic Research and Policy Institute

Headquarter specific employees in Oklahoma totaled 16,312 in 2016, up 44.3% from the 11,306 estimated headquarter employees in 2006. The number of establishments reporting as headquarters increased 72.5% over the period while total wages paid in the industry increased 74.7%.

Importantly, wages per employee increased from \$69,297 in 2006 to \$83,923 in 2016. Wages per employee in 2016 were 1.7 times greater than the Oklahoma average private sector earnings per job of \$50,441.

Before turning to the regional distribution of headquarter activity in the state, it will be useful to look more closely at the headquarter landscape in Oklahoma City. Oklahoma City is home to both private and public headquarters representing a diverse cross section of industries. It is from firms such as these that the information reported on employment and wages are collected. It is important

to note that where the headquarter establishment, or business location, engages in both production and headquarter activity, efforts are made to isolate the employment and wages specific to the headquarter. For example, if a headquartered bank in Oklahoma City also offer retail banking services at the same location, efforts are made in data collection to have the entities, even though they are at the same location, remit information separately. In this way, the employment of the headquarter sector is kept separate from the employment of the operations and keeps with the new NAICS definitions that assign employment and wage data to the establishment's function, not the industry that they serve.

The headquarter list presented below is not exhaustive. Rather, it paints a picture of the headquarter profile of Oklahoma City and gives context to the type of data reported subsequently when regional headquarter patterns are discussed. The headquarter list is a combination of public information on traded companies as well as information on private companies provided through the Business Dynamics Research Consortium (BDRC). BDRC data on headquarters across the U.S. and their relocations are used in the next section to estimate the economic impact of headquarter movements.

The list reveals a headquarter identity still being shaped. Certainly, oil and gas exploration and production companies are an important piece of that identity with several companies represent in the profile. It is worth noting that even this industry presence – seemingly always here – is relatively new. Chesapeake Energy grew aggressively in the early 2000's while Devon Energy consolidated Houston operations to Oklahoma City in 2012, just after Continental Resources announced it was moving its full corporate operations from Enid to Oklahoma City. The importance of these, and other oil and gas, relocations and expansions are readily seen in the developing density of the urban core and the amenities developed at Classen Curve. While it may feel at times that these companies always have been and always will be part of Oklahoma City's headquarter fabric, such is not the case. The economic impact from attracting and retaining these firms is substantial.

Also important to the headquarter fabric is the utilities sector, led by OGE Energy and a regional Cox Enterprises headquarter. Utilities headquarters are generally large enough that it only takes a few in a city's headquarter fabric to exert a significant economic impact (see section 5). Importantly, the economic influence of headquarters tends to be more distributed than with other industries. Usually located in urban cores, utilities are an important contributor to density and the economic growth that density drives. However, because utilities generally serve many communities outside the urban core, the economic and philanthropic influence is generally spread across the region. This

dual contribution to urban density and distributed economic influence make utilities headquarters particularly attractive.

Oklahoma City Headquarter Profile			
Company Name	Industry	Public	Private
Express Employment Professionals	Administrative and Support Services		X
Paycom	Administrative and Support Services	X	
Schwarz Ready Mix	Construction		X
Midwest Towers	Construction		X
Dolese Bros.	Construction		X
Mid First Bank	Finance and Insurance		X
First Mortgage Company	Finance and Insurance		X
Insurica	Finance and Insurance		X
First Fidelity Bancorp	Finance and Insurance		X
Bancfirst	Finance and Insurance	X	
American Fidelity Assurance	Finance and Insurance	X	
Braum's Ice Cream and Dairy	Food Services		X
Sonic Drive-In	Food Services	X	
Taco Mayo Restaurants	Food Services		X
M-D Building Products	Manufacturing		X
Chaparral Energy	Mining, Oil and Gas		X
Chesapeake Energy	Mining, Oil and Gas	X	
Continental Resources	Mining, Oil and Gas	X	
Devon Energy	Mining, Oil and Gas	X	
Sandridge Energy	Mining, Oil and Gas	X	
Crowe & Dunlevy	Professional, Scientific, and Technical Services		X
Fellers Snider Blankenship	Professional, Scientific, and Technical Services		X
McAfee and Taft	Professional, Scientific, and Technical Services		X
Price Couch Hendrickson	Professional, Scientific, and Technical Services		X
Ackerman McQueen	Professional, Scientific, and Technical Services		X
Price Edwards & Co.	Real Estate		X
Newmark Grubb Levy Strange	Real Estate		X
Mathis Brothers Furniture	Retail Trade		X
Crest Foods	Retail Trade		X
Century LLC	Retail Trade		X
Hobby Lobby Stores	Retail Trade		X
Mardel Inc.	Retail Trade		X
Love's Travel Stops and Country Stores	Retail Trade		X
OGE Energy	Utilities	X	
Cox Enterprises (regional headquarter)	Utilities	X	

Source: Business Dynamics Research Consortium; Steven C. Agee Economic Research and Policy Institute

The finance and insurance sector is also represented in Oklahoma City's headquarter fabric. The presence of this industry is interesting because of Oklahoma City's location on the fast growing I-35 corridor and the heavy influence of the industry on the headquarter fabric of Dallas. As the I-35 corridor continues to integrate with infill between Oklahoma City and Dallas, firms in this sector will be able to locate in Oklahoma City while still benefitting from the agglomeration effects of the industry cluster in Dallas. It is likely that this industry's representation in Oklahoma City's headquarter profile will grow rapidly in the coming years.

4.2 Regional Patterns of Headquarter Activities

Headquarter establishments in Oklahoma represent 0.4% of all business establishments in the state. In spite of headquarter establishments being relatively few in number, their economic contribution is significant with the sector representing 1.3% of statewide private sector employment and 2.5% of private sector wages.

Oklahoma	
HQ Share of Total Private Sector Activity	
Employment	1.3%
Establishments	0.4%
Total Wages	2.5%

Statewide headquarter activity can be decomposed into three broad geographies: Oklahoma City, Tulsa, and the Rest of the State. Each geography is experiencing its own pattern with regard to headquarter activity and each is considered in turn below.

Oklahoma City Headquarters, NAICS 551114				
Year	All Employees	Number of Establishments	Total Wages	Wages per Employee
2006	4,466	91	\$378,436,000	\$84,737
2007	5,116	98	\$364,255,000	\$71,199
2008	5,357	99	\$370,342,000	\$69,132
2009	5,079	106	\$335,346,000	\$66,026
2010	5,393	104	\$394,438,000	\$73,139
2011	4,986	110	\$433,415,000	\$86,926
2012	5,816	121	\$511,689,000	\$87,980
2013	6,373	128	\$628,743,000	\$98,657
2014	8,641	142	\$661,184,000	\$76,517
2015	8,695	152	\$708,199,000	\$81,449
2016	8,601	154	\$722,387,000	\$83,989
<i>10-Year Growth</i>	<i>92.6%</i>	<i>69.2%</i>	<i>90.9%</i>	<i>-0.9%</i>

Source: Bureau of Labor Statistics; Steven C. Agee Economic Research and Policy Institute

Oklahoma City accounts for the greatest share of statewide headquarter employment and wages. Headquarter establishments have increased to 154 in 2016 covering 8,601 employees at an average wage per employee of \$83,989. Oklahoma City headquarter counts represent only 0.4% of all metropolitan area business, but the economic contribution of the sector to Oklahoma City is even more pronounced than at the state level. Oklahoma City headquarters represent 1.8% of all MSA private sector employment and 3.3% of all MSA private sector wages.

Oklahoma City	
HQ Share of Total Private Sector Activity	
Employment	1.8%
Establishments	0.4%
Total Wages	3.3%

Headquarter patterns in Tulsa reveal slower patterns of headquarter development. Headquarter employment is down 16.2% from 2006 to 4,745 employees in 2016. Tulsa currently reports 144 headquarter establishments representing 56.5 growth from 2006 with average wages per headquarter employee of \$84,888. Headquarter employment in Tulsa accounts for 1.3% of all MSA private sector employment and 2.3% of all MSA private sector wages while representing only 0.5% of all private sector establishments in Tulsa.

Tulsa Headquarters, NAICS 551114				
Year	All Employees	Number of Establishments	Total Wages	Wages per Employee
2006	5,663	92	\$360,812,000	\$63,714
2007	5,374	101	\$403,275,000	\$75,042
2008	5,659	108	\$412,770,000	\$72,940
2009	5,244	116	\$416,303,000	\$79,387
2010	5,637	116	\$447,946,000	\$79,465
2011	5,889	116	\$667,376,000	\$113,326
2012	5,905	121	\$559,436,000	\$94,739
2013	5,738	129	\$505,014,000	\$88,012
2014	5,427	125	\$497,196,000	\$91,615
2015	5,207	134	\$536,151,000	\$102,967
2016	4,745	144	\$402,793,000	\$84,888
<i>10-Year Growth</i>	<i>-16.2%</i>	<i>56.5%</i>	<i>11.6%</i>	<i>33.2%</i>

Source: Bureau of Labor Statistics; Steven C. Agee Economic Research and Policy Institute

Not surprisingly, headquarter activity tends to be concentrated in the Oklahoma City and Tulsa MSAs. However, headquarter activity is growing in importance in the rest of the state.

Headquarter employment increased by 152% over the 10-year period to 2,966 with employees spread across 159 establishments. Average wage per employee reached \$82,186 in 2016. Headquarter establishments in the rest of the state represent 0.4% of all private sector businesses, 0.7% of all private sector employment, and 1.5% of all private sector wages.

Tulsa	
HQ Share of Total Private Sector Activity	
Employment	1.3%
Establishments	0.5%
Total Wages	2.3%

Rest of the State	
HQ Share of Total Private Sector Activity	
Employment	0.7%
Establishments	0.4%
Total Wages	1.5%

Rest of State Headquarters, NAICS 551114				
Year	All Employees	Number of Establishments	Total Wages	Wages per Employee
2006	1,177	82	\$44,227,000	\$37,576
2007	1,389	89	\$53,628,000	\$38,609
2008	1,362	97	\$55,552,000	\$40,787
2009	1,674	98	\$63,920,000	\$38,184
2010	2,616	103	\$157,347,000	\$60,148
2011	2,417	125	\$176,653,000	\$73,088
2012	2,489	140	\$173,324,000	\$69,636
2013	2,426	136	\$174,610,000	\$71,974
2014	2,582	144	\$191,064,000	\$73,998
2015	2,654	151	\$211,394,000	\$79,651
2016	2,966	159	\$243,764,000	\$82,186
<i>10-Year Growth</i>	<i>152.0%</i>	<i>93.9%</i>	<i>451.2%</i>	<i>118.7%</i>

Source: Bureau of Labor Statistics; Steven C. Agee Economic Research and Policy Institute

The headquarter descriptions above reveal a convergence in headquarter wages across the state. Average wage per headquarter employee in 2016 varied in a tight range of \$82,186 to \$84,888. Converging headquarter wages across the state obscures a changing pattern in headquarter activity between Oklahoma City and Tulsa.

Headquarter establishments in Oklahoma City and Tulsa are considerably larger than establishments in the rest of the state as measured by number of employees. In 2006, headquarter establishments in Tulsa averaged 61.6 employees per headquarter compared to 49.1 in Oklahoma City. By 2016, Oklahoma City emerged as the state’s headquarter city with an average of 55.9 employees per headquarter. In contrast, headquarter establishments in Tulsa steadily declined over the period to 33 employees per headquarter in 2016.

Employees per Headquarter Establishment				
Year	Oklahoma City	Tulsa	Rest of State	
2006	49.1	61.6	14.4	
2007	52.2	53.2	15.6	
2008	54.1	52.4	14.0	
2009	47.9	45.2	17.1	
2010	51.9	48.6	25.4	
2011	45.3	50.8	19.3	
2012	48.1	48.8	17.8	
2013	49.8	44.5	17.8	
2014	60.9	43.4	17.9	
2015	57.2	38.9	17.6	
2016	55.9	33.0	18.7	

Source: Bureau of Labor Statistics; Economic Research and Policy Institute

Examining the distribution of headquarters employees, establishments, and wages across the state emphasizes further Oklahoma City’s emergence as the state’s headquarter city.

In 2006, Oklahoma City accounted for 39.5% of headquarters employees in the state while Tulsa claimed 50.1% and the rest of the state only 10.4%.

By 2016, relationships had changed with Oklahoma City accounting for 52.7% of employees in the sector while Tulsa’s share fell to 29.1%.

Similar patterns are present in the distribution of headquarters wages. In 2006, Oklahoma City accounted for 48.3% of sector wages and Tulsa accounted for 46.1% of headquarters wages. The rest of the state accounted for only 5.6% of all headquarters wages in the state in 2006. By 2016, Oklahoma City’s share of state headquarters wages increased to 52.8% while Tulsa’s share fell to 29.4%. Importantly, the share of headquarters wages represented by the rest of the state increased to 17.8%.

The distribution of headquarters wages in Oklahoma underscores two important realities. First, Oklahoma City is emerging as the headquarter city in the state and now accounts for over half of all state headquarters employees and wages. Second, the headquarter sector is growing in importance in the rest of the state. The state’s non-metro areas now account for 18.2% of state headquarters employment and 17.8% of state headquarters wages.

Share of State Total
Headquarter Employees

Year	Oklahoma City	Tulsa	Rest of State
2006	39.5%	50.1%	10.4%
2007	43.1%	45.2%	11.7%
2008	43.3%	45.7%	11.0%
2009	42.3%	43.7%	14.0%
2010	39.5%	41.3%	19.2%
2011	37.5%	44.3%	18.2%
2012	40.9%	41.6%	17.5%
2013	43.8%	39.5%	16.7%
2014	51.9%	32.6%	15.5%
2015	52.5%	31.5%	16.0%
2016	52.7%	29.1%	18.2%

Headquarter Establishments

Year	Oklahoma City	Tulsa	Rest of State
2006	34.3%	34.7%	30.9%
2007	34.0%	35.1%	30.9%
2008	32.6%	35.5%	31.9%
2009	33.1%	36.3%	30.6%
2010	32.2%	35.9%	31.9%
2011	31.3%	33.0%	35.6%
2012	31.7%	31.7%	36.6%
2013	32.6%	32.8%	34.6%
2014	34.5%	30.4%	35.0%
2015	34.8%	30.7%	34.6%
2016	33.7%	31.5%	34.8%

Headquarter Wages

Year	Oklahoma City	Tulsa	Rest of State
2006	48.3%	46.1%	5.6%
2007	44.4%	49.1%	6.5%
2008	44.2%	49.2%	6.6%
2009	41.1%	51.0%	7.8%
2010	39.5%	44.8%	15.7%
2011	33.9%	52.2%	13.8%
2012	41.1%	45.0%	13.9%
2013	48.1%	38.6%	13.3%
2014	49.0%	36.8%	14.2%
2015	48.6%	36.8%	14.5%
2016	52.8%	29.4%	17.8%

Headquarter Occupations					
Occupation	(SOC code)	Employment	Employment Share	Annual Mean Wage	Annual Median Wage
Office and Administrative Support Occupations (430000)		579,260	25%	\$44,090	\$40,280
Business and Financial Operations Occupations (130000)		524,530	23%	\$79,650	\$72,670
Management Occupations (110000)		445,960	19%	\$149,380	\$130,810
Computer and Mathematical Occupations (150000)		266,950	11%	\$89,590	\$86,580
Sales and Related Occupations (410000)		104,190	4%	\$73,320	\$60,130
Transportation and Material Moving Occupations (530000)		52,280	2%	\$41,570	\$34,600
Installation, Maintenance, and Repair Occupations (490000)		43,200	2%	\$52,690	\$48,770
Arts, Design, Entertainment, Sports, and Media Occupations (270000)		42,340	2%	\$67,810	\$61,280
Healthcare Practitioners and Technical Occupations (290000)		38,060	2%	\$75,740	\$66,790
Legal Occupations (230000)		25,910	1%	\$143,670	\$122,290
All Other Occupations		203,350	9%	N/A	N/A

Source: Bureau of Labor Statistics; Economic Research and Policy Institute

The headquarter function of the firm is served by a unique mix of occupations. The occupational mix of headquarter establishments is characterized by management, business and financial operations, and administrative support occupations. Nationally, two-thirds of all headquarter occupations fall into three categories: administrative support, financial operations, and management with annual median wages of \$40,280, \$72,670, and \$130,810 respectively. The high-wage occupational mix of headquarter firms and the resulting economic impact of headquarter operations make headquarters prized accomplishments of economic development efforts.

