

**DUKE
UNIVERSITY
SOCIOLOGY**

**Do Institutionalized Choice
Sets Funnel Undergraduate
Students to Wall Street?**

Ryan Genkin

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Abstract

This study will analyze the impact of eRecruiting on the undergraduate student population at Duke University. Specifically, it will focus on how the eRecruiting platform alters the academically accepted career decision-making models put forth by many experts. Traditional models propose that in order to make a decision, one must first accumulate full information on the available jobs in the market; however, eRecruiting undermines the process by offering a skewed vision of the external job market. A representative sample of 1,221 jobs listed on eRecruiting was coded by both industry and occupation. The resulting distribution was then compared to nationally representative data and the findings suggest that the eRecruiting site leads to an institutionalized constrained choice set which, in turn, constrains the job search process for Duke students. These findings present many implications for Duke and its graduating students as well as for universities across the country.

Introduction

Sentiment At Prestigious Universities Around the Country

Duke University is a prestigious University that consistently ranks within the top-10 Universities in the United States (U.S. News and World Report 2012). It is comparable to several other elite universities on a variety of factors including the strong alumni base, school spirit, focus of the curriculum, and student body. Moreover, it is worthwhile to examine whether the phenomenon described above is also occurring at similar institutions of higher learning.

In an opinion-editorial that ran in The Stanford Daily on October 11, 2011, Teryn Norris and Eli Pollack, both seniors at Stanford University, shared their discontent with the recruitment distribution on Stanford's campus:

"America's university system is one of our most prized national assets, benefiting from taxpayer support and providing invaluable public goods in the way of knowledge and human capital...It should stop serving as the vocational training center for reckless banks and hedge funds" (Norris and Pollack 2011).

Norris and Pollack speculated on why so many graduates head to Wall Street and postulated that the reason was not financial security or substantial signing bonuses; in fact, they argue that the excitement surrounding these jobs is not economic in nature, but

rather, based in prestige, social status, and buzz on campus, which is maintained each year during recruiting season:

“Beyond the simple allure of high salaries, investment banks and hedge funds have designed an aggressive, sophisticated and well-funded recruitment system, which often takes advantage of student’s job insecurity. Moreover, elite university culture somehow still upholds finance as a ‘prestigious’ and ‘savvy’ career track” (Norris and Pollack 2011).

In a follow-up interview with the Huffington Post, Norris specifically called out the Career Development Center for contributing to this phenomenon by allowing banks and economic firms to dominate the recruitment process. While he acknowledged this may be because the banking and consulting industries have strong campus recruitment processes, Norris still holds the campus representatives responsible: "Even if the career development centers were playing only a passive role in the recruitment process... they're essentially allowing these banks to dominate...simply because these banks have the most aggressive and sophisticated recruitment system” (Terkel 2011).

When interviewed on American Public Media, Norris expanded his accusations to all elite universities, explaining, “There's a very strong emphasis with the career development center here and across elite universities across the country to emphasize finance and management consulting”(Ryssdal 2011). Despite the strengths in their argument, Norris and Pollack were missing a large piece: substantial data to buttress

their claims. Moreover, a similar argument to Norris and Pollack will be presented in the pages that follow along with accompanying data to support the fact that banking, consulting, and financial industries dominate the job options for students at Duke and that the representation of the “true” job market is skewed towards these industries through the eRecruiting system.

Sentiment at Duke University

This project is born out of empirical observation that many of the job opportunities presented to graduating seniors fall within a very small scope of industries and occupations. As a senior at Duke University, I regularly heard my classmates discussing this topic, in different forms: “There are no jobs posted, unless you want to be an [Investment] Banker or a Consultant,” or, “The only place to find jobs for Duke Students is eRecruiting, and there is nothing on there for me,” or “I checked eRecruiting, and then it just made me depressed; not one job in the industry I wanted.” It would not be uncommon to walk through the Library Café, or Student Union during recruiting season and hear these very statements, providing a sense of despair and discouragement hanging around what should be a celebratory end to their time in college.

Duke University Job Placements

In 2011, despite the economic downturn, 24.6%, of job-seeking seniors at Duke University earned jobs in the finance and insurance industries, with many of them heading directly to Wall Street. Duke University’s job placements are very similar to those of other prestigious universities: in 2011, finance was the top recruiting industry at Columbia University, roping in 26.9% of its students; Princeton sent an even larger

percentage, 30.4%; and for the fifth consecutive year, finance remained the top recruiting industry for Harvard University graduates (Tanaka 2012; Roose 2012).

The shocking part: these rates actually reflect a substantial decrease in finance recruitment rates for these prestigious schools. In fact, according to Catherine Rampell's article in the Economix blog of the New York Times, the financial crisis has caused a considerable drop in these numbers, as before the financial meltdown, closer to half of all graduates from premier institutions sent students to financial firms, with Princeton sending 46% of job-finding graduates to finance in 2006 (Rampell 2011).

While these numbers do highlight the fact that students are indeed still flocking to Wall Street, they only address job *placements* at these universities; they do not address the job *postings* at these Universities. As the rest of the paper will show through data analysis and exploration of Career Center postings, job listings are entirely skewed and are perhaps the real reason job applications and placements are also skewed towards the Finance and Insurance industry at elite universities. The rest of this paper will demonstrate how this constrained set of alternatives is likely to be an important factor in career decision-making.

Decision Making Theories

Decision-making is a very complex and difficult process. For half of a century, sociologists and psychologists have been sculpting decision theory, which can be used to both conceptualize and improve the outcome of the decision making process (Bell, Raiffa, & Tversky, 1988). Decision-making models provide the conceptual frameworks through which we can begin to understand the psychological process in which a *decision-maker* processes information, considers two or more *alternative actions*, and arrives at a conclusion (Harren 1979; Jepsen and Dilley 1974).

Many theorists have maintained that decision theory can be applied to the vocational decision process. Similar to other decision-making situations, in seeking a career, there is one individual who must make a decision from a set of alternatives, utilizing a predefined set of preferences. Because the theoretical framework matches, decision theory has been applied to career decision-making for decades, beginning with the works of Gelatt, Jepsen, Tiedeman, Harren, and Gati (Gelatt 1962; Jepsen & Dilley 1974; Tiedeman 1961; Harren 1979; Gati 2001). Since then, the models have developed and built upon one another.

It is important to distinguish the career decision-making models that will be used in this paper from the career development models, which focus on the developmental moments in the decision-makers life starting at early childhood (Harren 1979). Because these models are much broader in scope and do not focus on the actual decision process, but rather, on the developmental life cycle as it leads up to a decision, the rest of the

discussion will overlook these career development models and will employ the career decision-making models instead.

After reviewing the literature on career decision-making, it is apparent that the decision-making process has received both theoretical as well as empirical review. There are several models, presented by various thought leaders in the field, which the literature accepts as valid (Hirschi 2007). The theories enumerated below are the predominant theories in the field and the ones from which the final theoretical model for the paper will be drawn.