4.3 Economic Impacts of Headquarter Activities

Economic impacts from operations are estimated in input-output models. These models start with a snapshot of the economy taken at a given moment in time. The economic snapshot reveals the extent to which the output in one sector is linked to local inputs from all other sectors. The greater

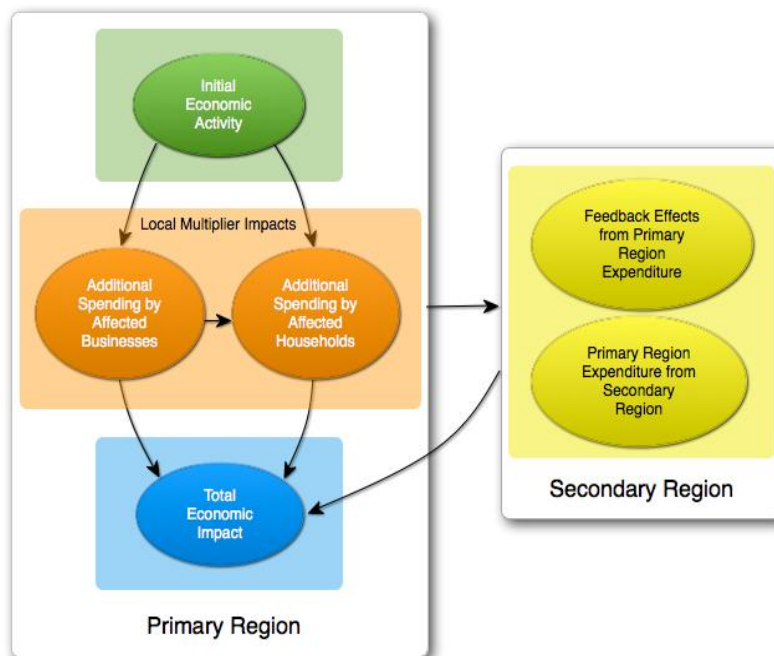
the linkages between regional output and regional inputs, the greater the multiplier effect of changes to output.

Single region input-output models estimate linkages for a single economy that is fully detached from all other economic activity. In a single region model, once economic activity leaks out of the analysis region it is lost forever. In multi-regional models, two or more economies can be linked together. By linking the economic models, leakages from the primary region to the secondary region have the opportunity to create feedback impacts into the primary region.

The accompanying diagram illustrates how multi-region impacts are calculated. The box labeled “Primary Region” demonstrates how local impacts are calculated in single-region models. These impacts are included in the current analysis and serve as the largest share of the total impacts for each individual region. The “Secondary Region” is representative of all additional regions that impact the primary local region.

Two impacts come from the secondary region. The first, entitled “Feedback Effects” include expenditure from the secondary region into the primary region that result from the initial primary region expenditure. The other secondary impact occurs when expenditures occur directly in the secondary region which generate additional expenditures in the primary region.

Using the 2016 values for headquarter employment and wages by region, economic impact models are evaluated for each geography. The models estimate the direct output, or production, associated with the given level of employment. Wages are adjusted to include benefits, other compensation, and proprietor’s income. Finally, each regional model is linked to the



others to capture feedback and secondary impacts. The model reports four sources of impact: employment, labor income, value added, and output. Employment is a measure of full and part-time jobs supported the economic activity and labor income is a broad measure of income paid to labor that includes wages, salaries, benefits, and proprietor's income. Value added and output are both measures of production. Output is a gross measure of the production of goods and services within the economy while value added is a measure of final goods and services production in the economy. Value added is the measure most closely related to gross state product.

Economic Impact by Region				
Oklahoma City MSA				
Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	8,601	\$924,184,155	\$1,154,142,504	\$2,170,641,781
Indirect Effect	5,710	\$315,407,022	\$518,868,378	\$929,557,983
Induced Effect	7,237	\$348,100,283	\$591,023,984	\$1,032,500,434
Total Effect	21,548	\$1,587,691,462	\$2,264,034,866	\$4,132,700,199
Tulsa MSA				
Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	4,745	\$580,695,483	\$702,843,464	\$1,226,030,971
Indirect Effect	2,933	\$169,746,324	\$263,607,202	\$479,756,555
Induced Effect	4,158	\$195,922,580	\$331,513,443	\$589,561,316
Total Effect	11,837	\$946,364,387	\$1,297,964,109	\$2,295,348,841
Rest of the State				
Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	2,966	\$308,626,930	\$384,979,088	\$558,441,872
Indirect Effect	1,365	\$55,479,178	\$103,848,388	\$211,554,022
Induced Effect	1,618	\$58,464,847	\$118,664,413	\$221,159,729
Total Effect	5,950	\$422,570,955	\$607,491,890	\$991,155,622
Statewide Total				
Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	16,312	\$1,813,506,568	\$2,241,965,056	\$3,955,114,624
Indirect Effect	10,008	\$540,632,524	\$886,323,968	\$1,620,868,560
Induced Effect	13,014	\$602,487,710	\$1,041,201,840	\$1,843,221,479
Total Effect	39,334	\$2,956,626,804	\$4,169,490,865	\$7,419,204,662

Source: Steven C. Agee Economic Research and Policy Institute

The economic impact of headquarter activity is significant in all regions of the state. In Oklahoma City, the direct activities of the headquarter sector support 8,601 jobs and more than \$924 million in labor income. The headquarter sector represents more than \$1.1 billion in value added (gross metro product) and more than \$2.1 billion in gross output (production of local goods and services). As production from the headquarter sector interacts with input suppliers in the local economy (indirect

impacts) and as households spend a portion of their labor income in the local economy (induced impacts) the full impact of the sector is realized. In total, Oklahoma City's headquarter sector supports 21,548 jobs, almost \$1.6 billion in labor income, almost \$2.3 billion in value added, and more than \$4.1 billion in output.

The headquarter sector in Tulsa directly supports 4,745 jobs and more than \$580 million in labor income while directly contributing almost \$703 million in value added and \$1.3 billion in output. Total economic activity resulting from the operations of the headquarter sector in Tulsa is estimated to be almost 12,000 jobs, more than \$964 million in labor income, \$1.3 billion in value added, and \$2.3 billion in output. The direct and total economic impact of the headquarter sector in the rest of the state is interpreted similarly.

Statewide, the economic contribution of headquarter operations is significant. Headquarter operations, through the associated multiplier effects, support 39,334 jobs in the state and almost \$3 billion in labor income. Headquarter operations also provide an important base of production with operations supporting almost \$7.5 billion in gross output and more than \$4 billion in value added.

Recall that economic impact models are really models of economic linkages. The tighter the linkages between one sector of the economy and the other, the greater are the multipliers. The implied multipliers can be found by dividing the total impact for any region by the direct impact for that region. The resulting multipliers underscore the growing importance of the headquarter sector in Oklahoma.

For all sources of impacts, the multipliers are largest for the Oklahoma City region. This reality is consistent with the growing importance of the sector in the city and the literature reviewed in the previous section on the agglomeration effects of headquarter density. As headquarters locate in Oklahoma City, a support industry of accounting, financial, and professional services develops to support the headquarter function. As the support industry develops, Oklahoma City becomes more attractive to prospective headquarter relocations. The circular process ultimately traps more economic activity in the local economy and increases the multiplier effect of headquarter operations. The economic impacts reported and the associated multipliers may indicate that Oklahoma City is in the very early stages of emerging as an increasingly attractive headquarter location.

The importance of the headquarter sector to Oklahoma City and the reality that Oklahoma City is emerging as a base of support for headquarter operations throughout the state is reinforced by

examining the value added from operations relative to gross state (or metro) product. This comparison provides context to the value added impacts reported above. The total value added impacts from headquarter operations to Oklahoma City in 2016 represent 3.2% of Oklahoma City’s 2016 gross metro product. In comparison, the value added impacts represent only 2.2% of Tulsa’s 2016 gross metro product and 2.3% of Oklahoma’s gross state product.

Headquarter Impact to Gross Product		
	Gross Product	HQ Value Added Share of Gross Product
OKC	\$70,235,000,000.00	3.2%
TUL	\$58,248,000,000.00	2.2%
OK	\$181,480,000,000.00	2.3%

Oklahoma City’s headquarter support sector is growing as the headquarter density in Oklahoma City grows. This process explains the larger multipliers for Oklahoma City and Oklahoma City’s largest headquarter contribution relative to gross state (or metro) product. Going forward, Oklahoma City is likely to reinforce its position as the headquarter city in the state. As headquarter density in Oklahoma City and headquarter support operations in Oklahoma City grow, so too will the disparity in headquarter impacts relative to other areas of the state.

5. The Economic Impact of Headquarter Relocation

The previous section used the NAICS sector 551114 as a yearly, static, measure of headquarter activity in the state. The impact models reported provide a baseline measure of the contribution of the sector to the state's economy. In this section, a different dataset is used to examine dynamic impacts from headquarter relocations. Using this approach, we examine local effects specific to Oklahoma City for headquarter relocations within specific industries.

An initial review of the dataset provided through BDRC reveals a broad pattern of headquarter relocations across the U.S. Headquarter locations are classified according to Bureau of Economic Analysis (BEA) regions from years 2000-2014. The dataset is decomposed into two time periods: 2000 to 2007 and 2007 to 2014. For each time period patterns of relocations *from* a BEA region *to* a different BEA region are examined.

The tables below describe the movement of headquarters *from* the region described at the top of the table *to* the region described on the left side of the table. In order to focus on headquarter relocations, not just total count or headquarters formed within a region organically, the diagonal line is zeroed out. Thus, the total headquarter movement within 2000-2007 is 139 and within 2007-2014 is 256.

This sizable growth in total headquarter relocations likely indicates how the factors described in the literature above have an increasing and *collective* effect shaping the course of major shifts in headquarter location. For instance, the Southwest region had a considerable net increase in headquarters that may be related to growing MSA sizes, changes in quality of life, congestion patterns, and other location related factors. Note as regions change, so too can their appeal to “fit” the firm-related factors that drive relocations. For instance, once a threshold of related-industry firms move to an area, a cluster effect may further attract particular headquarters to a region over others. Note that the choice to relocate headquarters is a decision that focuses on the *relative* performance of the factors previously discussed. The Southwest growth in headquarters suggests the region has appeal to headquarters considering relocation from another region. This does not imply that headquarter related policies in the southwest are necessarily optimal, only that current policies combined with natural forces of economic geography are supportive of relocations into the southwest.

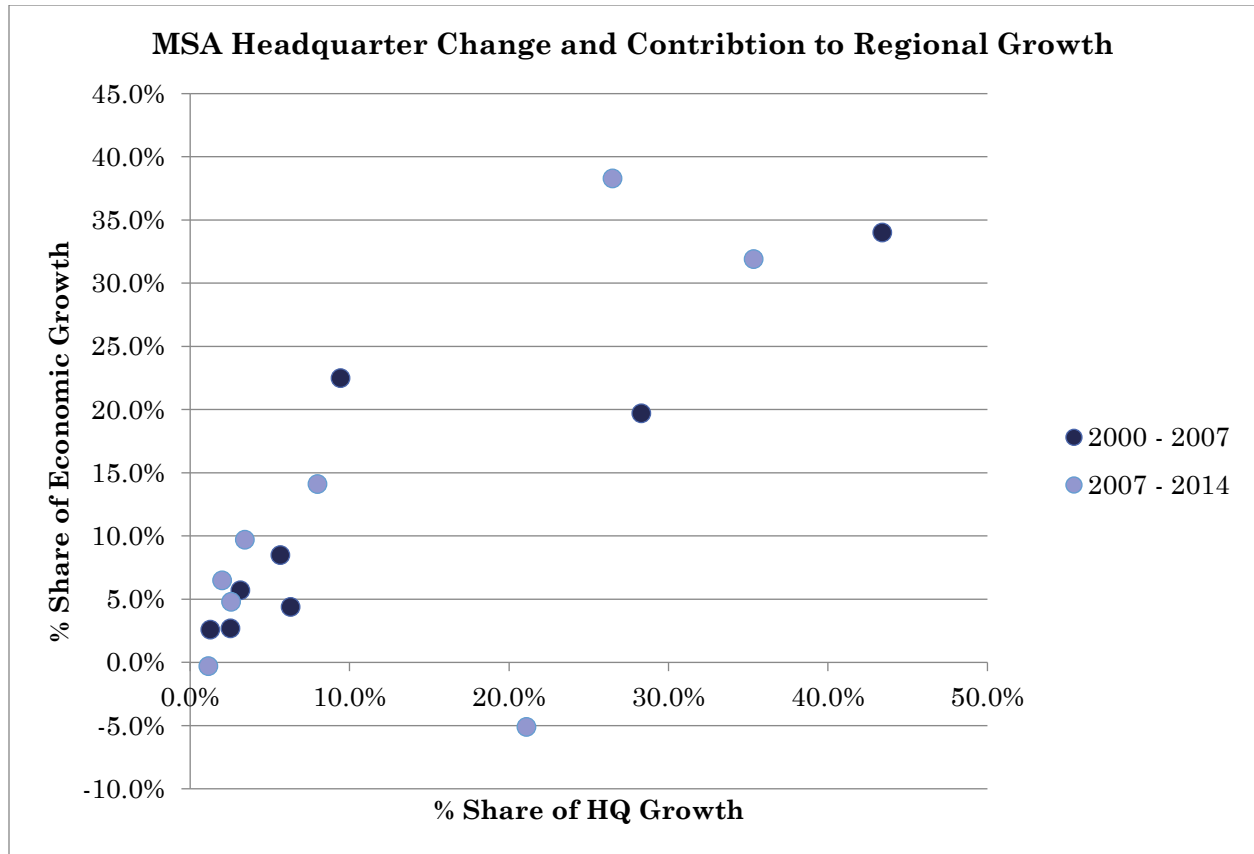
Move FROM Region (2000 - 2007)

	NE	Mideast	Great Lakes	Plains	South-east	South-west	Rocky Mt	Far West	Totals	% of Total
Move TO Region (2000 - 2007)	New England	0	4	1	0	3	4	1	14	10.1%
	Mideast	3	0	4	4	4	1	3	29	20.9%
	Great Lakes	0	3	0	2	0	0	4	9	6.5%
	Plains	1	2	1	0	0	0	1	6	4.3%
	Southeast	4	6	8	0	0	5	0	28	20.1%
	Southwest	0	6	1	2	10	0	2	26	18.7%
	Rocky Mt	0	0	1	0	2	2	0	7	5.0%
	Far West	1	6	0	0	8	2	3	20	14.4%
	Totals	9	27	16	8	27	14	10	139	100.0%
	% of Total	6.5%	19.4%	11.5%	5.8%	19.4%	10.1%	7.2%	20.1%	100.0%

Move FROM Region (2007 - 2014)

	NE	Mideast	Great Lakes	Plains	South-east	South-west	Rocky Mt	Far West	Totals	% of Total
Move TO Region (2007 - 2014)	New England	0	14	1	2	2	1	3	23	9.0%
	Mideast	7	0	9	3	13	1	4	54	21.1%
	Great Lakes	3	6	0	1	9	1	3	26	10.2%
	Plains	2	4	0	0	0	1	1	10	3.9%
	Southeast	3	19	5	0	0	1	7	46	18.0%
	Southwest	2	12	2	6	7	0	6	51	19.9%
	Rocky Mt	2	3	1	0	2	2	0	16	6.3%
	Far West	6	9	3	2	3	4	3	30	11.7%
	Totals	25	67	21	14	36	11	24	256	100.0%
	% of Total	9.8%	26.2%	8.2%	5.5%	14.1%	4.3%	9.4%	22.7%	100.0%

Using a broad measure of economic activity – gross regional product – changes in headquarter locations are presented against changes in economic activity. The BEA’s southwest region with its primary metropolitan areas is presented below. For each metropolitan area, the area’s share of total headquarter growth is graphed against the metropolitan area’s share of total regional economic growth.



Each observation on the graph above represents a specific MSA in the southwest region. The dark blue observations represent the 2000 to 2007 period while the light blue represent the 2007 to 2014 period. For both time frames, a strong correlation is found. That is, MSA's in the southwest region that accounted for a larger share of regional headquarter growth also generally accounted for a larger share of regional economic growth. The full table of observations is given below.

Headquarter and Regional Economic Growth				
MSA Region	% Share of Growth, 2000 - 2007	% Share of Growth, 2007 -2014	% Share of HQ Change, 2000 - 2007	% Share of HQ Change, 2007 - 2014
Albuquerque, NM	2.6%	-0.3%	1.3%	1.1%
Austin-Round Rock, TX	8.5%	14.1%	5.7%	8.0%
Dallas-Ft. Worth, TX	19.7%	38.3%	28.3%	26.5%
Houston - The Woodlands, TX	34.0%	31.9%	43.4%	35.3%
Oklahoma City, OK	2.7%	4.8%	2.5%	2.6%
Phoenix-Mesa, AZ	22.5%	-5.1%	9.4%	21.1%
San Antonio - New Braunfels, TX	5.7%	9.7%	3.1%	3.4%
Tulsa, OK	4.4%	6.5%	6.3%	2.0%

Source: Bureau of Economic Analysis; BRDC; Economic Research and Policy Institute

The preceding discussion highlights two realities. First, headquarter relocations are increasing. This reality is consistent with predictions from the theory of declining transaction costs. As technology and infrastructure minimize the cost of physical separation from the operations of the firm or the customers of the firm, the total cost of relocation falls. With declining relocation costs, more firms are willing to engage headquarter relocations. Second, there is an expected correlation between MSA's headquarter attractiveness and regional economic activity. MSA's that are growing, retaining, and successfully recruiting headquarters tend to account for a larger share of their region's economic growth.

The BRDC dataset provides observations on specific firm relocations. In contrast to the NAICS headquarter definition and data employed in the previous section, many of the firms in the BRDC dataset are tethered to their operations. When these firms relocate, there is often a direct impact on the output, employment, and earnings of the industry in which they operate. An econometric analysis of headquarter attributes and MSA specific economic characteristics allows the general conclusion presented above to be examined specifically for major industry groupings.

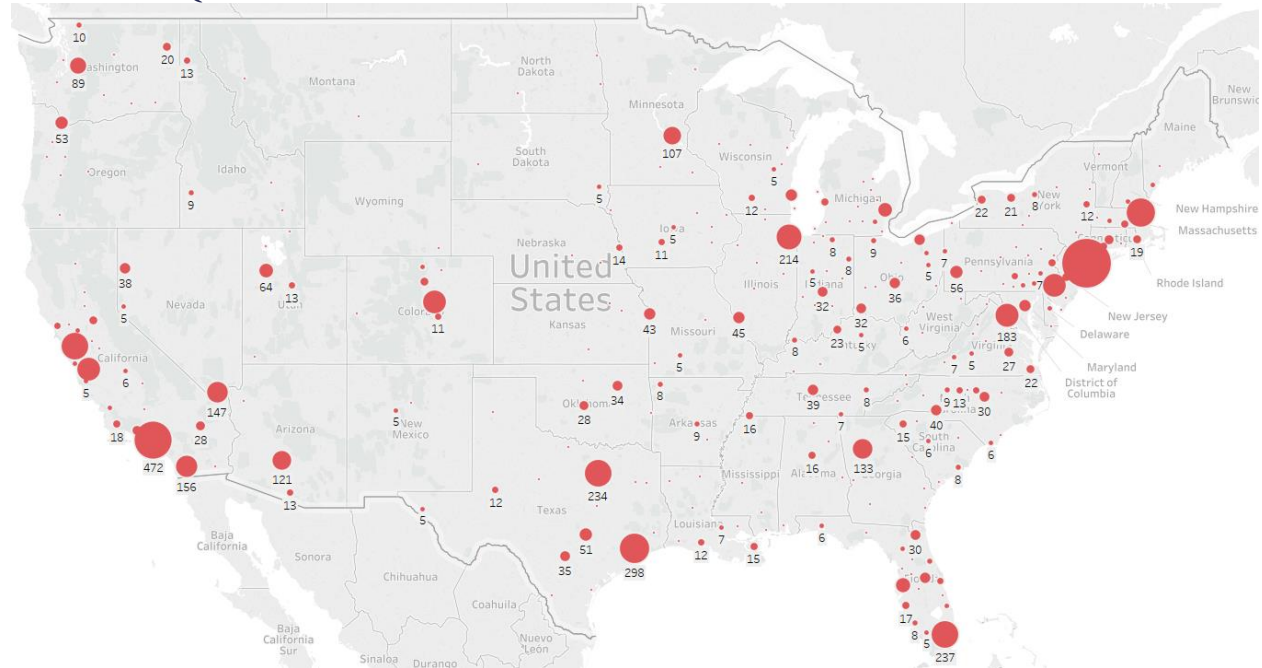
While the previous literature has investigated the impact of headquarter relocation decisions, we delve deeper by providing a more refined view of headquarter dynamics. Rather than focusing on the state or city level data, we shift our attention to a finer level of resolution, namely the two digit North American Industry Classification System (NAICS) occurring at the city or CBSA (Core Based Statistical Area) level. This allows a more nuanced perspective of the economic impact of headquarter relocation decisions.

As an example, suppose a manufacturing headquarters decides to re-locate from a particular city. The event may not appear significant at the city level as the negative effect brought on by the relocation decision is offset by unrelated growth in other areas. By drilling down into the NAICS-level data, however, we are able to minimize the problem of unrelated growth in other areas and discern the very specific effects that such a move may have on earnings and employment in that sector. Using these empirically-estimated effects, the economic impact is then calculated.

5.1 Data

Firm-level data are provided by the Business Dynamics Research Consortium⁵. This dataset includes annual-level observations of firm’s headquarter CBSA and NAICS; from which we construct an annual headquarter count for each CBSA, NAICS-level pair. These large firms are listed on stock exchanges. Overall headquarter counts in 2015 by CBSA are depicted in the figure below. For clarity’s sake only CBSA’s with greater than 4 HQ’s are labeled. Headquarter clusters are generally concentrated along the coasts with a significant headquarter presence remaining in Chicago. The size of the headquarter clusters in Florida, Texas, and Phoenix reflect the significant population growth these areas have seen since the early 1990’s. Headquarter clusters in Oklahoma, and especially in Oklahoma City, will benefit from this general movement of people and economic activity to the south and west.

Overall U.S. HQ Counts 2015



The dataset shown in the figure above has 28 publicly listed companies in the Oklahoma City area for 2015. These 28 companies and their corresponding NAICS classifications as of 2015 are broken out in the table below. As with the headquarter profile provided in the previous section, this list is not exhaustive but complements the earlier discussion examining Oklahoma City’s headquarter fabric.

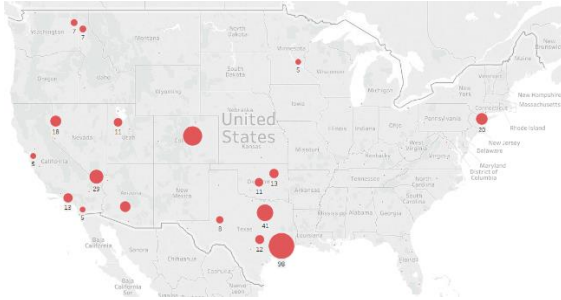
⁵ More information about BDRC may be found at : <http://exceptionalgrowth.org/>

Oklahoma City Area Headquarters in the BDRC Dataset, 2015

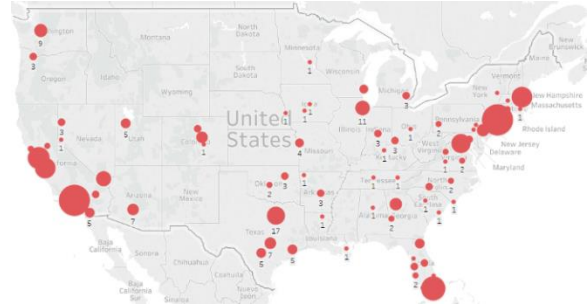
Stock Ticker	Company	NAICS CATEGORY
CHK	CHESAPEAKE ENERGY CORP	Sector 21: Mining, Quarrying, and Oil and Gas Extraction
CLR	CONTINENTAL RESOURCES INC	Sector 21: Mining, Quarrying, and Oil and Gas Extraction
ENLC	CROSSTEX ENERGY LP	Sector 21: Mining, Quarrying, and Oil and Gas Extraction
DVN	DEVON ENERGY CORP	Sector 21: Mining, Quarrying, and Oil and Gas Extraction
GMXRQ	GMX RESOURCES INC	Sector 21: Mining, Quarrying, and Oil and Gas Extraction
GPOR	GULFPORT ENERGY CORP	Sector 21: Mining, Quarrying, and Oil and Gas Extraction
PHX	PANHANDLE OIL & GAS INC	Sector 21: Mining, Quarrying, and Oil and Gas Extraction
PSTR	POST ROCK ENERGY CORP	Sector 21: Mining, Quarrying, and Oil and Gas Extraction
RSRV	RESERVE PETROLEUM CO	Sector 21: Mining, Quarrying, and Oil and Gas Extraction
SD	SAND RIDGE ENERGY INC	Sector 21: Mining, Quarrying, and Oil and Gas Extraction
SIOR	SUPERIOR OIL & GAS CO	Sector 21: Mining, Quarrying, and Oil and Gas Extraction
OGE	OGE ENERGY CORP	Sector 22: Utilities
BKEP	BLUEKNIGHT ENERGY PARTNERS LP	Sector 23: Construction
SSE	CHESAPEAKE OILFIELD OPERATING	Sector 23: Construction
EESI	ENCOMPASS ENERGY SVC INC	Sector 23: Construction
LXU	LSB INDUSTRIES INC	Sector 42: Wholesale Trade
NSYC	OKLAHOMA NATIONAL STOCKYARDS	Sector 42: Wholesale Trade
PDRX	PD-RX PHARMACEUTICALS INC	Sector 42: Wholesale Trade
FULO	FULL NET COMMUNICATIONS INC	Sector 51: Information
PAYC	PAYCOM	Sector 51: Information
ADFT	ADFITECH INC	Sector 52: Finance and Insurance
PSMH	PSM HOLDINGS INC	Sector 52: Finance and Insurance
ENLK	CROSSTEX ENERGY INC	Sector 54: Professional, Scientific, and Technical Services
ENLB	ENERLABS INC	Sector 54: Professional, Scientific, and Technical Services
BANF	BANC FIRST CORP	Sector 55: Management of Companies and Enterprises
SONC	SONIC CORP	Sector 55: Management of Companies and Enterprises
CITY	AVALON CORRECTIONAL SVC INC	Sector 56: Administrative and Support and Waste Management and Remediation Services
FDNH	GRAYMARK HEALTHCARE INC	Sector 62: Health Care and Social Assistance

Note that not all NAICS categories are represented. While all NAICS categories are shown in the table below, we explicitly map national trends in NAICS categories that are more relevant to OKC. These are highlighted in maps presented below. The figures reveal a not surprising pattern that mining companies are generally headquartered in energy states with significant clustering in Texas, Colorado, and Oklahoma. In contrast, headquarters in the information sector, which includes activities such as publishing and motion picture production, are clusters along the east and west coast along with a significant cluster in Florida.

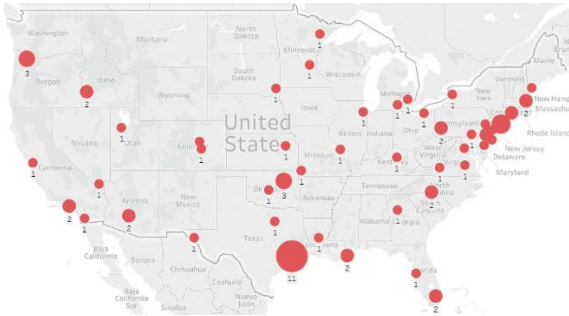
Economic & Social Impacts of Headquarters



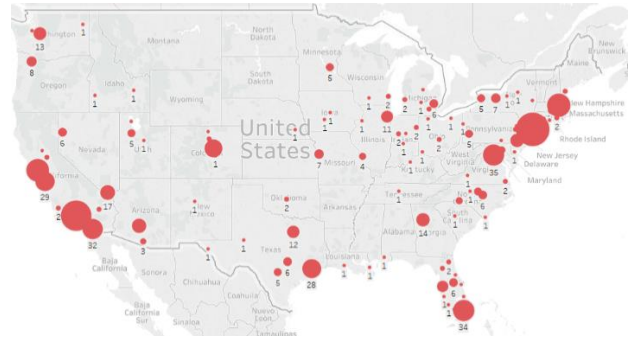
NAICS 21 Headquarters- Mining, Quarrying, and Oil and Gas Extraction



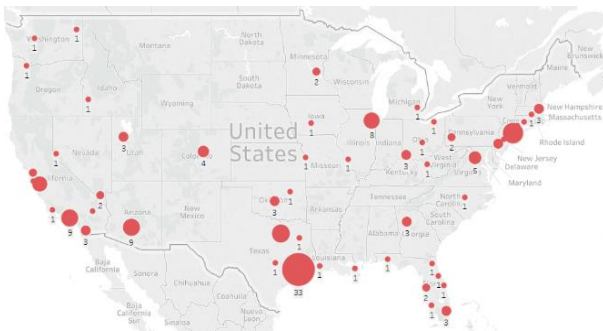
NAICS 51 Headquarters- Information



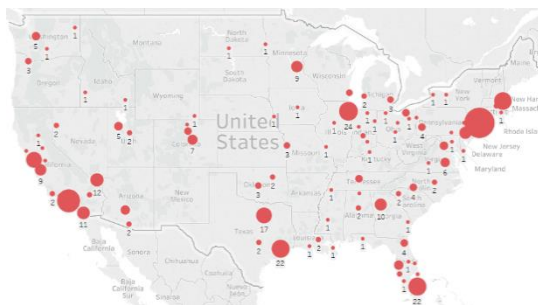
NAICS 22 Headquarters- Utilities



NAICS 54 Headquarters- Professional, Scientific, and Technical Services



NAICS 23 Headquarters- Construction



NAICS 42- Wholesale Trade

Since our aim is to analyze the impact of HQ's on NAICS earnings and employment outcomes found at the CBSA level over time, we also download annual BEA data on NAICS earnings and employment for each CBSA. We now turn to a discussion of the modeling details that link sector specific headquarter relocations to changes in that sector's local employment and earnings.

5.2 Model²

Given a set of M CBSA locations ($m: m = 1 \dots M$) observed over T time periods ($t: t = 1 \dots T$), a dependent variable based on one of the J NAICS (or BEA) categories ($j: j = 1 \dots J$), $y_{m,j,t}$, is defined that may be related to a set of k covariates $x_{m,t} = (x_{m,t,1}, \dots, x_{m,t,k})$. The purpose of this current investigation is to examine the relationship between the dependent variable, $y_{m,j,t}$, and the headquarter count $h_{m,j,t}$ while controlling for the time-varying covariates, $x_{m,t}$. In this context, the dependent variable will be the reported NAICS earnings (or employment) in a specific CBSA while the independent covariates include CBSA population and our covariate of interest, changes in the number of headquarters within that industry.

As modeling efforts begin, we might expect to find three relationships in the analysis. First, firm relocation should have a positive impact on the economic outcomes in the NAICS sector in which it operates. That is, headquarter exits should negatively affect sector earnings and employment with headquarter entrants should positively affect sector earnings and employment. Second, headquarter relocations should affect different geographies differently making it necessary to account for location heterogeneity. Third, the economic impact of headquarter relocations may depend on the existing number of headquarters in the region. These expected relationships are formally presented below.

Hypothesis 1: Firm relocation to an area should positively impact economic outcomes in the CBSA where that firm moved.

Hypothesis 2: Controlling for unobserved heterogeneity across locations specific to a NAICS category is important.

Hypothesis 3: The impact of an additional headquarters on economic outcomes may depend on the number of headquarters currently present in the CBSA.

Our most broad specification, a general fixed effects panel model⁶, is typically used to test these hypotheses:

$$\ln(y_{m,j,t}) = c_{m,j} + \gamma_{1,j}h_{m,j,t} + \gamma_{2,j}h_{m,j,t}^2 + x_{m,t}\beta + u_{m,j,t}$$

where we allow the intercept, $c_{m,j}$, to vary across locations for a given NAICS category and the included control variable, $x_{m,t}$, is population. The presence of the quadratic term, namely $h_{m,j,t}^2$, changes the interpretation slightly. If significant, we would expect γ_1 to be positive and γ_2 to be negative indicating a smaller impact of an additional headquarters on earnings or employment when the number of headquarters is large. The j subscript on γ implies that we allow these effects to vary across industry.

More specifically, the “local” marginal effect of an additional headquarters on earnings or employment at a given NAICS, CBSA pair and year is given by $\gamma_1 + 2\gamma_2h_{m,j,t}\%$. For example, suppose γ_1, γ_2 is estimated to 0.2 and $-.01$, respectively. A one-headquarter increase for a city with one headquarter would be expected to increase economic outcomes by 18%. In contrast, this one-headquarter increase would only increase economic outcomes by 10% for a city with five headquarters.

Summary statistics for Earnings, Employment and Headquarter Count broken out by BEA industry category are given in the tables below. For reference, the summary statistics are followed by a table providing a mapping from the BEA codes used in this model and the more commonly used NAICS industry codes.

⁶ While this is our most general specification, we do allow for more parsimonious alternative models if suggested by the data.