Career Decision-Making Theories, Alternative Sets, and Implications

Harren (1979)

In Harren's (1979) sequential stage model, which was based upon Tiedeman and O'Hara's (1963) stage-based model, the individual goes through four main stages in the career decision-making process: awareness, planning, commitment, and implementation. During the planning stage, exploration occurs. During exploration, knowledge of the alternatives is necessary. Harren proposes that if complete data on alternatives is not made available, "the individual may not be able to complete the process and make the transition to Commitment," without acquiring further knowledge of alternatives (Harren,1979).

Gati and Asher (2001)

Gati and Asher (Gati, 1986; Gati & Asher, 2001) present a three-stage model for career-decision making. Their model, the Prescreening, In-Depth Exploration, and

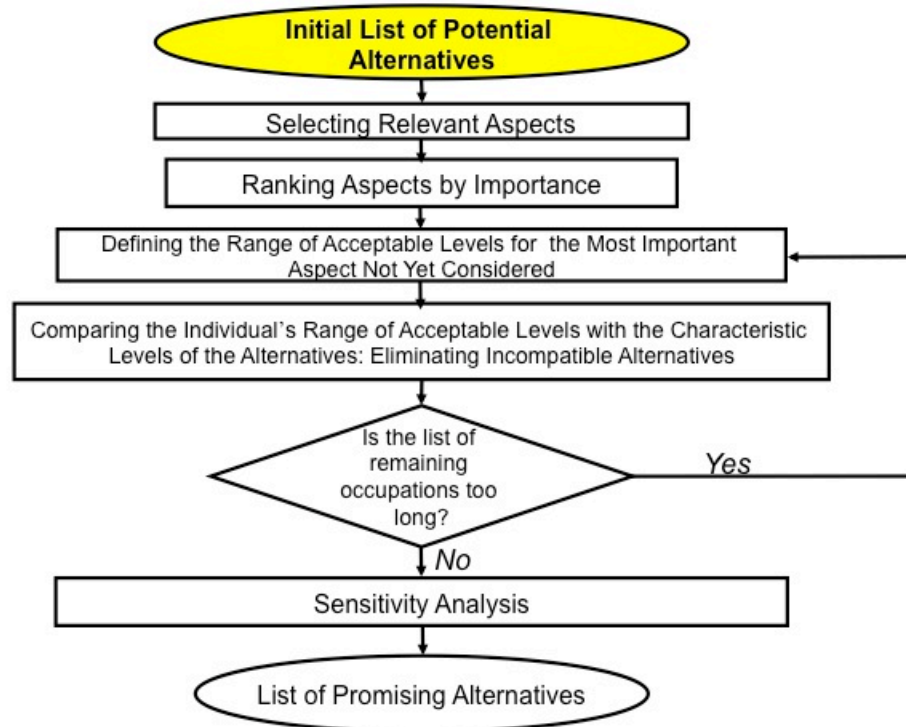
Choice, or PIC, model “provides a framework for a dynamic and interactive process.”

Gati and Asher (2001) propose that there is a need for the division of the career-decision process into phases.

According to Gati and Asher, this need stems from three main reasons. First, the number of alternatives to process is generally very large (Osipow, Walsh, & Tosi, 1980, in Gati and Asher, 2001). Second, the quantity of information to process is very large, when considering the vast number of criteria and attributes that characterize each alternative (Gati, 1986, 1998; Gati, Garty, & Fassa, 1996; Katz, 1993; Lofquist & Dawis, 1978; Matarazzo, 1986; Meir & Yaari, 1988; in Gati and Asher, 2001). Third, individuals have a limited cognitive processing capability, and in many cases, are restricted by time. When considering these factors it should be the goal of any process framework to limit the potential for a mistake within the decision making process. One method to minimize this risk is by splitting the process up into phases, “distinguishing between screening and choice” (Beach, 1993).

Due to its complexity in design and accuracy in its depiction of occupational decision-making, Gati and Asher’s PIC model as depicted below will provide the theoretical framework for the rest of the analysis and discussion.

The Five Steps of the Prescreening Stage in PIC Model (Gati and Asher 2001)



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Gati and Asher (2001) propose that the first step in the PIC model is to prescreen the initial list of alternatives, so that this set can be narrowed down to a set of realistic and promising options. Taking this initial set of alternatives, the decision-maker should then sequentially eliminate (aspect after aspect) until a manageable set of promising alternatives is found. In-Depth exploration into these few alternatives should be made, and then, ultimately, a choice should be reached. Pitz and Harren used normative decision theory to determine that “The first element of each decision problem is a set of alternatives. When deciding, a person should be aware of the available alternatives and be well acquainted with their characteristics” (Germeijs and De Boeck, 2003).

In Sauermann (2004), alternatives, which form initial choice sets in the PIC model, are described in detail. Alternatives, or choice options, are occupations “such as business consultant or industrial engineer.” Alternatives do not only hold the weight of a job role, but also hold the characteristics of the organization they are a part of. The non-tangibles in an organization, like the culture, prestige or reputation are associated with the “alternative.” Sauermann also notes that each alternative is described by a set of attributes, and these attributes are often the way in which jobs are characterized—pay, social status, geographic location, etc. (Sauermann 2004).

In both Harren (1979) and Gati’s (2001) models there will be an initial set of alternatives from which the decision maker makes his/her choice; however, Sauermann (2004) explains that the quantity, distribution, or quality of the initial set depends on a variety of aspects, including but not limited to the interests of the decision maker, the capacity and capabilities of the decision maker, and, market constraints.

It is proposed that the market constraints at Duke impact the initial choice sets of Duke students who utilize the Career Center tool of Duke eRecruiting. It is this change to the initial set of alternatives that undermines the PIC career decision-making model.

Grotevant (1987) describes how school environments provide settings in which young people find out about career opportunities. As the informing institutions, schools have a large potential to influence decisions of their students.

How Students Create Initial Choice Sets

Grotevant's argument brings us to an important question: how do students create initial choice sets? Are they able to cultivate an initial set of alternatives based on national knowledge of job trends, or do they create their alternative sets with the options provided by their university? The literature lacks depth in its explanation of the formation of these initial sets of alternatives, or choice sets, as much of the literature was established prior to the digital age. In fact, the models presented assume that the individual has access and knowledge of the entire alternative set prior to beginning the decision-making process. If the individual does not have knowledge of the set, it leads to indecision (Gati, 2001, Germeijs and De Boeck, 2001). In today's academic and job-market climate, however, the role of technology cannot be ignored, as technological advances have fundamentally changed the job search process, and arguably the way in which alternative sets are delivered to the career decision-makers, or in this case, job-seeking students.

The Role of the Internet in Job Searching

Market research conducted by recruiting company Experience, Inc., exposed some generational trends and discovered how these initial sets are being delivered to the generation Y career decision-makers. The research has revealed that the web is the first place job seekers go to form their initial sets of employment opportunities, as they spend 12.2 hours per week online, on average, which is a 28% increase from Gen X. Additionally, the research shows that their initial choice sets are being formed from individual research on the internet and through job posting bulletins found on the internet,

as opposed to through career counselors in the University Career Services Office (Experience Inc., 2008).

The research also pinpointed the main avenues Gen Y students are using to create their initial alternative sets, identifying career fairs and career centers as the favored utility, with well over 70% of students using each (Experience Inc., 2009). These computer and Internet based career service options are institutions that are impacting the career decision process. Unfortunately, there exists a dearth of Literature on technology being used for the Job Search process. In Feld (2003) it is claimed that very few books, peer-reviewed articles or other publications exist that explore the use of technology as it applies to the job search and decision-making process, especially as it relates to career services offices. Despite the lack in literature, it is still crucial to understand that Career Services Offices rely heavily on technology, and that these technological innovations deserve the attention of the academics, because they intervene in the decision-making process. Information sources on the use of technology, as it relates to Career Services Offices, and recruiting are, however, outside of the standard, peer-reviewed academic realm.

Since the early 1980s, computers have been used in university career center efforts to assist students in selecting the right job, and subsequent career path. From the Radio Shack TRS-80 microcomputers used by Victor Valley College in 1983, electronic recruitment efforts have come a long way (Los Angeles Times 1983). With these advances in technology, e-recruiting has become an ever more important part of the career decision making process for University students.

The past decade has seen the rise of CSO web sites to the single most used means of seeking employment (Allen, 2000a; Scott, 2002). This research is consistent with the finding of the Experience, Inc. Survey. Throughout the evolution of these systems, there have been various vendors that have come into the market, and departed just the same. Each year, new vendors sprout up and old ones fade away. Currently, there are several major players in the market, one of which is Experience, Inc.'s University System, eRecruiting.

Experience, Inc. and eRecruiting

Experience, Inc. is the leading provider of career matching services for students enrolled in higher education, and recent graduates from institutions in the United States. Over 37,000 employers post jobs with the Boston, Massachusetts based service-provider (Experience 2011). Since the founding in 1996, Experience has been partnering with universities and employers alike to bridge the gap between the educational and working worlds. As of April 2012, over 3,800 colleges and universities were working with the Experience eRecruiting platform, and over 500 colleges and universities were partnered exclusively with eRecruiting through microsites (Experience 2012).

Duke University is one of the Universities that utilize the eRecruiting microsite, termed Duke eRecruiting. This site functions as a job-posting bulletin for Duke University. Employers post a job to the bulletin and then Duke University Career Center staff approves it. Duke University Career Center staff can also post a job to the bulletin internally.

eRecruiting Use at Duke

According to Exit Survey conducted of the Class of 2011, a combined 59% of Survey Respondents said they found their job through an eRecruiting job posting or on campus recruiting (Student Affairs 2011). If an employer is on campus for recruiting, they also post their job on eRecruiting. This makes the eRecruiting job posting data set an ideal set for analysis.

The Career Center has a wide range of offerings, from Career Fairs to Career Counseling, but there is only one location where jobs are posted for Duke University undergraduate students—Duke eRecruiting (Duke University Student Affairs 2012).

This information supports the Experience, Inc. statistics, and the claim that a majority of Duke University undergraduate students begin their job search on eRecruiting. Based on the supporting evidence, it is my argument that eRecruiting functions as the original pool from which “initial alternative sets” are formed. This means that if eRecruiting does not represent a broad enough range of job opportunities, representing all of the job attributes and opportunities available in the external job market, then the PIC career decision-making model will be undermined. Because students are beginning with an institutionalized set of choices, they are therefore being funneled into the range of choices provided for them.

In Barbara Kahn, William L. Moore, and Rashi Glazer’s *Experiments in Constrained Choice*, they define constrained choice as something that occurs when “situational or extrinsic factors dictate a specific set of partitions” (Kahn, Moore, & Glazer 1987). Tversky and Sattath (1980) maintain that these types of constraints can

either be a function of convenience or circumstance, or be imposed by others. The options within a constrained choice set differ greatly from those in a non-constrained choice set, and therefore the resulting decisions made may vary greatly. In this instance, the job and subsequent career choices of Duke University students may vary greatly from what they would be if the choice set were not constrained. The optimal decision-making process would be affected. The primary step of gathering all possible alternatives would be severely impacted, if the pool from which these alternatives were being selected were already highly selective and not equally distributed.

Research Methods

Research Questions

This research aims to compare the industry and occupational distributions of jobs at Duke to those in the nation. In building upon existing literature and decision-making models, this study seeks to answer the following questions:

1. What are the total number of jobs, categorized by industry sector and sub-sector as well as occupational major group and minor group. What are the percentage distributions of these jobs?
2. How does the Duke percentage distribution compare to that of the external job market in the United States?
3. What percentage of Duke students use eRecruiting to create their initial alternative sets?
4. Does Duke's eRecruiting undermine the first step in the PIC career decision-making model, by presenting a pool of jobs that does not represent the external job market?

Research Hypothesis

From the above questions, we arrive at the hypothesis, which will form the basis of the following investigation:

H1: Duke's eRecruiting system and career center presents a skewed representation of the external job market, leading to non-optimal initial alternative sets from which graduating students make career decisions.

Qualitative Research

Research was conducted to define and understand the various institutional forces involved in the recruiting process at Duke University, as well as the private-centralized institutions within the Career Center and Duke eRecruiting. Understanding the mechanisms through which each of these institutions function in relation to job listings and postings, allowed for more accurate data collection, interpretation, and conclusions.

Data and Methodology

Data

This study primarily utilized two data sets. To collect data about jobs at Duke, the Duke eRecruiting records for the 2011-2012 employment cycle were obtained and coded. The 2010 National Employment Matrix, compiled by the Bureau of Labor Statistics served as a second data set. Other data sets were used for auxiliary purposes.

The Duke eRecruiting Records

The Duke eRecruiting Records provided the base for the first data set. After gaining access to the data at the Career Center, I collected a complete data set of all jobs posted on Duke eRecruiting for the 2011-2012 cycle. After the records were collected, they were analyzed for comparability. The original Duke eRecruiting data set had jobs as the unit of study with many fields detailing the particulars of each job posted to the site. Categorical variable fields included: Job Title, Job Cycle, Searchable Start Date, Searchable End Date, Apply Start Date, Apply End Date, Pre-Select Deadline, Job Location, Job Type, Paid/Unpaid, Full-time/Part-time, Job Function, Period of Employment, Application Deadline, Cover Letter Required, Application Method, Number of Applications, Number of Schedules, Number of Interviews, Employer Name, Employer Industry, and Contact Information. Each job has linked information in each of the fields listed. Because of the breadth of information linked with each job, the jobs could be filtered for the most appropriate to be analyzed. The jobs were filtered for Full-time, paid, jobs (not internships), which received applications online through the

eRecruiting system. The jobs that had an “offline” application method would not have complete data for the fields “applications received” and “interviews given” amongst others, which is why they were eliminated from the sample. The resulting set of jobs was 1,221 jobs, which formed the data set for this study.