Summary Statistics, Earnings									
BEA Code	Num. of Obs.	Headquarters				Earnings (\$ Thousands)			
		Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
100	97	1.093	0.292	1	2	296,809	356,301	4,115	1,587,488
200	595	5.556	11.737	1	98	1,641,754	4,370,789	54	39,231,188
300	352	1.409	1.118	1	11	645,196	751,199	8,143	3,457,394
400	661	2.632	3.869	1	33	6,000,223	7,031,466	108,050	46,987,071
500	2429	6.706	14.948	1	171	4,256,813	6,822,561	35,943	47,719,509
600	1276	3.864	6.706	1	62	3,786,631	6,346,393	31,370	50,775,750
700	1444	3.751	6.701	1	76	3,926,314	5,753,808	106,360	48,212,224
800	506	1.895	1.462	1	13	3,451,752	3,913,258	44,834	18,402,374
900	990	4.624	7.6	1	59	3,751,029	6,915,377	15,642	52,281,399
1000	1877	4.784	12.536	1	182	4,477,045	12,918,456	33,354	145,422,586
1100	609	2.545	3.176	1	23	2,752,045	4,444,967	26,250	28,299,298
1200	1403	5.458	10.162	1	87	7,107,822	13,896,817	43,212	131,073,823
1300	2416	2.733	4.324	1	51	1,080,696	2,576,316	1,338	31,737,543
1400	640	2.85	4.322	1	38	5,019,142	5,669,694	46,072	37,396,339
1500	210	1.638	1.077	1	6	3,791,161	4,415,525	34,646	22,544,810
1600	541	2.444	2.32	1	14	11,522,979	15,207,621	272,683	104,076,940
1700	325	1.858	1.803	1	11	2,087,263	3,650,132	10,311	16,691,434
1800	529	1.998	1.637	1	12	3,638,729	4,205,301	166,640	26,874,840
1900	332	1.831	1.36	1	10	5,884,926	6,245,174	91,098	32,331,154

Summary Statistics, Employment									
BEA Code	Num. of Obs.	Headquarters				Employment			
		Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
100	97	1.093	0.292	1	2	8772.9	10122.4	334	33616
200	598	5.532	11.697	1	98	10560.4	20867.2	104	152457
300	355	1.4	1.111	1	11	4556.8	4937.8	151	18703
400	655	2.615	3.882	1	33	97518	103309.8	1315	554042
500	2431	6.724	14.956	1	171	56787.2	86943.3	1234	827216
600	1266	3.88	6.73	1	62	48631.5	75881.4	618	499360
700	1444	3.751	6.701	1	76	118580.9	155139.5	3448	1121972
800	499	1.904	1.468	1	13	58510.3	64247.8	1285	334737
900	988	4.631	7.606	1	59	36758.6	58112.9	357	397691
1000	1883	4.789	12.517	1	182	55662	102940.8	1019	975483
1100	617	2.558	3.163	1	23	92724.6	122838.8	1397	809879
1200	1396	5.479	10.183	1	87	91127.7	148920.6	1192	1169547
1300	2407	2.735	4.331	1	51	9690.3	19680.5	25	187614
1400	640	2.85	4.322	1	38	138262.3	139217.4	1402	719223
1500	211	1.635	1.075	1	6	90574.4	100392.6	1541	454145
1600	534	2.463	2.33	1	14	211842.1	276309.9	6811	1704630
1700	325	1.858	1.803	1	11	58328.1	79691.8	1087	378038
1800	528	1.998	1.639	1	12	140227	138419.7	10054	791908
1900	332	1.831	1.36	1	10	162075	162943	3063	771053

BEA to NAICS Industry Code Mapping

BEA Code	NAICS Code
100	Sector 11: Agriculture, Forestry, Fishing and Hunting
200	Sector 21: Mining, Quarrying, and Oil and Gas Extraction-
300	Sector 22: Utilities
400	Sector 23: Construction
500	Sector 31-33: Manufacturing
600	Sector 42: Wholesale Trade
700	Sector 44-45: Retail Trade
800	Sector 48-49: Transportation and Warehousing
900	Sector 51: Information
1000	Sector 52: Finance and Insurance
1100	Sector 53: Real Estate and Rental and Leasing
1200	Sector 54: Professional, Scientific, and Technical Services
1300	Sector 55: Management of Companies and Enterprises
1400	Sector 56: Administrative and Support and Waste Management and Remediation Service
1500	Sector 61: Educational Services
1600	Sector 62: Health Care and Social Assistance
1700	Sector 71: Arts, Entertainment, and Recreation
1800	Sector 72: Accommodation and Food Services
1900	Sector 81: Other Services (except Public Administration)
2000	Sector 92: Public Administration

5.3 Estimation⁴

Since this dataset occurs along both cross sections (CBSA, NAICS⁷ pair) and time (year), we have a longitudinal or panel dataset. A more challenging facet of this dataset is the fact that not every CBSA-NAICS pair is present for every year making this dataset “unbalanced”. There could be several reasons that this might occur including a single HQ location has a HQ that goes out of business, switches NAICS categories or re-locates.

To begin with, we first assess the validity of a fixed effects model through an F-test. Here the null of a constant intercept across all CBSA’s was soundly rejected, suggesting that a fixed effects model is a more appropriate modeling choice than pooled ordinary least squares (OLS); an affirmative answer to Hypothesis 2.

⁷ In what follows, we will use the BEA code and NAICS code interchangeably.

We report estimation of the fixed effects panel model with earnings and employment as the dependent variables for a given BEA NAICS code across the entire dataset. For earnings categories that use the full model, all HQ and HQ squared coefficient were statistically significant at the 10% level, except one.⁸ The average p-value in the Earnings regression for the HQ coefficients is 0.016 while the average p-value for the HQ squared term is 0.022. For Employment, findings are similar. All coefficients are statistically significant at the 10% level of significance with the average p-value being 0.012 for the HQ coefficient and 0.028 for the HQ squared term.⁹

Coefficient Estimates for Full Models								
Earnings					Employment			
BEA Code	HQ	HQ2	POP	N	HQ	HQ2	POP	N
200	0.03178	-0.00039	1.12E-06	595	0.03737	-0.00038	7.09E-07	598
300	0.09867	-0.00966	2.26E-07	352	0.04313	-0.00268		355
400		0.000419	1.43E-07	661		0.00037	-9.70E-08	655
500	0.00378	-2.63E-05	2.48E-07	2429	-0.00695	1.54E-05	-1.21E-07	2431
600		-9.71E-05	6.62E-07	1276		-4.02E-05	1.93E-07	1266
700		-5.47E-05	4.67E-07	1444	-0.00154		1.41E-07	1444
800	0.07457	-0.00592	4.30E-07	506		-0.00103	3.06E-07	499
900	0.00881		2.18E-07	990	-0.00855	0.000148	-1.13E-07	988
1000		-1.52E-05	6.26E-07	1877		-8.89E-06	4.49E-07	1883
1100	0.02255		3.91E-07	609		-0.00034	4.59E-07	617
1200	0.01389	-0.00015	8.34E-07	1403	0.00390	-6.54E-05	4.67E-07	1396
1300	0.07134	-0.00139	8.63E-07	2416	0.02620	-0.0006	5.72E-07	2407
1400		-0.00021	6.39E-07	640	-0.00502		2.63E-07	640
1500		-0.01628	1.27E-06	210		-0.01147	7.73E-07	211
1600	0.06580	-0.00318	6.76E-07	541	0.03818	-0.00189	4.29E-07	534
1700	0.12287	-0.01059	6.23E-07	325	0.02885	-0.00214	3.42E-07	325
1800	0.03209	-0.00162	6.30E-07	529	0.00847		3.38E-07	528

All earnings coefficients reported in the above table having both HQ and HQ squared terms have the appropriate signs; a positive linear term (consistent with Hypothesis 1) and a negative quadratic term (consistent with Hypothesis 3). This is generally true for Employment although a few notable exceptions exist such as BEA Codes 500 and 900.¹⁰

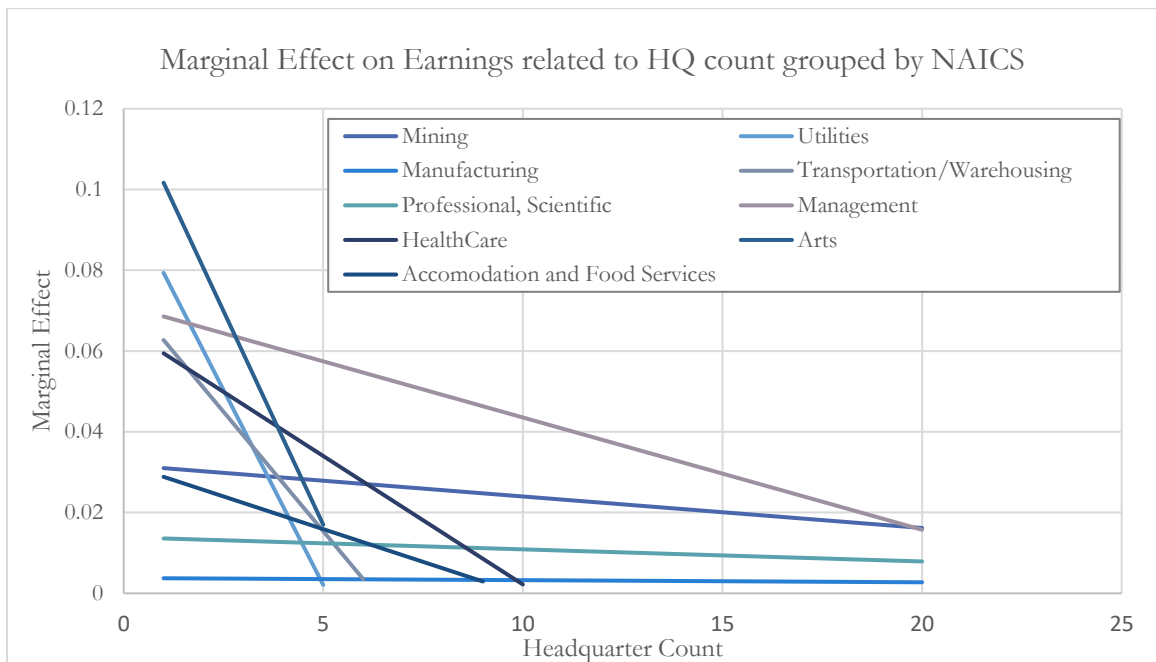
⁸ For earnings, the HQ squared coefficient for BEA Code 1800 was found to be insignificant at the 10% level.

⁹ For employment, the headquarter squared term was insignificant at the 10% level for BEA Code 300.

¹⁰ While listed for the sake of transparency, these particular results may be suffering from omitted variable bias or measurement error.

5.4 Implications

As noted previously, regressions involving both HQ and HQ squared terms generate a marginal effect that depends on the number of headquarters that are currently present. That is, the percentage change in earnings brought on by an additional headquarters is tied to current number of headquarters. In the figure below, we display how the marginal effect of an additional headquarters on earnings is impacted by the number of NAICS-related HQ currently present in a CBSA. The horizontal axis is the number of HQ currently present, the vertical axis denotes percentage change in earnings.



For certain industries, such as Utilities or Arts, having an additional headquarters generates a large percentage change on that NAICS category when the number of headquarters in that sector is small, e.g. one or two. As the number of headquarters increases in these sectors, that effect decays quite rapidly as shown by the steep slope. While the addition of a single utility HQ yields large changes in earnings, the impact of additional HQ's beyond two or three has a much-diminished effect.

Other industries start with more moderate changes in earnings (intercept is lower), but their effect decays much more slowly (as suggested by the relatively flat slope). Industries that fit this bill are management, mining or scientific. Their much lower decay rates suggest that additional HQ's are going to contribute at a higher rate even when the number of headquarters is large.

In the table below, we average the marginal effects across time and, in the case of US, across locations as well. In over 80% of cases, the marginal effect of locating an additional headquarters in OK has a greater percentage impact on earnings in that NAICS category than for the nation as a whole. For Oklahoma, earnings impacts from an additional headquarters range from 0% to 10% with the average being nearly 3%.

Implied Average Marginal Effect, Full Sample				
BEA Code	Earnings		Employment	
	US AVG	OK AVG	US AVG	OK AVG
200	0.03	0.03	0.03	0.03
300	0.07	0.08	0.04	0.04
400	0.00	0.00	0.00	0.00
500	0.00	0.00	-0.01	-0.01
600	0.00	0.00	0.00	0.00
700	0.00	0.00	0.00	0.00
800	0.05	0.06	0.00	0.00
900	0.01	0.01	-0.01	-0.01
1000	0.00	0.00	0.00	0.00
1100	0.02	0.02	0.00	0.00
1200	0.01	0.01	0.00	0.00
1300	0.06	0.07	0.02	0.02
1400	0.00	0.00	-0.01	-0.01
1600	0.05	0.06	0.03	0.03
1700	0.08	0.10	0.02	0.02
1800	0.03	0.03	0.01	0.01

The average Oklahoma marginal effects reported above are interpreted as the predicted percent change in industry earnings from a headquarter relocation. The predicted marginal effects vary by industry, but even small marginal effects can be significant if the industry has a large existing presence in Oklahoma. Using 2016 earnings by industry the regression results are used to predict the direct change in Oklahoma City industry earnings from a headquarter relocation.

Oklahoma City Earnings Impact from Headquarter Relocation				
Sector (NAICS Code)	BEA Sector Code	Oklahoma Average Marginal Effect (Nonclustered Analysis)	2016 Industry Earnings	Implied Direct Change in Earnings
Mining (21)	200	2.5%	\$2,369,044,000	\$60,034,965
Utilities (22)	300	7.8%	\$397,358,000	\$31,018,318
Construction (23)	400	0.1%	\$2,989,619,000	\$4,071,777
Manufacturing (31-33)	500	0.4%	\$2,692,576,000	\$9,996,642
Wholesale Trade (42)	600	0.0%	\$2,162,474,000	-\$839,944
Retail Trade (44-45)	700	0.0%	\$2,934,456,000	-\$320,793
Transportation (48-49)	800	6.3%	\$2,500,410,000	\$156,867,035
Information (51)	900	0.9%	\$959,987,000	\$8,455,800
Finance and Insurance (52)	1000	0.0%	\$1,908,198,000	-\$79,745
Real Estate (53)	1100	2.3%	\$993,047,000	\$22,392,257
Professional, Scientific (54)	1200	1.3%	\$3,115,558,000	\$41,933,891
Management (55)	1300	6.6%	\$1,305,912,000	\$86,458,902
Admin, waste, support (56)	1400	0.0%	\$1,966,376,000	-\$845,094
Health Care (62)	1600	5.9%	\$5,728,015,000	\$340,411,054
Arts, Entertainment (71)	1700	10.2%	\$440,696,000	\$44,812,314
Accommodation and Food (72)	1800	2.9%	\$1,887,668,000	\$54,461,624

Source: Economic Research and Policy Institute; Bureau of Economic Analysis

Next, we re-run each regression focusing our attention on cities that were similar to OKC in 2001 both in terms of population and per capita income. In particular, we use k-means clustering with the optimal number of clusters identified by the Davies Bouldin algorithm. By clustering observations on the city's population and per capita income we are able to generate coefficient estimates specific to cities most similar to Oklahoma City. The results are, for the most part, qualitatively similar but with much larger magnitudes, suggesting that headquarters may have a larger impact on medium-sized cities. These results are shown in the table below.

Implied Average Marginal Effect, Clustered Sample

BEA Code	Earnings		Employment	
	CLUSTER AVG	OK AVG	CLUSTER AVG	OK AVG
200	0.21	0.10	0.09	0.05
300	0.15	0.15	0.08	0.08
400	0.19	0.15	0.15	0.10
500	0.01	0.01	0.00	0.00
600	0.00	0.00	0.00	0.00
700	-0.01	-0.01	0.00	0.00
800	0.14	0.14	0.00	0.00
900	0.00	0.00	-0.11	-0.13
1000	-0.01	-0.01	0.01	0.01
1100	0.00	0.00	0.00	0.00
1200	0.00	0.00	0.00	0.00
1300	0.23	0.20	0.13	0.11
1400	0.00	0.00	0.00	0.00
1600	0.00	0.00	0.07	0.07
1800	-0.18	-0.21	-0.04	-0.05

Oklahoma City Earnings Impact from Headquarter Relocation

Sector (NAICS Code)	BEA Sector Code	Oklahoma Average Marginal Effect (Clustered Analysis)	2016 Industry Earnings	Implied Direct Change in Earnings
Mining (21)	200	9.6%	\$2,369,044,000	\$227,807,270
Utilities (22)	300	14.6%	\$397,358,000	\$57,848,222
Construction (23)	400	15.2%	\$2,989,619,000	\$454,225,836
Manufacturing (31-33)	500	1.4%	\$2,692,576,000	\$37,463,397
Wholesale Trade (42)	600	0.0%	\$2,162,474,000	\$0
Retail Trade (44-45)	700	-0.6%	\$2,934,456,000	-\$17,733,911
Transportation (48-49)	800	14.0%	\$2,500,410,000	\$350,980,605
Information (51)	900	0.0%	\$959,987,000	\$0
Finance and Insurance (52)	1000	-1.3%	\$1,908,198,000	-\$24,226,172
Real Estate (53)	1100	0.0%	\$993,047,000	\$0
Professional, Scientific (54)	1200	0.0%	\$3,115,558,000	\$0
Management (55)	1300	19.9%	\$1,305,912,000	\$259,613,913
Admin, waste, support (56)	1400	0.0%	\$1,966,376,000	\$0
Health Care (62)	1600	0.0%	\$5,728,015,000	\$0

Source: Economic Research and Policy Institute; Bureau of Economic Analysis

The clustered regression results allow for headquarter relocation effects to vary across MSA clusters. Clusters are defined on their population and per-capita income characteristics, allowing relocation effects to essentially vary by city size and current economic state. The predicted marginal effects from the clustered regression are used as before to produce the predicted change in Oklahoma City earnings from a headquarter relocation.