The National Employment Matrix

The National Employment Matrix database provided the National employment data that was used as a comparison to the Duke data. The National Employment Matrix database displays data on 2010 and projected 2020 employment and employment change (Bureau of Labor Statistics 2012). This data set is updated every other year and includes a projection of the number of jobs in the nation. According to the Bureau of Labor Statistics, “Employment information is a useful starting point for assessing opportunities, because large occupations usually have more openings than small ones, regardless of growth or replacement needs” (Bureau of Labor Statistics 2012). The National Employment Matrix displays “total employment” as a count of jobs, not a count of workers, which is why it was chosen over the Current Population Survey data, which only displays the number of workers. Additionally, the National Employment Matrix covers all jobs, whereas the Current Employment Statistics (CES) only cover non-farm paid jobs.

Analysis Method

The Duke eRecruiting jobs were collected and compiled and then summed across industry and occupational categories to arrive at totals. Based on these totals, distribution percentages were calculated. These distribution percentages were then compared to the

national distribution percentages by creating a ratio of the Duke distribution percentage over the national distribution percentage. The resulting ratio numerically signifies the magnitude of over or underrepresentation of a certain category at Duke, with ratios larger than one indicating overrepresentations at Duke compared to the national average and ratios smaller than one indicating underrepresentation.

Coding the Data

The Duke eRecruiting data set used a coding scheme for Industry and Occupation; however, because the scheme was unique, inconsistent, and nontransferable, data were manually recoded to match national standards. Each job was coded according to the 2010 Standard Occupational Classification (SOC) System, receiving both an Occupational Major and Minor Group.

The 2010 SOC System is “used by Federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data.” The system operates with 23 Major Occupational Groups, which include 97 Minor Occupational Groups. The most detailed level of classification includes 840 detailed occupations (Bureau of Labor Statistics 2012b).

Each employer, which was linked to each job, was coded according to the 2012 North American Industry Classification System (NAICS), receiving both a broad Industry sector, as well as an industry sub-sector. The 2012 North American Industry Classification System (NAICS) is the standard system “used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy” (United States

Census Bureau 2012). The NAICS is broken down into 20 Broad Industry Sectors, with 91 Industry Sub-Sectors. These are also referred to as 2-digit and 3-digit classifications, as their codes contain that many digits. The Industry classifications continue out to 5-digit codes; however, for my research this specificity was not necessary or feasible.

In addition to these titles, SOC and NAICS codes were assigned, in case further research would find them useful. The data were initially coded by one person to ensure consistency and reliability. Additional raters were trained in the coding metrics and procedures. These additional raters were used to check for accuracy and validity and each coded five randomly selected jobs. Additional rater codes were compared to initial rater codes. All of the coding exercises matched precisely in all categories, confirming a highly valid and reliable coding scheme.

Results

The Duke eRecruiting data was coded for both Industry and Occupation. The industry was coded into Broad Sector and Sub-Sector. The Occupation was coded into Major Occupational Group and Minor Occupational Group. The number of jobs that satisfied each categorical variable were tabulated and displayed in a table.

Table 1: Industry Distributions of Selected Industries

NAICS Sector	2010 Statistics from BLS		2012 Duke E-Recruiting		Ratio*
	Jobs	Percentage Distribution	Jobs	Percentage Distribution	
Information	2,710,900	1.90%	191	15.64%	8.23
Finance and insurance	5,691,300	4.00%	312	25.55%	6.39
Professional, scientific, and technical services	7,423,900	5.20%	326	26.70%	5.13
Healthcare and Social Assistance	17,425,100	12.2%	19	1.56%	.13

*This ratio was created by placing the Duke job listing percentages over national listings percentages. Numbers greater than one indicate overrepresentation on Duke's campus compared to the national statistics, while numbers less than one indicate underrepresentation.

As displayed in Table 1, the Finance and Insurance broad industry sector encompassed 312 jobs (25.55%) of the jobs on Duke eRecruiting, which is 6.39 times the percentage distribution, or representation, of Finance and Insurance nationally, with 4% of total jobs. Professional, scientific, and technical services covered 26.70% (n= 326) of jobs, or 5.13 times the national representation of 5.2%. Interestingly enough, while the

title may not indicate such, the vast majority of these jobs fall under “Management Consulting” or “Technical Consulting.” The information industry also was well over-represented, with 15.64% (n= 191) of the jobs on Duke eRecruiting, with most listings in software publication and internet-hosting.

There are several industries that are underrepresented at Duke, one of which was included for comparison purposes: healthcare and social assistance. These jobs represented merely 1.56% (n =19) of jobs on eRecruiting, whereas they represented 12.2% (n= 17, 425,100) of jobs nationally.

Table 2: Occupational Distribution of Selected Occupations

NAICS Sector	2010 Statistics from BLS		2012 Duke E-Recruiting		Ratio*
	Jobs	Percentage Distribution	Jobs	Percentage Distribution	
Business and Financial Operations	6,789,200	4.70%	618	50.61%	10.8
Business Operations Specialists	4,151,900	2.90%	325	26.62%	9.2
Financial Specialists	2,637,300	1.80%	293	24.00%	13.3
Architecture and Engineering	2,433,400	1.70%	107	8.76%	5.2
Community and Social Service	2,402,700	1.68%	11	0.90%	.54

*This ratio was created by placing the Duke job listing percentages over national listings percentages. Numbers greater than one indicate overrepresentation on Duke’s campus compared to the national statistics, while numbers less than one indicate underrepresentation.

Occupational distributions tell a similar story to the Industry distributions. Business and Financial Operations represented 50.61% (n= 618) of all jobs hiring at Duke, which is 10.8 times the national representation. The breakdown of this reveals that the “Financial Specialists” occupations were overrepresented by 13.3 times the national number of 1.8%, for a total of 24% (n= 293). Similarly, Business Operations Specialists were overrepresented by 9.2 times the national representation, collecting 26.62% (n=325) of all jobs at Duke. Only .9% of jobs (n= 11) were in the Community and Social Service occupation, just over half of the national representation. A complete breakdown, detailed and general of both Industries and Occupations, can be found in the Appendix.

Discussion

The data suggest that there is a highly skewed distribution of jobs posted on eRecruiting, for both Occupation and Industry, when compared to nationally representative statistics. Because Duke students are creating their initial alternative sets from the jobs on eRecruiting, they by default, start with constrained choice sets. Consistent with the initial hypothesis, Duke students who utilize eRecruiting have non-optimal career decision-making pathways, and arguably, are being funneled towards certain industries and occupations.