The direct earnings change predicted by the regression results is the first step in understanding the Oklahoma City specific impacts from headquarters relocations. Economic impact models built around existing economic relationships provide an estimate of the direct change in industry employment and output associated with the earnings impact. Given the estimates of earnings, employment, and output changes from a headquarter relocation, the total economic impact – including any spillover or multiplier effects – are estimated.

Total economic impacts are estimated for four selected industries: mining, utilities, manufacturing, and management of companies. The last industry is the sector most closely associated with headquarters firms separate from their operations. The range of direct earnings changes that serve as the primary input to the economic impact models are reported below.

Economic Impact Inputs		
Sector	Range of Predicted Earnings Change	
Mining	\$60,034,965	\$227,807,270
Utilities	\$31,018,318	\$57,848,222
Manufacturing	\$9,996,642	\$37,463,397
Management of Companies	\$86,458,902	\$259,613,913

Total economic impacts – including spillover indirect and induced impacts – are reported and discussed subsequently. Economic impacts are estimated in an input-output framework as discussed previously in section 3 of this report. In contrast to the multi-regional model framework employed in that section, the following economic impacts from headquarter relocation are estimated in a single region framework.

Economic Impact of Headquarter Relocations to Oklahoma City				
Mining Low				
	Employment	Labor Income	Value Added	Output
Direct	879	\$60,034,967	\$126,309,236	\$393,406,499
Total	1860	\$125,847,429	\$229,299,154	\$563,741,490
Mining High				
	Employment	Labor Income	Value Added	Output
Direct	3,334	\$227,807,277	\$479,290,065	\$1,492,811,074
Total	7,056	\$477,537,704	\$870,093,191	\$2,139,160,236
Utilities Low				
	Employment	Labor Income	Value Added	Output
Direct	251	\$31,018,319	\$54,421,902	\$315,244,132
Total	1296	\$108,796,593	\$275,510,347	\$681,854,227
Utilities High				
	Employment	Labor Income	Value Added	Output
Direct	469	\$57,848,224	\$101,495,196	\$587,920,742
Total	2418	\$202,902,345	\$513,818,439	\$1,271,637,447
Manufacturing Low				
	Employment	Labor Income	Value Added	Output
Direct	198	\$9,996,642	\$11,834,163	\$40,917,881
Total	350	\$17,685,974	\$24,537,527	\$63,323,526
Manufacturing High				
	Employment	Labor Income	Value Added	Output
Direct	741	\$37,463,398	\$44,349,686	\$153,343,776
Total	1312	\$66,279,925	\$91,956,792	\$237,311,128
Management of Companies Low				
	Employment	Labor Income	Value Added	Output
Direct	822	\$86,458,905	\$106,823,688	\$185,301,351
Total	1999	\$144,198,259	\$202,764,018	\$354,275,605
Management of Companies High				
	Employment	Labor Income	Value Added	Output
Direct	2,467	\$259,613,921	\$320,764,145	\$556,412,442
Total	6,002	\$432,990,396	\$608,848,354	\$1,063,798,799

The economic impacts reported above indicate the potential economic gains from headquarter relocations. A mining (oil and natural gas) relocation to Oklahoma City is predicted to have a total economic impact of 1,860 to 7,056 jobs. These jobs are associated with significant earnings and production. The value added to the Oklahoma City economy from an oil and gas headquarter relocation is predicted to range from \$229 million to \$870 million. Relative to the size of the Oklahoma City MSA area economy in 2016, this implies a relocation impact equivalent to 0.33% to 1.24% of Oklahoma City gross metro product.

A utility sector relocation is predicted to carry an employment impact ranging from 1,296 jobs to 2,418 jobs. The production associated with these employment impacts suggests a value added contribution to the local economy of \$275 million to \$513 million. The value added impacts suggest a relocation in this industry exerts an economic contribution equal to 0.4% to 0.73% of Oklahoma City gross metro product.

A manufacturing sector relocation is predicted to have both a smaller direct and total economic impact. The regression results and implications for manufacturing earnings suggests a relocation would support 350 to 1,312 total new jobs in the local economy with a value added contribution of \$24 million to \$92 million. The value added impacts represent an impact equivalent to 0.03% to 0.13% of Oklahoma City 2016 gross metro product.

A corporate headquarter relocation that is separate from the firm's base of operations (management of companies) is also predicted to exert a sizeable economic impact. This conclusion is consistent with the headquarter patterns in the state and Oklahoma City headquarter multipliers presented in the previous section. The predicted impact of a corporate headquarter relocation to Oklahoma City range from 1,999 to 6,002 jobs and \$203 million to \$609 million in value added to the local economy. The value added impacts represent 0.3% and 0.87% of Oklahoma City 2016 gross metro product.

Using a custom dataset of headquarter relocations and region specific economic characteristics, average and localized marginal economic effects of headquarter relocations were estimated. The findings indicate the headquarter relocations can exert significant economic pressures within their own industries that spill over into the economy through local economic linkages. The findings also support the conclusion that headquarter relocations exert a larger impact on medium-sized cities where the economy is large enough to have a support network that captures spillover activity from the headquarters but small enough that the headquarters' presence is strongly felt. Oklahoma City seems to fit this category suggesting strategic efforts to form, retain, or recruit corporate headquarters, if successful, will yield economic returns to the city. Somewhat counter to conventional wisdom, the return to manufacturing operations is relatively small. In comparison, the economic returns from the mining, utilities, and corporate headquarters sectors exert significantly larger local economic impacts.

6. The Social Impact of Headquarter Activity

Social capital refers to the tie-ins, attachments to, and participation in a community. Economists model social capital as a complement to physical and human capital to study its contribution to a region's economic performance and the well-being of individuals. Social capital adds value to a community through increased trust, connectivity, and cooperation. Previous research indicates greater economic efficiency is generated by high levels of social capital, resulting in economic growth.¹¹ The dominant reasoning is that higher levels of trust and cooperative norms reduce transaction costs at the macro level, resulting in increased productivity. Moreover, at the individual level, wider social networks correspond with higher probabilities of employment, career development, and higher compensation.¹² Researchers and policy makers can further benefit from understanding social capital by noting the positive effects on personal well-being, health, and crime rates.¹³ The potential roles the headquarters play in developing regional reservoirs of social capital is explored in this section with specific analysis examining the relationship between regional charitable giving and the economic performance of the headquarter sector.

National and international studies have attempted to capture this value of social capital through periodic surveys. While inconsistencies in polling times and demographics makes comparison difficult, ideas of how to measure social capital have taken shape in the academic realm. This work aims to study how social capital is affected by corporations, more specifically by headquartered firms, which historically have displayed more charitable contributions to local regions than non-headquartered firms.¹⁴

While personal well-being measures require specific survey data, another method of assessing social capital is to examine the nonprofit sector and levels of charitable giving. Thus, to understand how headquarters affect the philanthropic landscape of a region, this study will assess Internal Revenue Service (IRS) data related to giving and compare that with headquarter economic markers. The publically available Statistics of Income (SOI) data from the IRS will be approached from the donors' perspective. Honing in on individual givers who claim contributions will speak to the health

¹¹ Putnam (2002 and 1993); Fukuyama (1995)

¹² Aguilera (2002) discusses employment, Lin (2001) assesses career development¹², and Goldthorpe et al (1987) researches higher compensation.

¹³ Helliwell and Putnam, (2004) and Helliwell (2003) present on personal well-being, Veenstra (2002 and 2000) speaks to health, and Sampson et al. (2002) talks of crime rates.

¹⁴ Card et al (2008) takes an interesting look at assessing giving geographically, specifically in relation to headquarter cities. More research in connecting headquarter data with giving patterns is needed.

of the regional nonprofit sectors. Brown et al. suggest that corporate headquarters increase giving locally, largely through highly compensated individuals who donate, in addition to the corporate giving practices. Individual giving data is available at state, county, and zip code levels. Corporate giving, on the other hand, is not consistently available to the public. Therefore, this study will compare the changes in state-wide headquarter data and determine its relationship with fluctuating nonprofit private donations.

To contextualize this study's findings, first a literature review of the theory of giving is presented. Then a more specific look at economic research in the study of giving is discussed. A report of national and regional giving patterns follows. Finally, as discussed, primary SOI data will provide descriptive statistics of regional giving practices. This leads into an econometric analysis of individual contributions in relation to headquarter markers. The statistically significant findings suggest for every \$1 increase in headquarter wages, there is an increase (about \$0.16-0.20) in total individual contributions. Thus, headquarters have a positive influence in charitable giving. This specific social impact of headquarters is one factor in estimating the total value headquarters bring to a region.

6.1 Literature Review of Theory of Giving

Volunteering and the work of nonprofits contributed \$878 billion to the American economy in 2012, equivalent to approximately 5.4 percent of GDP (National Council of Nonprofits). Indeed, much of the time, services, and goods donated help not only to stimulate economic activity and growth but also address the needs of the public not addressed through other private or public channels. To examine how headquarters affect the health of nonprofits, a review of the theory of giving will help tease out some of the factors that affect giving practices. Understanding participating players' motivations, benefits, and costs involved in giving has been a growing focus for economists.

Much of the charitable and philanthropic impact of headquarters and headquarter relocations are realized through the individual efforts of headquarter employees. Thus, efforts to appreciate the social impact of headquarters and to structure policy to fully realize this social impact benefit from an understanding of individual decisions with respect to philanthropy. Readers not interested in the literature review on individual giving can jump to section 5.3 and continue with a discussion of corporate giving without loss.

Increasingly, economists are modeling philanthropic behavior using market principles. The goal being to analyze not only the strategic behavior of donors (suppliers of charitable contributions) but also the strategic behavior of charities (consumers of charitable contributions). This comes with

many restraints however, since giving patterns often do not follow traditional economic principles. Efforts to analyze charitable giving by economists are, therefore, complemented by the efforts of other social science and business disciplines.

Authors Bekkers and Wiepking conducted an extensive, multidisciplinary literature review of philanthropy and the mechanisms that drive charitable giving. Combining the research of over 500 articles, they categorized the mechanisms of giving across four dimensions: (1) *What* is the physical form of the mechanism? (2) *Where* is the location of the mechanism in relation to the individuals? (3) *Who* are the actors of the mechanism? (4) *Who* are the targets of the mechanism? These dimension profiles were then used to describe the eight most salient forces that drive charitable giving: (a) awareness of need; (b) solicitation; (c) costs and benefits; (d) altruism; (e) reputation; (f) psychological benefits; (g) values; (h) efficacy. The descriptions of these eight mechanisms in terms of the four dimensions are described by the table below:

Mechanism	What?	Where?	Who?	
	Tangible or intangible	Within, outside or between people	Actors	Targets
1. Need	Tangible and intangible	Within, outside and between	Beneficiaries and organizations	Donors
2. Solicitation	Tangible and intangible	Between	Beneficiaries and organizations	Donors
3. Costs/benefits	Tangible	Outside	Organizations	Donors
4. Altruism	Tangible	Outside	Donors and organizations	Beneficiaries
5. Reputation	Intangible	Between	Alters	Donors
6. Psychological costs and benefits	Intangible	Within	Donors	Donors
7. Values	Intangible	Within	Donors	Donors and beneficiaries
8. Efficacy	Intangible	Within	Organizations	Donors

Awareness of Need is the initial condition for giving. In order to participate in charitable giving, donors must be aware of the need for support. These needs may be tangible (food and shelter) or intangible (education). Needs are found between people (social needs), outside of people (environmental protection), and within people (psychological, grief counseling). Awareness of need mechanism is largely beyond the control of donors, preceding the conscious deliberation of costs and benefits of

donating. Instead, it is largely the actions of beneficiaries, those in need receiving donations, and charitable organizations who act as the intermediary between the donors and beneficiaries.

The nature of this mechanism of giving is most researched by the field of social psychology. This primarily experiment-based research includes a variety of helping behaviors, including volunteering and donating. Since higher levels of awareness of need yields higher donations, the factors that affect awareness are reviewed. Key takeaways:

- ❖ Generally, degree of need is positively correlated with likelihood of help given
- ❖ More importantly, *subjective perception* of need is a driving force of donations
- ❖ Personal connection to beneficiary increases giving, especially long-term
- ❖ Solicitors, including mass media, can strongly influence awareness of need
- ❖ Increased number of beneficiaries increases likelihood of awareness of need
- ❖ Age of charity for most sectors yield higher awareness of need & increased donations
(Exceptions: higher education and scientific research sectors)

Solicitation is the second mechanism that precedes the conscious rationalization of giving decisions. Solicitation refers to the act of being solicited or asked to donate. The method of solicitation determines its effectiveness. These solicitations may be tangible (fundraising letter) or intangible (personal request). Solicitations originate from beneficiaries or charities and target potential donors.

The nature of this solicitation mechanism is studied by marketing, psychology, and economics. Key takeaways:

- ❖ Majority of donation acts occur in response to a solicitation (85-86%)
- ❖ Often, higher number of solicitations is associated with increased philanthropy
- ❖ However, increased solicitations yield decreasing marginal utility for those solicited (more solicitations correspond with lower average donation amounts)
- ❖ To avoid “donor fatigue”, a life-time value perspective to solicitations emphasizes optimization techniques and targeted marketing
- ❖ Larger donors receive notably more solicitations per year and continue to do so
- ❖ Older donors are more responsive to solicitations

Costs and Benefits associated with donating are the third mechanism guiding giving practices. In Bekkers and Wiepking’s review, they adopt Clark & Wilson (1961) and Chinman, Wandersman &

Goodman's (2005) definition of material costs and benefits as "tangible consequences that are associated with a monetary value." Therefore, according to table 1, costs and benefits are tangible objects, reside outside the donors, originate from organizations, and affect donors.

The effects of the costs and benefits mechanisms in relation to giving is unsurprisingly the primary issue researched by economists. According to Bekkers and Wiepking, key takeaways:

Costs

- ❖ When costs of donations are lowered, giving increases. This holds for both absolute costs as well as perception of costs.
- ❖ Price effects are generally negative but vary widely between studies.
- ❖ Tax benefits are strong influencers on donation patterns.
- ❖ Employees give more when their employers match charitable contributions.

Benefits

- ❖ Benefits donors receive take many forms, and donor behavior follows different patterns according to which type of benefits they receive.
- ❖ "Selective incentives" are services or goods donors receive as part of an exchange for donating. *However*, some evidence suggests this behavior *complements* donor behavior and cannot be substituted as an explanatory mechanism.
- ❖ Fringe benefits, like backstage passes to the opera, strongly parallel consumption motives behavior. Increased fringe benefits drive increased donations.
- ❖ Lotteries, another material benefit structure, increase number of donors.
- ❖ Having personally profited from services a nonprofit gives increases the probability of subsequent donations, though this evidence is weak.
- ❖ Giving decreases generally as congressional size increases. Explanations include free-rider effects, lower level of commitment to the group, or lower level of social pressure.
- ❖ Receiving material benefits for helpfulness tends to undermine self-attributions of helpfulness, which reduces the effect of prosocial self-attributions on future helpfulness.
- ❖ Benefits may include long-term, indirect benefits to the donor. Examples include donations to medical research that could improve the donor's future health care or donations to national parks the donor could visit in the future.

Altruism, a fourth mechanism guiding giving practices, describes donors that contribute to charities because they care about the organization's output or the consequences of donations for beneficiaries. Altruism dimensions include yielding tangible consequences, residing outside individuals, originating from donors (often channeled through charitable organizations), and accruing solely to beneficiaries.

The altruism mechanism discussed focuses on an economic perspective where pure altruism refers to individuals who learn about an increase in contributions by others by \$1, to reduce their own contribution by \$1. Key takeaways:

- ❖ Under models of pure altruism only the aggregate level of donations matters to the donor, such that others donating demotivates an individual from also donating resulting in a perfect crowding out of donations.
- ❖ Empirical evidence suggests crowding out effects may exist, but often less than perfect.
- ❖ Less than perfect crowding out suggests other factors aside from altruism motivates donating; private benefits or selective incentives for contributions may dominate altruistic motives creating models of "impure altruism".

Reputation, a fifth mechanism of giving, refers to the social consequences of giving for the donor. Reputation consequences are intangible, a phenomenon between people, targets the donors, and involves many. People in the social environment of donors may verbally or nonverbally reward donors for giving or punish them for not giving.

This mechanism is most researched by fields of psychology and economics. Key takeaways:

- ❖ Giving is generally positively viewed by others, especially when giving reduces inequality, is less costly, and more effective than other methods of addressing public problems or societal issues.
- ❖ Experimental evidence suggests people are willing to incur costs to receive recognition and approval from others.
- ❖ Not giving damages one's reputation, especially when donations are announced publicly or are directly visible.
- ❖ When giving is a choice, people generally prefer donations to not be anonymous.
- ❖ Recognition may be given and improve donation rates even if donors are not physically present.

Psychological benefits, a sixth mechanism of giving, refers to the intangible benefits that donors bestow on themselves as a result of donating, and to the intangible costs that donors avoid by donating.

The majority of studies of this mechanism is researched by (social) psychologists who have shown that giving may contribute to one's self image as an altruistic, empathic, socially responsible, agreeable, or influential person. Giving, in many cases, results in an almost automatic emotional response, producing positive moods, alleviating guilt, satisfying the want to show gratitude, or to be a morally just person. Key takeaways:

“Joy of Giving” or “Empathic Joy” or “Warm Glow”

- ❖ Well-documented phenomenon of positive psychological consequence for the helper who participated in helping behavior.
- ❖ Reasons for pleasure of giving: alleviate feelings of guilt or avoiding punishment, feel good for acting in line with a social norm, or feel good for acting in line with a specific self-image.
- ❖ Joy of giving may be affected by benign thoughts—contemplating own deaths, act of forgiveness, or things in life for which they have gratitude.
- ❖ Positive mood in general may motivate giving.
- ❖ Guilt hypothesis: When the social norm is to give, those who feel bad about themselves for violating the norm are more likely to give.
- ❖ Dispositional empathy (“I am a soft-hearted person”) is positively related to charitable giving.
- ❖ Giving is not only the result of an altruistic self-image but also reinforces such an image.
- ❖ People feeling socially excluded temporarily lack the ability to experience empathic concern, decreasing the incidence and level of charitable giving.
- ❖ Positive labeling (labeling potential givers as “helpers”) promotes helping behavior.
- ❖ Foot-in-the-door technique (making a small request that is completed, before a larger request is made) can create a self-image of being helpful.
- ❖ Commitment to a promise made to others motivate contributions.
- ❖ Giving enhances one's self esteem.
- ❖ Extroverts and individuals with a more active orientation to life are more likely to donate.

Values, a seventh mechanism of giving, refers to attitudes and principles of donors. Donations can exemplify a donor's endorsement of specific values to others, captured also by the reputation

mechanism. Moreover, the values endorsed by donors make charitable giving in concept more or less attractive to the donors. Values are an intangible phenomenon, located within the individual, originating from the donors, and targeted at themselves in addition to beneficiaries.

The majority of studies of this mechanism are by researchers in sociology, psychology, and philanthropy. Key takeaways:

- ❖ People who endorse prosocial values generally have positive association with charitable giving.
- ❖ Altruism, humanitarianism, and egalitarianism values are correlated with higher giving levels.
- ❖ Philanthropy is a method to attain a desired state of affairs that is closer to one's view of the "ideal" world.
- ❖ Values may include objectives that are partisan or terrorists, though this desire for divisive orientation is less researched.
- ❖ Similarity between personal values and organizational values increases the probability that a donation to that particular organization is made.

Efficacy, an eighth mechanism of giving, signifies the perception of donors that their contributions make a difference to the cause they are supporting. Efficacy perceptions are intangible (psychological), for donors, generated by charitable organizations.

This mechanism is most researched respectively by philanthropy studies, economics, and psychology. Key takeaways:

- ❖ When people perceive their contributions will not make a difference, they are less likely to give.
- ❖ Financial information is especially influential on behavior of committed donors.
- ❖ Free rider reasoning (an additional dollar does not solve the problem; not giving does not make things worse) accounts for the differences in individual tendencies to view contributing to public goods in a rational manner.
- ❖ Leadership effect or Modeling effect: Others donating to a charity signals confidence in an organization, and therefore encourages new donors.
- ❖ Matching offers by a third-party donor or endorsement by a high status person can also have a legitimizing effect.

- ❖ Donors have an aversion to organizations with expensive fundraising methods and high overhead costs.
- ❖ Confidence in charitable organizations increases the likelihood of giving, particularly in organizations with an international focus (weak in other nonprofits).

Bekkers and Wiepking clarify that while these mechanisms all impact giving, the relative influence of each mechanism is unclear. Batson and Shaw (1991) as well as Clotfelter (1997) suggest multiple motives operate simultaneously and the mix of these motives differs over time, place, organizations, and donors. The motives are likely to have interactive relationships, but further research is necessary. Moreover, most studies on giving motivations utilize either experimental or survey methods, depending largely on the field conducting the research. Yet combining methodologies across fields may better inform the theories related to charitable giving.

6.2 The Economics of Giving

James Andreoni and A. Abigail Payne conducted a literature review of charitable giving specifically from an economic perspective. They authored their summary from a more “thematic, programmatic, and prescriptive” style than others in the field. More specifically they categorized past research into four different approaches of studying charitable giving, emphasizing the primary questions and limitations of each approach. The approaches include: (1) Individuals, (2) Charitable Sector as a Market, (3) Giving as a Social Act, (4) Giver’s Mind.

Approach 1: Individuals

This approach investigates giving as a simple *individual economic decision*, where a quantity of gifts to supply is explained by maximizing a utility function, subject to a budget constraint.

Modeling giving as such, it can be deduced that if individuals gain utility from only the final output of the charity, also dubbed *pure altruism*, then giving is behaving like a public good. However, pure altruism suggests only a small portion of the population would give and free rider effect would be seen more prevalently. Since this is not seen in practice, modeling giving requires a structure that incorporates individuals, by some means, experiencing greater utility from their own contributions than through other people contributing to the same charity. This *impure altruism* is also known as *warm-glow giving*. Moreover, evidence suggests that warm-glow is heightened by perceptions of donors giving to those with a greater need or deservingness.

Elasticity of giving is disputed among researchers. Many suggest it to be closer to -1 but some find an inelastic response $|\epsilon| < 1$. Elasticity of giving may have notable implications for government-imposed tax credits and government support for nonprofits via grants.

Household giving decisions may represent an area of research that needs further development. Most giving analysis uses a simplifying assumption that individuals make charitable decisions, however, in many cases giving is decided by households. Giving can be enjoyable, shared activity which would likely lead to more giving than the couples separately would have. Yet when disagreements over giving arise, differences in patterns of giving between *genders* may elucidate how the household will give, which is further complicated by disparities in income levels between partners. Research indicates women seem to prefer giving less amounts to more causes, while men generally prefer focusing on one or two causes. Additionally, when deciding jointly how to give, couples with high disparity—particularly cases where husbands earned significantly more than their wives—donations were about 6% less than when deciding unilaterally. Yet in cases where income parity existed between the couple, donations were about 7% greater than when deciding unilaterally.

Modeling price to determine its effect on giving behavior can be done in three types of price modulators. First, tax subsidies can be assessed using historical data. To account for collinearity between income and marginal tax rate researchers look for unanticipated changes in the relationship between the two, like a tax reform. Second, matching gifts offered by wealthy philanthropists, foundations, grants, or others manipulate price of giving for other donors. Note, matching gifts often have a maximum matching amount, complicating this scenario. Third, rebates from government, philanthropists, or experimenters offer a reduction in price. In practice, tax subsidies are rebates, but only when one's taxes are finally reconciled, and the benefit of the deduction realized in a higher tax refund or lower tax bill.

Tax subsidies reduce the price of giving, though determining the precise affects are difficult because data sets are incomplete (including households that donate but do not itemize returns).

Matching theory can be expected to reduce individual donations through income effect. However, in practice, most matching programs exceed match limits and therefore suggest donors suffer from *matching illusion*. Presence of matching donations have strong experimental support for increased likelihood of donations as well as increased contribution amounts per donor. Matching amount or structure (donation to match: \$1 to \$1, \$1 to \$2, \$1 to \$3) did not produce a significant change in

donor behavior. Ceiling on match amount also did not produce significant change in donor behavior.

Subsidies increases giving, but not nearly as much as matching programs.

Leadership gifts, functioning as seed money, are a highly effective way to increase donation amount and response rates to solicitations. This is perhaps due to leadership gifts providing credibility that a fundraising goal will be met. Another explanation is based on focusing on a charity having fixed costs in operations that must be covered by leadership gifts or internal revenue before more donors are willing to donate. In this case, first mover(s) usually require superior information about the quality of the charity. Experimentally, announcing leadership gifts have the largest effect in fundraising compared to lowering price through matching offers (Huck and Rasul 2002).

Delayed requests increase commitments from donors. By asking donors to donate more in the future, donors are more likely to increase donations and continue donating at higher rates than those asked to contribute immediately. This may be due to present bias, planning constraints, or because it is more difficult for donors to decline requests for obligations far into the future.

Understanding incentives to donating may vary between donors. For instance, many tax payers may not understand which tax structures are most beneficial to them. Moreover, if there are differences in understanding of incentives that align with specific demographics (i.e. if men are more likely than women to donate in a way that maximizes tax incentives), then who is head of household may have further implications of giving behavior nationally.

Approach 2: Charitable Sector as a Market

This approach looks at giving as a strategic interaction, with multiple actors involved.

Viewing giving in terms of a market implies donors are choosing gifts, charities are choosing fundraising efforts and mechanisms. If the government is involved it is choosing grants to charities and subsidies to donors, and if foundations are involved they are a type of intermediary. These four participants can be acting in response to the choices of others.

Charitable giving encompasses many actors and actions. Charities may receive funding through grants from governments, grants from foundations, donations from individuals, and donations from bequests. Charities can also raise money through appeals like mailings, phone banks, and advertising as well as larger fundraising events like galas, walk-a-thons, and auctions. Charities may also be able

to generate revenue through ordinary business practices including selling their goods and services, with restrictions. The relationships between each of these channels are interdependent, as the use and effectiveness of one alters the use and effectiveness of another. Structuring charitable giving as a market describes charities as demanders of funds, donors as suppliers of funds, and government as both providing policy and interventions that are dependent on the choices of charities and donors. These complicated interdependencies create a delicate equilibrium that can be difficult to identify.

Correa-Yildirim model combines and generalizes past econometric models, assessing charities from the supply side. This model describes an equilibrium between donors and fundraisers, while exploring the impact of government policies. Assumptions are fundraising is costly, individuals give only if solicited by the charity, and each potential “target” donor has a different propensity to give based on heterogeneity across givers (where heterogeneity is attributed to income alone). The implications of this model are that there are multiple equilibriums, if donors who are solicited must contribute at least C or the charity will provide no net services. Additionally, this model predicts *crowding out* of private donations by government grants to charities.

Crowding out due to donations behaving with impure altruism suggests that some level of giving is reduced when government grants support a charity. This supply side explanation notes this reduction is not at a one to one ratio. Alternatively, the Correa-Yildirim model maintains altruistic preferences, provides a *demand* side explanation. Under this assumption of pure altruism, the results are actually strengthened by including a warm-glow. Plus, the charity acting strategically and the endogeneity of the set of donors through fundraising produces a modeling prediction that grants will merely be partially crowded out, and that some of this crowding out will be due to reductions in fundraising efforts by the charity (reduced demand) in addition to classic direct crowding out of donors.

Econometric evidence of crowding out is found especially strong in social welfare organizations. There is no evidence of crowding out in health organizations or overseas and relief organizations. Education, especially higher education and research, displays evidence of *crowding in*, as government support may signal a sign of quality and competency. More research is needed for other nonprofit sectors. Crowding in may also be stronger in individuals who give directly to charity compared to individuals who give through fundraising events or donations from other charities or foundations.

Approach 3: Giving as a Social Act

This approach suggests uncovering the social interactions at play will help better understand changes in giving, research may help explain such fluctuations. These interactions include solicitation efforts, giving as a marker of values, altruism, and other social exchanges.

While markets are impersonal, giving is highly personal in nature. While economists take a dispassionate look at giving behavior, sociologists and psychologists may offer other perspectives to explain why giving practices varies from other economic transactions.

Audience effects suggests that people are more giving when they believe others will know about their giving or not giving nature. This emphasize charitable giving is a social interaction as well as an economic transaction.

The power of the ask refers to the increased likelihood of giving when the one in need asks for help from the one with power to give. Charity solicitation is instrumental in getting donations. Communication initiated by the charity is most effective. Without communication, perhaps one may maintain an intellectual awareness of need but sustain a “willful indifference” to the emotions that “empathic awareness” can kick off.

Socioeconomics of giving research indicates increased diversity often decreases giving. Similarly, increased share donors who identify with charity group ethnically yields increases in donors for most ethnicities. Giving is strongly affected by education as well. Research suggests that religion often predicts giving patterns.

Approach 4: Giver’s Mind

This newest approach seeks to understand giving as a response to a conscious or unconscious empathic, moral, or cultural urges.

While donors desire to contribute to charities and giving may provide a warm glow effect, reluctance to give or avoid solicitations may still factor into the ultimate decision-making process for donors. Along with budget constraints givers may need to exercise discipline in when and where to give rather than respond to every solicitation request.

Avoiding the ask is seen experimentally by donors incurring a small cost to evade a solicitation request. Many times, donors preferred not to be contacted by charities, especially when that contact is

personal in nature. This may be due to donors finding it harder to say no to a personal request, but still wanted to exercise control in their giving practices.

Approaching giving research from an economic perspective has provided many insights into the why and how donors give. While much of this research involves assessing individual giving, there is a subsection of this field that more specifically addresses corporate giving.

6.3 The Economics of Corporate Philanthropy

Literature on corporate giving is covered by multiple disciplines, including economics, management, finance, law, accounting, and ethics. Much of this work postulates the motivations for corporate giving, including Corporate Social Responsibility (CSR) Initiatives. Identifying the relationships between stakeholders may elucidate why firms donate, how they donate, and how their donations affect the nonprofit sector.

Why corporations donate?

Two prominent theories explain why strategic philanthropic practices guide corporate giving. “Agency cost” theory proposes that managers and board members increase their own utility through corporate philanthropy. “Value enhancement” theory suggests that philanthropy creates value for shareholders. Both theories suggest corporate giving is positive for the community as well as the corporation itself.

Evidence supports that corporate giving is highly affected by agency costs. Specifically, monitoring by debt holders appears to curtail giving. Additionally, firms with large boards give more. Firms with large marketing focus also give more.¹⁵ Value enhancement explains corporate giving as well. Firms with more public scrutiny, like regulated corporations and firms with large R&D expenditures (i.e. Pharmaceutical companies) give significantly more than other corporations. Interestingly, managers generally view corporate giving as an expense, but they are significantly more willing to incur this expense if financial and monitoring constraints are weak.¹⁶

¹⁵ Navarro (1988)

¹⁶ Brown et al (2006) and Varadarajan and Menon (1988)

Research in the management discipline asserts corporate philanthropy generates positive moral capital among stakeholders and communities. This moral capital can provide protection for the firm's reputation and ultimately increases shareholder wealth.¹⁷

How do corporations donate?

Corporate giving practices have traditionally reflected the preferences of high level employees and the solicitations received by this selectively small number of upper management. However, more current trends suggest that corporate philanthropy has become more strategic as philanthropy now is more commonly utilized as a reputation builder, a way for firms to signal their corporate values, and a means to address the long-term needs of a company (like preparing an educated workforce). This is strengthened by the growth of power and access to information that stakeholders have in monitoring corporate practices.¹⁸

The growing number of corporate foundations may signal that firms understand the power that their large resources can have at solving public problems, improving social capital, and supporting the nonprofit sector. As the needs of philanthropic practices may sometimes clash with the needs of for-profit corporations, separating the functions allows a corporation to structure long-term philanthropy without yielding to short-term shareholder demands.

How corporate donations affect charities?

As firms become more selective and purposeful with their donations, nonprofits may reflect higher specificity in objective and goal setting. Moreover, if donations occur in large amounts, they may come with contingencies that govern the charities' actions. This governance of nonprofits from a powerful, corporate stakeholder should be further researched as the implications are that corporations will be a growing influence on the nonprofit sector. On the plus side, these relatively large gifts from corporations tend to reduce fundraising costs. This can improve the efficiency in pursuing the nonprofit's overall mission.

¹⁷ Godfrey (2005)

¹⁸ Porter and Kramer (2002)

Corporate foundations with large endowments may offer more stable donor support compared to individual giving, especially in times of recession. This does not hold true of corporation who give without a separate foundation entity.¹⁹

The nonprofit landscape in an area can be heavily shaped by corporate giving. Since corporate giving often comes in large amounts, corporations have the ability to provide fund leadership gifts. This signals others that a particular nonprofit is of quality and worthy of further investments and donations. Therefore, early corporate support of charities may shape which nonprofits are most successful in the long-term.