If a student started the job search wanting to pursue Management Consulting or Finance, then eRecruiting provides plenty of opportunities for that alternative set; however, if the student is undecided when they begin their career search, this biased alternative set could have damaging effects. If an undecided student looks at their initial alternative set, they are faced with a very skewed microcosm of the entire job market. The potential for going into Finance and Insurance, or Professional, Scientific, and Technical Services is substantially higher than pursuing, for example a job in healthcare or social work—in part due to the options Duke is presenting to them.

Duke is an institution that prides itself on contributing in diverse ways to the local community, the state, the nation and the world according to the trustees mission statement; however the jobs offered to graduating students largely reflect service in finance or consulting and rarely in the community or service-oriented fields (Duke University Board of Trustees 2001).

Limitations of the study include the cross-sectional nature of the data set. This analysis only looked at current data and compared it to national data; it did not examine trends over time within the Duke eRecruiting system. It would be worthwhile for future studies to see if, in fact, financial industry jobs are truly declining as newspaper articles suggest, and whether this trend is in part due to changes already occurring within campus recruiting systems.

Furthermore, the study's data analysis was restricted to Duke's internal career system and did not extend to other elite institutions' recruiting systems. Future studies may want to replicate the methods delineating in the paper and apply them to other schools databases, so we are able to create a depiction of a larger trend occurring nationwide. As newspaper articles and editorials seem to portend that this is not a Duke-exclusive issue, it may be important to collect and analyze similar data from other prestigious institutions as part of a larger investigation.

Additionally, it is important to note that the national data set that the Duke jobs data was compared to was not the ideal data set. The baseline that should be expected for an elite University is not that of the national jobs statistics. An ideal data set for comparison would present only those jobs available to recent college graduates. The census lacks in this category as some jobs that frequently hire college graduates are deemed as "mixed-education" because they do not truly require a degree. Due to these difficulties, the national data set provides an interesting vantage point, though it is realized this is not ideal. Still, the fact that over half of all jobs posted at Duke are in Finance and Insurance or Consulting Services suggests that compared to an ideal baseline, the jobs would still be skewed.

Additional research is warranted to further investigate the funneling that may be occurring. One possible study could focus on the disjuncture between the heterogeneity of majors and minors that Duke offers to its undergraduates as part of its liberal arts education, and the range of jobs those same people are exposed to through eRecruiting. It would be interesting to see if the scope of students' undergraduate academic interests, as represented in their choice of major and minor, is only weakly connected to their occupational options and subsequent choices.

Despite its limitations, this study has several strengths including its novel approach to understanding the job search process, the strong application of theoretical models to derive research questions and a hypothesis, and its data re-coding method to match national standards, which proved to be effective as well as highly valid and reliable. The rigorous methodology utilized in this study may provide a blueprint for future studies seeking to achieve similar aims.

Conclusion

In summation, the data supports the claim that students are being driven to non-optimal career decision pathways, through a skewed choice set. In addition to this finding, the investigation also elucidated several ways in which the recruitment process at Duke and other elite Universities could be improved. I have enumerated my recommendations below:

Corrective Measures

The data clearly shows a skew in the jobs presented at Duke. Although further research is warranted to determine the cause of such a percentage distribution, it is important to note that the Career Center is partially responsible for attracting different employers to campus. Utilizing this data set, Career Center staff and faculty at Duke who used to work in-industry, should focus their attention on attracting employers from a broader array of industries. Additionally, the Career Center staff should monitor these numbers, constantly striving to maintain a more accurate representation of the external job market, through both occupational and industry distribution.

Streamlining Data Management

The data presented on the career center website was very difficult to code and analyze, making it exceedingly difficult to complete a study of this nature. One of the best ways to ensure effective and accurate monitoring of job trends, as well as improved response to such changes, is to have an accessible data set. This can be accomplished by standardizing the methods through which data and jobs are entered in the eRecruiting

website. Duke eRecruiting should consider requiring each employer to use a North American Industry Classification System code when signing up on the eRecruiting server. The employer should be required to enter their NAICS code, which will translate directly into a full five-tiered industry classification. Additionally, the only option that should be given for “Job Function” should be consistent with the national standard of the Standard Occupational Classification System. Restricting employers to these classifications will ensure standardization at Duke. Additionally, if Experience, Inc. made this system-wide change, they would have the first comprehensive set of data on job postings at all elite universities, making it easier to make cross-campus comparisons as well as national comparisons to job market data.

Changing the Face of Campus Visits

While analyzing the data, I looked at several correlations and found that of the jobs on eRecruiting, those that hosted on-campus interviews received an average of 48.72 applications per job, whereas, job postings without an assigned schedule received 6.11 applications per job. These associations are drastic, and while there may be many causal factors to explain such disparities, it may be worthwhile for the Career Center to consider inviting or using a purposive sampling method to recruit traditionally underrepresented groups on campus, as this on-campus presence may dramatically influence the number of job applications submitted and jobs acquired by Duke students. This correlation is worth further investigation, and perhaps an interrupted time-series design would be able to assess the impact of an intervention as described above.

Appendix

- 1. Industry Broad Sector Breakdown**
- 2. Sub-Sector Industry Breakdown**
- 3. Major and Minor Occupational Group Breakdown**

Appendix 1: Industry Broad Sector Breakdown

NAICS Code	Industry Title	2010 BLS Statistics		2012 Duke E-Recruiting		
		Jobs (Thousands)	Percent of Occupations	Jobs Posted	Percent of Occupations	Ratio*
110000	Agriculture, forestry, fishing, and hunting	1343.7	0.90%	3	0.25%	0.27
210000	Mining, quarrying, and oil and gas extraction	655.9	0.50%	1	0.08%	0.16
220000	Utilities	551.8	0.40%	6	0.49%	1.23
230000	Construction	5525.6	3.90%	2	0.16%	0.04
31-330	Manufacturing	11524	8.10%	125	10.24%	1.26
420000	Wholesale trade	5456.1	3.80%	14	1.15%	0.30
44-450	Retail trade	14413.7	10.10%	41	3.36%	0.33
48-490	Transportation and warehousing	4183.3	2.90%	2	0.16%	0.06
510000	Information	2710.9	1.90%	191	15.64%	8.23
520000	Finance and insurance	5691.3	4.00%	312	25.55%	6.39
530000	Real estate and rental and leasing	1938.9	1.40%	11	0.90%	0.64
540000	Professional, scientific, and technical services	7423.9	5.20%	326	26.70%	5.13
550000	Management of companies and enterprises	1863	1.30%	0	0.00%	0.00
560000	Administrative and support and waste management and remediation	7401.1	5.20%	0	0.00%	0.00
610000	Educational services; State, local, and private	13537.1	9.50%	86	7.04%	0.74
620000	Health care and social assistance	17425.1	12.20%	19	1.56%	0.13
710000	Arts, entertainment, and recreation	1908.7	1.30%	6	0.49%	0.38
720000	Accommodation and food services	11110.9	7.80%	12	0.98%	0.13
810000	Other services (except public administration)	6081.3	4.30%	40	3.28%	0.76
900000	Public Administration	11083	7.70%	22	1.80%	0.23

Appendix 2: Sub-Sector Industry Breakdown

Industry		2010 BLS Statistics		2012 Duke E-Recruiting		
NAICS Code	Industry Title	Jobs (in Thousands)	Percent Distribution	Jobs	Percent Distribution	Ratio
110000	Agriculture, forestry, fishing, and hunting	1,343.7	0.9	3	0.25%	0.27
111000	Crop production	650.1	0.5	3	0.25%	0.49
112000	Animal production	448.9	0.3	0	0.00%	0.00
113000	Forestry and logging	63.7	0.0	0	0.00%	0.00
114000	Fishing, hunting, and trapping	27.6	0.0	0	0.00%	0.00
115000	Support activities for agriculture and forestry	153.4	0.1	0	0.00%	0.00
210000	Mining, quarrying, and oil and gas extraction	655.9	0.5	1	0.08%	0.16
211000	Oil and gas extraction	158.9	0.1	1	0.08%	0.82
212000	Mining (except oil and gas)	202.9	0.1	0	0.00%	0.00
213000	Support activities for mining	294.1	0.2	0	0.00%	0.00
220000	Utilities	551.8	0.4	6	0.49%	1.23
221000	Utilities	551.8	0.4	6	0.49%	1.23
230000	Construction	5,525.6	3.9	2	0.16%	0.04
236000	Construction of buildings	1,231.6	0.9	1	0.08%	0.09
237000	Heavy and civil engineering construction	828.6	0.6	1	0.08%	0.14
238000	Specialty trade contractors	3,465.4	2.4	0	0.00%	0.00
31-330	Manufacturing	11,524.0	8.1	125	10.24%	1.26
311000	Food manufacturing	1,446.8	1.0	1	0.08%	0.08
312000	Beverage and tobacco product manufacturing	182.3	0.1	0	0.00%	0.00
313000	Textile mills	119.3	0.1	1	0.08%	0.82
314000	Textile product mills	118.5	0.1	0	0.00%	0.00
315000	Apparel manufacturing	157.7	0.1	1	0.08%	0.82
316000	Leather and allied product manufacturing	27.8	0.0	1	0.08%	-
321000	Wood product manufacturing	341.1	0.2	0	0.00%	0.00
322000	Paper manufacturing	396.8	0.3	0	0.00%	0.00
323000	Printing and related support activities	486.9	0.3	0	0.00%	0.00
324000	Petroleum and coal products manufacturing	114.0	0.1	0	0.00%	0.00
325000	Chemical manufacturing	783.8	0.5	28	2.29%	4.59
326000	Plastics and rubber products manufacturing	623.2	0.4	1	0.08%	0.20
327000	Nonmetallic mineral product manufacturing	372.0	0.3	0	0.00%	0.00
331000	Primary metal manufacturing	360.7	0.3	0	0.00%	0.00
332000	Fabricated metal product manufacturing	1,284.7	0.9	0	0.00%	0.00
333000	Machinery manufacturing	992.9	0.7	17	1.39%	1.99
334000	Computer and electronic product manufacturing	1,100.1	0.8	30	2.46%	3.07
	Electrical equipment, appliance, and component manufacturing	360.6	0.3	19	1.56%	5.19
335000	Transportation equipment manufacturing	1,329.9	0.9	2	0.16%	0.18
337000	Furniture and related product manufacturing	357.4	0.2	0	0.00%	0.00
339000	Miscellaneous manufacturing	567.5	0.4	24	1.97%	4.91
420000	Wholesale trade	5,456.1	3.8	14	1.15%	0.30
423000	Merchant wholesalers, durable goods	2,719.3	1.9	12	0.98%	0.52
424000	Merchant wholesalers, nondurable goods	1,931.7	1.4	2	0.16%	0.12
425000	Wholesale electronic markets and agents and brokers	805.1	0.6	0	0.00%	0.00
44-450	Retail trade	14,413.7	10.1	41	3.36%	0.33
441000	Motor vehicle and parts dealers	1,624.4	1.1	0	0.00%	0.00
442000	Furniture and home furnishings stores	436.4	0.3	0	0.00%	0.00
443000	Electronics and appliance stores	497.4	0.3	9	0.74%	2.46
444000	Building material and garden equipment and supplies dealers	1,125.7	0.8	4	0.33%	0.41
445000	Food and beverage stores	2,810.5	2.0	0	0.00%	0.00
446000	Health and personal care stores	978.8	0.7	0	0.00%	0.00
447000	Gasoline stations	816.4	0.6	0	0.00%	0.00
448000	Clothing and clothing accessories stores	1,376.5	1.0	21	1.72%	1.72
451000	Sporting goods, hobby, book, and music stores	600.5	0.4	0	0.00%	0.00
452000	General merchandise stores	2,970.6	2.1	2	0.16%	0.08
453000	Miscellaneous store retailers	760.4	0.5	1	0.08%	0.16
454000	Nonstore retailers	416.1	0.3	4	0.33%	1.09
48-490	Transportation and warehousing	4,183.3	2.9	2	0.16%	0.06
481000	Air transportation	464.1	0.3	2	0.16%	0.55
482000	Rail transportation	214.9	0.2	0	0.00%	0.00
483000	Water transportation	62.8	0.0	0	0.00%	0.00
484000	Truck transportation	1,244.0	0.9	0	0.00%	0.00
485000	Transit and ground passenger transportation	432.4	0.3	0	0.00%	0.00
486000	Pipeline transportation	42.4	0.0	0	0.00%	0.00