6.4 Giving Patterns

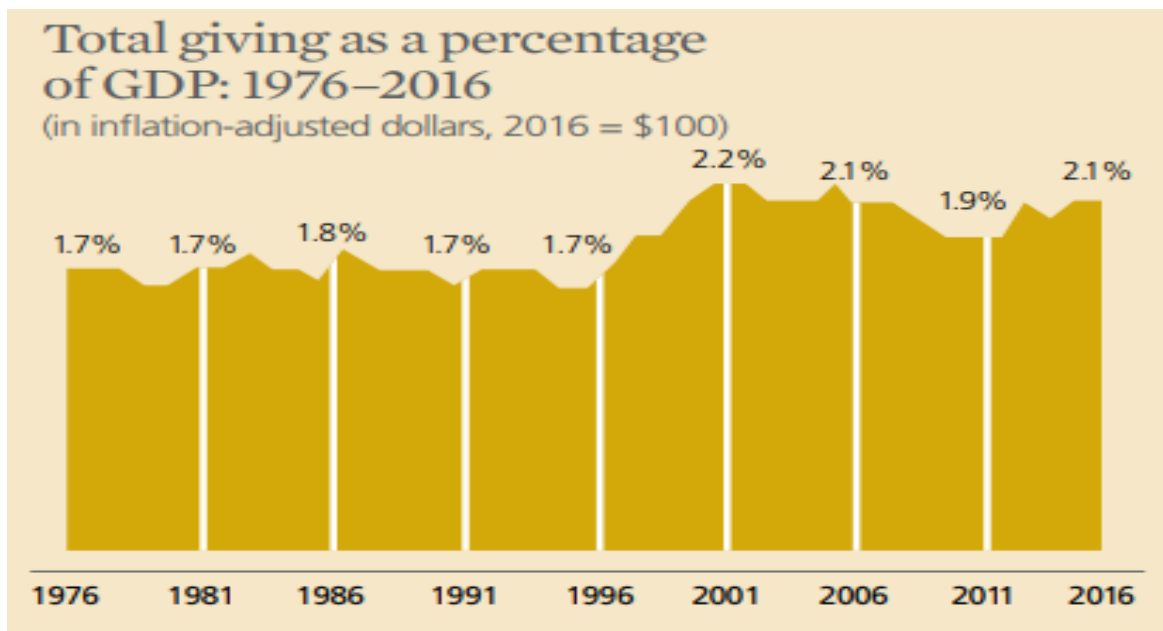
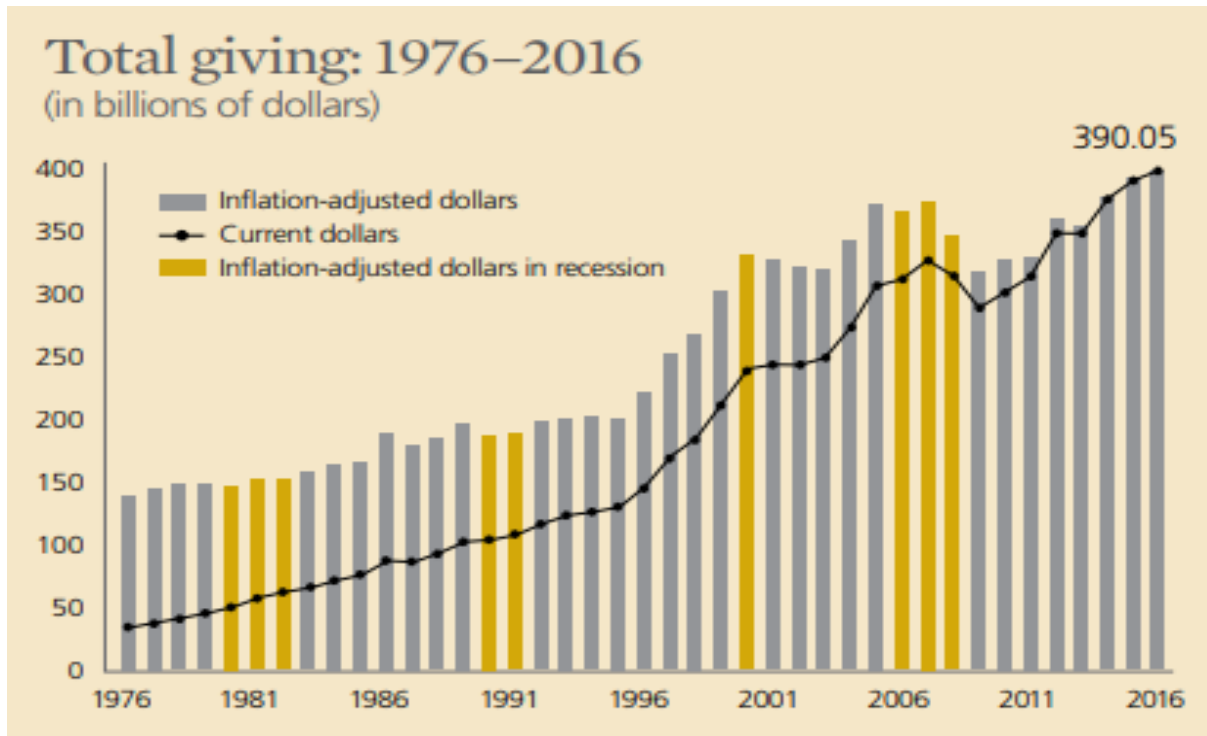
Before examining the impact of headquarter relocations on charitable giving in Oklahoma, we first examine national and regional patterns in charitable giving. Understanding recent patterns in giving and current levels of charitable contributions will provide context against which the empirical results can be interpreted.

Regions with high levels of giving and a strong network of nonprofits are a positive influence on the long-term economic health of the region as well as a positive indicator of social well-being of individuals in a community. This next section describes the current landscape of giving at the national and regional level, which will lead into our descriptive statistics of local giving.

In the U.S., total charitable giving has increased by \$93.96 billion in current dollars, or \$37.56 billion in inflation-adjusted dollars between 2006 and 2016. In 2016, total giving increased 2.7% from the previous year. As national economic health fluctuates, so does amount of giving, as seen in the chart from *Giving USA 2017* below.

US giving as a percent of GDP is consistently higher than other countries. As seen below, total giving increased in inflation-adjusted dollars by 1.7 percent between 2015 and 2016. This rate of change is compared with inflation-adjusted growth in total giving of 1.4 percent. Total giving as a percentage of GDP was 2.1 percent in 2016.

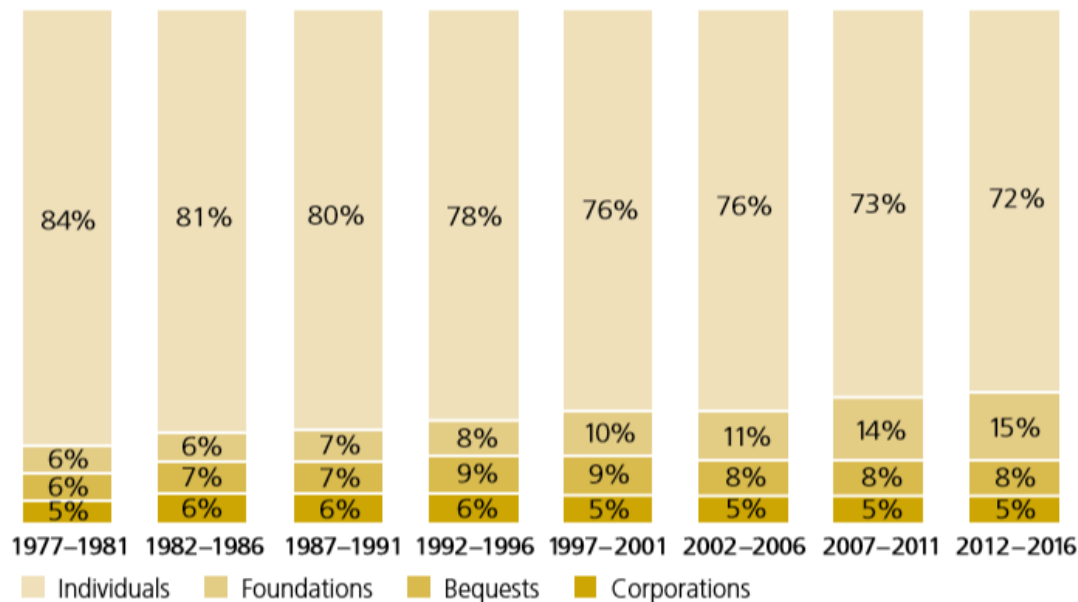
¹⁹ List has many works describe the elasticity of giving. Much of his comparison assess giving in comparison to stock market fluctuations.



One method to assess US giving is analyzing IRS data. The IRS divides charitable giving into four categories of donors: individuals, foundations, bequests, and corporations. The donation patterns reveal both the consistent importance of individual contributions as well as the growing importance of foundations as a source of giving.

Giving by source: Percentage of the total in five-year spans, 1977–2016

(in billions of inflation-adjusted dollars, 2016 = \$100)



Individual giving historically accounts for 75 to 80 percent of the total. In 2016, this category of giving rose to an all-time overall high at \$10.53 billion (72% of total giving). Research suggests the strongest predictor of individual giving is Standard & Poor’s 500 Index (S&P 500) (Rooney). This relationship with the economy and contributions is therefore reflected in total giving patterns in the United States. Generally, total giving as a percentage of GDP hovers between 1.7-2.2%.

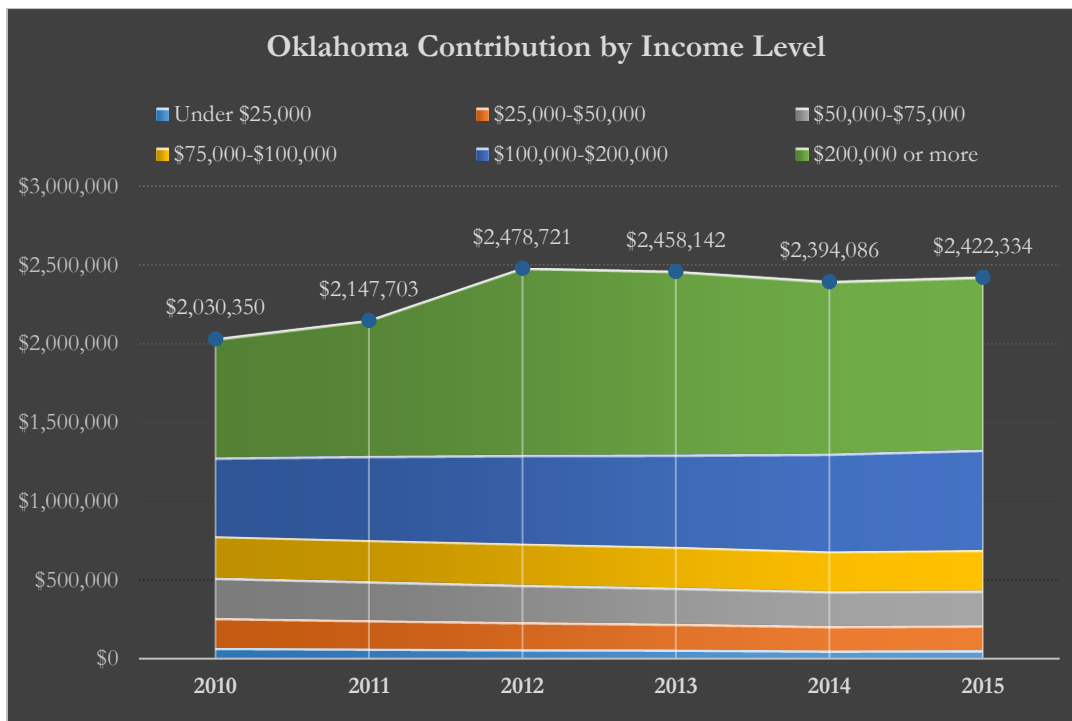
Donations by foundations, which now account for 15% of total giving, is more stable than individual giving. Foundation giving has grown as tax laws have shifted, causing major donors (individuals and corporations) to increasingly utilize foundations to conduct their social action and community improvement initiatives. Foundation figures must be interpreted carefully, however, since many foundation funds reported as donations also were originally reflected from other donation sources, mainly individuals and bequests.

Bequests are the third largest source of charitable giving. This category is the most volatile as very large amounts are represented by a few wealthy individuals or estates. Since yearly amounts vary so greatly and are unpredictable, this study does not analyze this category. However, this category may have significant impact regionally. Just as individual donations tend to rise with the presence of a headquarter, bequests may have positive growth with the long-term presence of a headquarter company.

Corporate giving can come in the form of donations directly by the firm or by philanthropy through a corporate foundation, the latter of which is represented by the foundation category for the IRS. This sector of donations is largely dependent upon companies' profits and thus strongly reflects the economic environment in which they operate.

6.5 Charitable Contributions in Oklahoma: Descriptive Statistics

By congressional mandate, the Internal Revenue Service provides statistics and microdata extracted from tax returns' information and figures filed with the IRS. To satisfy this legal requirement, the Statistics of Income (SOI) division of the IRS has prepared annual studies of both individuals and organizations across categories such as geography, income, assets size, and so forth. This section looks at individual giving to determine how giving patterns have fluctuated locally.

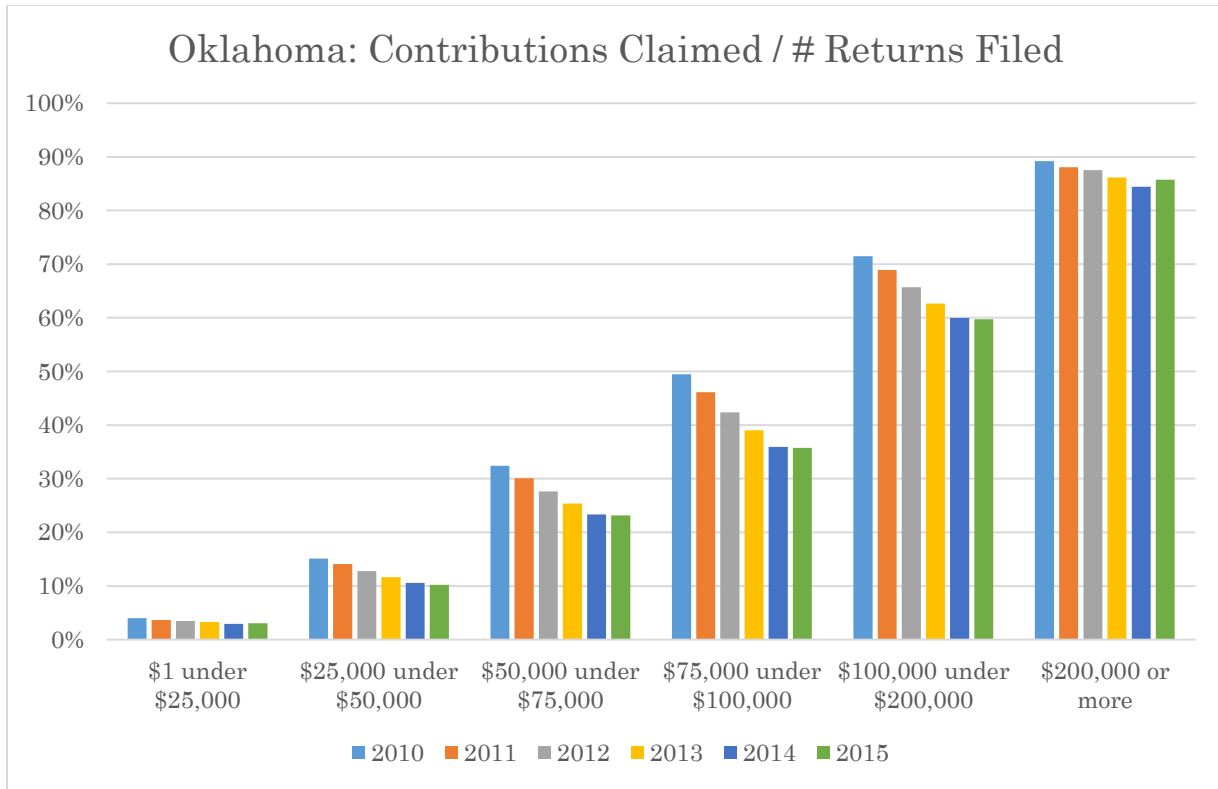


Contribution Amount (As claimed on tax return) -thousands of dollars							
Year	Under \$25,000	\$25,000-\$50,000	\$50,000-\$75,000	\$75,000-\$100,000	\$100,000-\$200,000	\$200,000 or more	Total
2010	69,268	190,049	256,791	261,493	502,508	750,241	\$2,030,350
2011	64,623	181,337	247,093	259,983	536,006	858,661	\$2,147,703
2012	60,544	171,849	238,896	259,635	565,864	1,181,933	\$2,478,721
2013	58,101	165,579	229,122	257,199	588,560	1,159,581	\$2,458,142
2014	52,335	156,689	220,781	251,551	622,060	1,090,670	\$2,394,086
2015	54,733	157,685	221,694	255,669	638,942	1,093,611	\$2,422,334

While overall contribution amounts are increasing over these six years, the growth is primarily in the upper income levels (\$100K to \$200K and \$200K+). For all other levels, the contribution amounts are slowly decreasing. Note the large bump in 2012 in total contribution amount claimed (15% increase) is primarily from a 37.65% increase for the 200K+ group, supported by a 5.57% increase from the 100-200K level. The relationship between high income tax filers and the amount of charitable contributions reported underscore the potential for high income, community invested jobs at corporate headquarters to be critical to a community's base of giving.