Industry		2010 BLS Statistics		2012 Duke E-Recruiting		
NAICS Code	Industry Title	Jobs (in Thousands)	Percent Distribution	Jobs	Percent Distribution	Ratio
487-80	Scenic and sightseeing transportation and support activities	567.3	0.4	0	0.00%	0.00
487000	Scenic and sightseeing transportation	27.3	0.0	0	0.00%	0.00
488000	Support activities for transportation	540.0	0.4	0	0.00%	0.00
492000	Couriers and messengers	527.1	0.4	0	0.00%	0.00
493000	Warehousing and storage	628.3	0.4	0	0.00%	0.00
510000	Information	2,710.9	1.9	191	15.64%	8.23
511000	Publishing industries (except Internet)	761.1	0.5	123	10.07%	20.15
512000	Motion picture, video, and sound recording industries	372.0	0.3	0	0.00%	0.00
515000	Broadcasting (except Internet)	294.6	0.2	7	0.57%	2.87
517000	Telecommunications	899.7	0.6	10	0.82%	1.37
518000	Data processing, hosting and related services	242.0	0.2	47	3.85%	19.25
519000	Other information services	141.5	0.1	4	0.33%	3.28
520000	Finance and insurance	5,691.3	4.0	312	25.55%	6.39
521000	Monetary authorities-central bank	20.8	0.0	0	0.00%	0.00
522000	Credit intermediation and related activities	2,544.7	1.8	30	2.46%	1.37
523000	Securities, commodity contracts, and other financial investments and related activities	800.9	0.6	271	22.19%	36.99
524000	Insurance carriers and related activities	2,238.0	1.6	11	0.90%	0.56
525000	Funds, trusts, and other financial vehicles	86.9	0.1	0	0.00%	0.00
530000	Real estate and rental and leasing	1,938.9	1.4	11	0.90%	0.64
531000	Real estate	1,395.5	1.0	11	0.90%	0.90
532000	Rental and leasing services	518.2	0.4	0	0.00%	0.00
5322-3	Consumer goods rental and general rental centers	242.1	0.2	0	0.00%	0.00
533000	Lessors of nonfinancial intangible assets (except copyrighted works)	25.2	0.0	0	0.00%	0.00
540000	Professional, scientific, and technical services	7,423.9	5.2	326	26.70%	5.13
541000	Professional, scientific, and technical services	7,423.9	5.2	326	26.70%	5.13
550000	Management of companies and enterprises	1,863.0	1.3	0	0.00%	0.00
551000	Management of companies and enterprises	1,863.0	1.3	0	0.00%	0.00
560000	Administrative and support and waste management and remediation services	7,401.1	5.2	0	0.00%	0.00
561000	Administrative and support services	7,044.4	4.9	0	0.00%	0.00
562000	Waste management and remediation services	356.7	0.2	0	0.00%	0.00
5622-9	Waste treatment and disposal and waste management services	215.0	0.2	0	0.00%	0.00
610000	Educational services; State, local, and private	13,537.1	9.5	86	7.04%	0.74
611000	Educational services; State, local, and private	13,537.1	9.5	86	7.04%	0.74
620000	Health care and social assistance	17,425.1	12.2	19	1.56%	0.13
621000	Ambulatory health care services	5,975.9	4.2	2	0.16%	0.04
622000	Hospitals; State, local, and private	5,695.9	4.0	9	0.74%	0.18
623000	Nursing and residential care facilities	3,129.0	2.2	1	0.08%	0.04
624000	Social assistance	2,624.3	1.8	7	0.57%	0.32
710000	Arts, entertainment, and recreation	1,908.7	1.3	6	0.49%	0.38
711000	Performing arts, spectator sports, and related industries	410.1	0.3	0	0.00%	0.00
7113-4	Promoters of events, and agents and managers	115.8	0.1	0	0.00%	0.00
712000	Museums, historical sites, and similar institutions	127.3	0.1	0	0.00%	0.00
713000	Amusement, gambling, and recreation industries	1,371.3	1.0	6	0.49%	0.49
720000	Accommodation and food services	11,110.9	7.8	12	0.98%	0.13
721000	Accommodation, including hotels and motels	1,759.1	1.2	3	0.25%	0.20
722000	Food services and drinking places	9,351.8	6.5	9	0.74%	0.11
810000	Other services (except public administration)	6,081.3	4.3	40	3.28%	0.76
811000	Repair and maintenance	1,136.8	0.8	0	0.00%	0.00
812000	Personal and laundry services	1,264.7	0.9	0	0.00%	0.00
813000	Religious, grantmaking, civic, professional, and similar organizations	2,962.4	2.1	40	3.28%	1.56
814000	Private households	717.4	0.5	0	0.00%	0.00
900000	Government	11,083.0	7.7	22	1.80%	0.23
910000	Federal government	2,968.0	2.1	22	1.80%	0.86
9992-3	State and local government, excluding education and hospitals	8,115.0	5.7	0	0.00%	0.00

Appendix 3: Occupational Minor Groups

2010 National Employment Matrix Title	2010 BLS Statistics		2012 Duke eRecruiting		Ratio
	Jobs	Percentage Distribution	Job Postings	Percentage Distribution	
Management Occupations	8,776.1	6.10%	21.00	1.72%	0.3
Top Executives	2,204.7	1.50%	1.00	0.08%	0.1
Advertising, Marketing, Promotions, Public Relations, and Sales Managers	620.9	0.40%	4.00	0.33%	0.8
Operations Specialties Managers	1,539.5	1.10%	13.00	1.06%	1.0
Other Management Occupations	4,411.0	3.10%	3.00	0.25%	0.1
Business and Financial Operations Occupations	6,789.2	4.70%	618.00	50.61%	10.8
Business Operations Specialists	4,151.9	2.90%	325.00	26.62%	9.2
Financial Specialists	2,637.3	1.80%	293.00	24.00%	13.3
Computer and Mathematical Occupations	3,542.8	2.50%	238.00	19.49%	7.8
Computer Occupations	3,426.0	2.40%	237.00	19.41%	8.1
Mathematical Science Occupations	116.8	0.10%	1.00	0.08%	0.8
Architecture and Engineering Occupations	2,433.4	1.70%	107.00	8.76%	5.2
Architects, Surveyors, and Cartographers	200.3	0.10%	0.00	0.00%	-
Engineers	1,519.0	1.10%	107.00	8.76%	8.0
Drafters, Engineering Technicians, and Mapping Technicians	714.0	0.50%	0.00	0.00%	-
Life, Physical, and Social Science Occupations	1,228.8	0.90%	43.00	3.52%	3.9
Life Scientists	285.9	0.20%	37.00	3.03%	15.2
Physical Scientists	282.0	0.20%	2.00	0.16%	0.8
Social Scientists and Related Workers	306.1	0.20%	4.00	0.33%	1.6
Life, Physical, and Social Science Technicians	354.8	0.20%	0.00	0.00%	-
Community and Social Service Occupations	2,402.7	1.70%	11.00	0.90%	0.5
Counselors, Social Workers, and Other Community and Social Service Specialists	1,997.3	1.40%	11.00	0.90%	0.6
Religious Workers	405.4	0.30%	0.00	0.00%	-
Legal Occupations	1,211.9	0.80%	11.00	0.90%	1.1
Lawyers, Judges, and Related Workers	820.7	0.60%	0.00	0.00%	-
Legal Support Workers	391.2	0.30%	11.00	0.90%	3.0
Education, Training, and Library Occupations	9,193.6	6.40%	58.00	4.75%	0.7
Postsecondary Teachers	1,756.0	1.20%	2.00	0.16%	0.1
Preschool, Primary, Secondary, and Special Education School Teachers	4,354.4	3.00%	53.00	4.34%	1.4
Other Teachers and Instructors	1,220.2	0.90%	1.00	0.08%	0.1
Librarians, Curators, and Archivists	301.4	0.20%	0.00	0.00%	-
Other Education, Training, and Library Occupations	1,561.6	1.10%	2.00	0.16%	0.1
Occupations	2,708.5	1.90%	20.00	1.64%	0.9
Art and Design Workers	776.8	0.50%	1.00	0.08%	0.2
Workers	805.7	0.60%	0.00	0.00%	-
Media and Communication Workers	791.9	0.60%	18.00	1.47%	2.5
Media and Communication Equipment Workers	334.1	0.20%	1.00	0.08%	0.4
Healthcare Practitioners and Technical Occupations	7,799.3	5.50%	4.00	0.33%	0.1
Health Diagnosing and Treating Practitioners	4,852.3	3.40%	4.00	0.33%	0.1
Health Technologists and Technicians	2,799.1	2.00%	0.00	0.00%	-
Other Healthcare Practitioners and Technical Occupations	147.9	0.10%	0.00	0.00%	-
Healthcare Support Occupations	4,190.0	2.90%	1.00	0.08%	0.0
Nursing, Psychiatric, and Home Health Aides	2,590.6	1.80%	0.00	0.00%	-
Occupational Therapy and Physical Therapist Assistants and Aides	150.4	0.10%	0.00	0.00%	-
Other Healthcare Support Occupations	1,449.0	1.00%	1.00	0.08%	0.1
Protective Service Occupations	3,302.5	2.30%	0.00	0.00%	-
Supervisors of Protective Service Workers	266.5	0.20%	0.00	0.00%	-
Fire Fighting and Prevention Workers	325.6	0.20%	0.00	0.00%	-
Law Enforcement Workers	1,297.2	0.90%	0.00	0.00%	-
Other Protective Service Workers	1,413.2	1.00%	0.00	0.00%	-
Food Preparation and Serving Related Occupations	11,150.3	7.80%	0.00	0.00%	-
Supervisors of Food Preparation and Serving Workers	901.7	0.60%	0.00	0.00%	-
Cooks and Food Preparation Workers	2,864.5	2.00%	0.00	0.00%	-
Food and Beverage Serving Workers	6,100.0	4.30%	0.00	0.00%	-
Other Food Preparation and Serving Related Workers	1,284.1	0.90%	0.00	0.00%	-
Building and Grounds Cleaning and Maintenance Occupations	5,498.5	3.80%	0.00	0.00%	-
Supervisors of Building and Grounds Cleaning and Maintenance Workers	429.6	0.30%	0.00	0.00%	-
Building Cleaning and Pest Control Workers	3,819.2	2.70%	0.00	0.00%	-
Grounds Maintenance Workers	1,249.7	0.90%	0.00	0.00%	-
Personal Care and Service Occupations	4,994.7	3.50%	4.00	0.33%	0.1
Supervisors of Personal Care and Service Workers	273.9	0.20%	0.00	0.00%	-
Animal Care and Service Workers	234.9	0.20%	0.00	0.00%	-
Entertainment Attendants and Related Workers	559.6	0.40%	0.00	0.00%	-
Funeral Service Workers	67.3	0.00%	0.00	0.00%	-