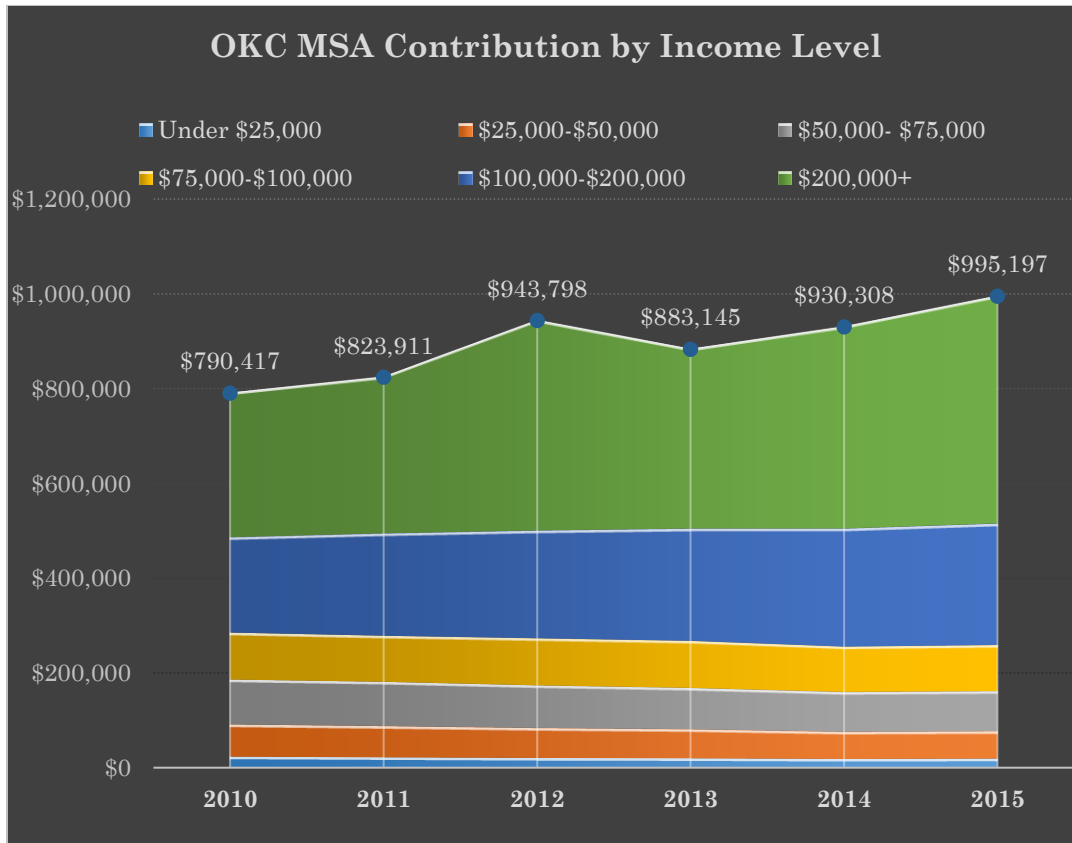
Growth	Under \$25,000	\$25,000 under \$50,000	\$50,000 under \$75,000	\$75,000 under \$100,000	\$100,000 under \$200,000	\$200,000 or more	Total
2010-2011	-6.71%	-4.58%	-3.78%	-0.58%	6.67%	14.45%	5.78%
2011-2012	-6.31%	-5.23%	-3.32%	-0.13%	5.57%	37.65%	15.41%
2012-2013	-4.04%	-3.65%	-4.09%	-0.94%	4.01%	-1.89%	-0.83%
2013-2014	-9.92%	-5.37%	-3.64%	-2.20%	5.69%	-5.94%	-2.61%
2014-2015	4.58%	0.64%	0.41%	1.64%	2.71%	0.27%	1.18%

Across all income levels, the share of tax returns claiming charitable contributions are falling. This pattern is likely to continue with recent tax reforms that limit the incentive for some high-income households to prepare and file itemized returns. The preceding discussion on the motivations for individual giving offers some insight into how becoming a non-itemizing taxpayer might impact donation behavior.



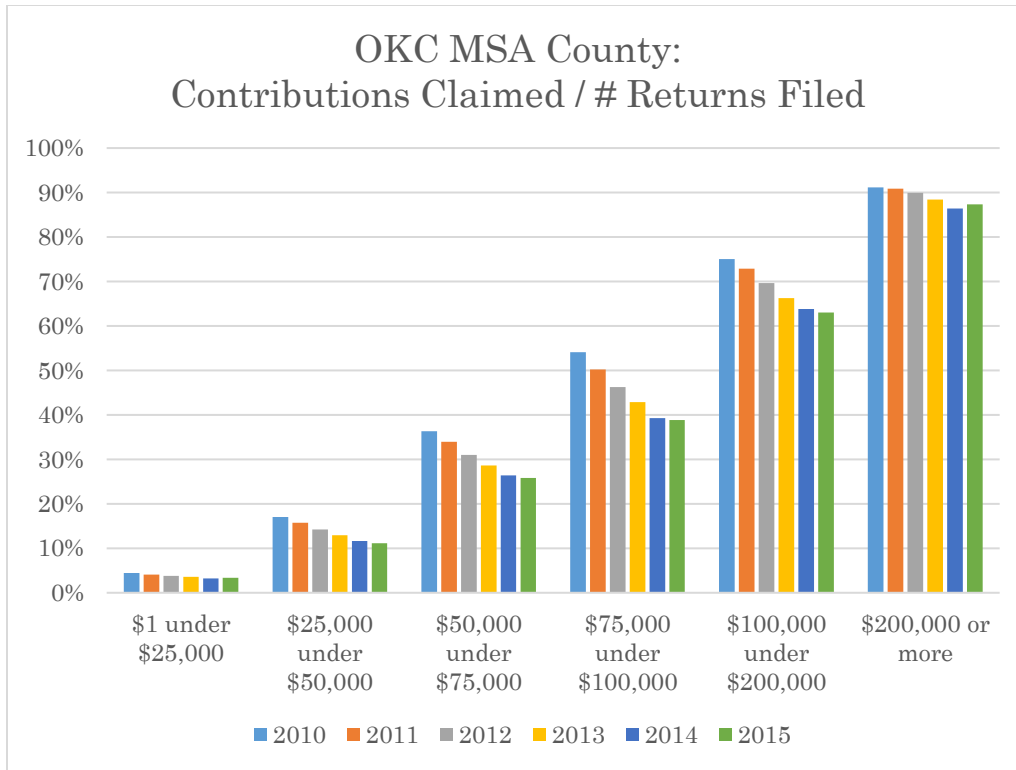
The discussion just presented on recent giving patterns in Oklahoma is repeated for the Oklahoma City MSA. Assessing individual giving by county level is most effective since county level data is most reliable and consistent over time. Using Canadian, Cleveland, Grady, Lincoln, Logan, McClain, and Oklahoma County, an aggregate representation of the Oklahoma City MSA is formed. However, this data is only available from 2010 to 2015.

Charitable contributions in the Oklahoma City MSA have grown more than the state (25.9% vs 19.3%), but in a more volatile manner than the state. Still, the patterns are reflected in both graphs. Note the 2013 dip is largely reflected by 200k+ level contribution decline (-14.5% growth). Graphs and figures are below.



Contribution Amount							
Year	Under \$25,000	\$25,000-\$50,000	\$50,000-\$75,000	\$75,000-\$100,000	\$100,000-\$200,000	\$200,000+	Total
2010	23,360	68,145	94,659	98,919	201,370	303,964	\$790,417
2011	22,157	66,171	93,100	97,356	215,891	329,236	\$823,911
2012	20,522	63,208	90,319	98,940	227,994	442,815	\$943,798
2013	19,733	61,558	87,025	99,128	237,058	378,643	\$883,145
2014	18,268	57,603	83,968	95,595	249,378	425,496	\$930,308
2015	19,194	58,361	84,261	96,821	256,709	479,851	\$995,197

Percent of Contributions claimed among Total tax return filed gives an idea of how many filers are giving. Note that many taxpayers may donate and choose not to claim any deductions due to contributions given. This percent indicates what level of participation is involved in giving that is captured by SOI data. Note the among the highest income households, rates of participation as measured by the share of returns claiming charitable contributions is higher in Oklahoma City than the state.



A negative rate of participation seems to be appearing across income levels, but more exaggerated for middle income levels (may reflect tax law changes or a difference in elasticity in contribution among the different levels).

While the county level data is only available back to 2010, zip code level data has a longer data availability. To assess individual giving over a longer time period, delving into micro data files at the zip code level helps show fluctuations more expansively. However, zip code geographies fluctuate over time and are more based on postal service needs than consistent geographic markers. Therefore, this approximation of Oklahoma City contribution amounts may include error in incorrectly identifying zip codes that do, do not, or only partially exist within the Bureau of Economic Analysis’ (BEA) definition of OKC MSA. The following data is not adjusted for inflation. Therefore, earlier IRS filings categorize income levels at different levels than later years. In these cases, the value is denoted across cells that represent those combined income levels.

Contribution Amount								
Year	Under \$10,000	\$10,000 under \$25,000	\$25,000 under \$50,000	\$50,000 under \$75,000	\$75,000 under \$100,000	\$100,000 under \$200,000	\$200,000 or more	Total
2002	3,056	20,327	67,927	325,630				416,940
2004	2,494	20,549	67,291	80,129	67,303	204,606		442,372
2005	2,227	19,298	65,966	81,178	70,015	269,795		508,479
2006	1,941	17,513	61,544	78,695	70,666	108,768	168,983	508,110
2007	1,910	16,073	58,176	76,781	73,532	124,390	244,953	595,807
2008	1,806	53,372	73,645	72,122	14,984	132,883	173,562	522,379
2009	17,249		52,100	68,552	69,999	131,300	185,876	525,076
2010	16,757		51,883	70,517	72,396	139,646	201,668	552,867
2011	16,263		49,948	69,417	70,334	149,457	192,483	547,902
2012	15,127		48,092	67,309	71,381	158,678	219,458	580,045
2013	14,494		47,107	65,449	72,262	163,407	220,737	583,456
2014	13,315		44,098	63,031	69,318	173,453	239,663	602,878
2015	13,791		44,395	63,514	71,229	179,219	247,595	619,743

Source: Economic Research and Policy Institute; Bureau of Economic Analysis

Participation Rate: (# Contributions Claimed / # Returns Filed)								
Year	Under \$10,000	\$10,000 under \$25,000	\$25,000 under \$50,000	\$50,000 under \$75,000	\$75,000 under \$100,000	\$100,000 under \$200,000	\$200,000 or more	Total
2002	2.5%	9.3%	32.1%	74.3%				30.10%
2004	2.5%	9.1%	29.3%	56.3%	76.2%	89.5%		29.14%
2005	8.6%	27.6%	54.7%	135.0%	88.2%	88.2%		29.24%
2006	24.9%	50.4%	69.0%	83.5%	90.8%	83.5%		28.35%
2007	1.36%	6.93%	21.52%	45.19%	62.79%	79.79%	89.67%	25.02%
2008	-	-	-	-	-	-	-	-
2009	4.53%		17.24%	37.21%	53.92%	75.66%	90.13%	23.89%
2010	4.39%		17.15%	36.86%	54.42%	75.07%	90.81%	24.34%
2011	4.09%		15.67%	34.43%	50.34%	72.88%	90.75%	23.45%
2012	3.82%		14.18%	31.44%	46.36%	69.77%	89.74%	22.84%
2013	3.53%		12.97%	28.91%	43.16%	66.10%	88.34%	21.87%
2014	3.16%		11.64%	26.57%	39.40%	63.35%	86.22%	21.12%
2015	3.27%		11.00%	26.03%	39.08%	62.66%	87.21%	21.20%

Source: Economic Research and Policy Institute; Bureau of Economic Analysis

6.6 Econometric Analysis of Relationship between Headquarters & Giving

Fluctuations in headquarter activity and the charitable contributions reported in tax filings provides a natural dataset to explore the extent of any underlying relationship. Fluctuations in headquarter activity are measured through changes in total wages paid to the NAICS sector 551114 as defined in section 3 of this report. Though this list may not be exhaustive of headquarter employment or wages, certainly figures captured in this data will not be found in non-headquarter offices. Therefore, it can be an estimator in headquarter activity. To assess levels of charitable giving, SOI data is collected for individual contribution amounts.

Our analysis uses state level data (plus District of Columbia) from 2001 to 2015. Hawaii, Rhode Island, Vermont, and Wyoming were excluded due to incomplete data. Observations across 47 geographies and 15 years generate a panel data set with 705 observations. We take the first difference of both headquarter wages and charitable contributions leaving 658 usable observations. To control for general levels of economic activity, Bureau of Economic Analysis data on personal income, personal consumption expenditures, and population are utilized.

Our general modeling approach is similar to that presented in section 4 of this report. We can include individual fixed effects to help control for time invariant differences across geographies allowing an individual intercept for each.

$$\Delta(y_{m,j,t}) = c_{m,j} + \gamma_{1,j}\Delta w_{m,j,t} + \Delta x_{m,t}\beta + u_{m,j,t}$$

Where Δy is the change in charitable contributions, Δw is the change in headquarter sector wages, and Δx is a vector containing annual changes to the economic control variables. The econometric model is estimated using a panel fixed-effect specification. The results are discussed below.

The table below presents the model estimates under various specifications. A statistically significant relationship between the changes in headquarter wages and the changes in charitable contributions is present throughout. Importantly, across specifications that include a mix of economic control variables the model estimates are similar in magnitude. All models that incorporate some economic control specification find a relationship ranging from a minimum of \$0.161 to a maximum of \$0.196 change in charitable contributions for every \$1 change in headquarter wages with an average effect across models of \$0.178.

Dependent Variable: Change in Charitable Contributions									
	A	B	C	D	E	F	G	H	I
Δ HQ Wages	0.4262***	0.1759***	0.1613***	0.1689***	0.1626***	0.1828***	0.1959***	0.1963***	0.1824***
Δ PCE		0.0352***	0.0284***	0.0273***	0.0286***				0.0350***
Δ Personal Income			0.0043	0.0049*	0.0041	0.0168***	0.0170***	0.0169***	
Δ Population					573.26			276.38	
Time				-4.6e+06			-9.0e+06**	-8.8e+06**	-3.1e+06
Constant	4.4e+07**	-1.8e+08***	-1.7e+08***	-1.3e+08***	-2.0e+08***	-7.2e+07***	1.7E+05	-1.6e+07***	-1.5e+08***
LSDV R-squared	0.2237	0.3660	0.3685	0.3696	0.3693	0.3393	0.3438	0.3440	0.3666
N	658	658	658	658	658	658	658	658	658

Source: Economic Research and Policy Institute; Bureau of Economic Analysis

The significance of the model estimates can be interpreted in the context of a headquarter relocation. Using baseline industry earnings and the estimated impact to industry earnings from a headquarter relocation, we can estimate the impact to charitable contributions. The findings suggest, for example, that a single mining (oil and gas) relocation could increase charitable contributions by 1.07% while a utilities relocation increases charitable contributions by 0.55%. Importantly, the best proxy of the headquarters sector, management (55), suggests that a single corporate headquarter relocation increases charitable giving by 1.55%. The analysis on charitable contributions reinforces the conclusion that headquarter relocations exert both an economic and a social impact.

Oklahoma City Charitable Giving Impact from Headquarter Relocation

Sector (NAICS Code)	Implied Direct Change in Earnings	Predicted Impact to Charitable Contributions	Predicted Growth in OKC Contributions
Mining (21)	\$60,034,965	\$10,686,223.77	1.07%
Utilities (22)	\$31,018,318	\$5,521,260.60	0.55%
Construction (23)	\$4,071,777	\$724,776.31	0.07%
Manufacturing (31-33)	\$9,996,642	\$1,779,402.28	0.18%
Wholesale Trade (42)	(\$839,944)	(\$149,510.03)	-0.02%
Retail Trade (44-45)	(\$320,793)	(\$57,101.15)	-0.01%
Transportation (48-49)	\$156,867,035	\$27,922,332.23	2.81%
Information (51)	\$8,455,800	\$1,505,132.40	0.15%
Finance and Insurance (52)	(\$79,745)	(\$14,194.61)	0.00%
Real Estate (53)	\$22,392,257	\$3,985,821.75	0.40%
Professional, Scientific (54)	\$41,933,891	\$7,464,232.60	0.75%
Management (55)	\$86,458,902	\$15,389,684.56	1.55%
Admin, waste, support (56)	(\$845,094)	(\$150,426.73)	-0.02%
Health Care (62)	\$340,411,054	\$60,593,167.61	6.09%
Arts, Entertainment (71)	\$44,812,314	\$7,976,591.89	0.80%
Accommodation and Food (72)	\$54,461,624	\$9,694,169	0.97%

Source: Economic Research and Policy Institute; Bureau of Economic Analysis

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