Personal Appearance Workers	845.0	0.60%	0.00	0.00%	-
Baggage Porters, Bellhops, and Concierges	66.3	0.00%	0.00	0.00%	-
Tour and Travel Guides	39.1	0.00%	0.00	0.00%	-
Other Personal Care and Service Workers	2,908.6	2.00%	4.00	0.33%	0.2
Sales and Related Occupations	14,915.6	10.40%	63.00	5.16%	0.5
Supervisors of Sales Workers	2,042.4	1.40%	0.00	0.00%	-
Retail Sales Workers	8,267.6	5.80%	2.00	0.16%	0.0
Sales Representatives, Services	1,528.3	1.10%	57.00	4.67%	4.2
Sales Representatives, Wholesale and Manufacturing	1,830.0	1.30%	2.00	0.16%	0.1
Other Sales and Related Workers	1,247.3	0.90%	2.00	0.16%	0.2
Office and Administrative Support Occupations	22,602.5	15.80%	22.00	1.80%	0.1
Supervisors of Office and Administrative Support Workers	1,424.4	1.00%	0.00	0.00%	-
Communications Equipment Operators	164.0	0.10%	0.00	0.00%	-
Financial Clerks	3,644.6	2.50%	0.00	0.00%	-
Information and Record Clerks	5,320.0	3.70%	0.00	0.00%	-
Material Recording, Scheduling, Dispatching, and Distributing Workers	3,861.3	2.70%	0.00	0.00%	-
Secretaries and Administrative Assistants	4,010.2	2.80%	21.00	1.72%	0.6
Other Office and Administrative Support Workers	4,178.1	2.90%	1.00	0.08%	0.0
Farming, Fishing, and Forestry Occupations	972.1	0.70%	0.00	0.00%	-
Supervisors of Farming, Fishing, and Forestry Workers	47.0	0.00%	0.00	0.00%	-
Agricultural Workers	825.5	0.60%	0.00	0.00%	-
Fishing and Hunting Workers	32.6	0.00%	0.00	0.00%	-
Forest, Conservation, and Logging Workers	67.0	0.00%	0.00	0.00%	-
Construction and Extraction Occupations	6,328.0	4.40%	0.00	0.00%	-
Supervisors of Construction and Extraction Workers	558.5	0.40%	0.00	0.00%	-
Construction Trades Workers	4,864.9	3.40%	0.00	0.00%	-
Helpers, Construction Trades	251.4	0.20%	0.00	0.00%	-
Other Construction and Related Workers	428.0	0.30%	0.00	0.00%	-
Extraction Workers	225.1	0.20%	0.00	0.00%	-
Installation, Maintenance, and Repair Occupations	5,428.6	3.80%	0.00	0.00%	-
Supervisors of Installation, Maintenance, and Repair Workers and Repairers	431.2	0.30%	0.00	0.00%	-
Repairers	611.2	0.40%	0.00	0.00%	-
Other Installation, Maintenance, and Repair Occupations	1,627.1	1.10%	0.00	0.00%	-
Other Installation, Maintenance, and Repair Occupations	2,759.0	1.90%	0.00	0.00%	-
Production Occupations	8,594.4	6.00%	0.00	0.00%	-
Supervisors of Production Workers	588.5	0.40%	0.00	0.00%	-
Assemblers and Fabricators	1,626.5	1.10%	0.00	0.00%	-
Food Processing Workers	681.2	0.50%	0.00	0.00%	-
Metal Workers and Plastic Workers	1,763.8	1.20%	0.00	0.00%	-
Printing Workers	304.6	0.20%	0.00	0.00%	-
Textile, Apparel, and Furnishings Workers	681.8	0.50%	0.00	0.00%	-
Woodworkers	235.0	0.20%	0.00	0.00%	-
Plant and System Operators	316.7	0.20%	0.00	0.00%	-
Other Production Occupations	2,396.2	1.70%	0.00	0.00%	-
Transportation and Material Moving Occupations	9,004.8	6.30%	0.00	0.00%	-
Supervisors of Transportation and Material Moving Workers	372.4	0.30%	0.00	0.00%	-
Air Transportation Workers	227.9	0.20%	0.00	0.00%	-
Motor Vehicle Operators	3,838.7	2.70%	0.00	0.00%	-
Rail Transportation Workers	117.5	0.10%	0.00	0.00%	-
Water Transportation Workers	82.6	0.10%	0.00	0.00%	-
Other Transportation Workers	307.5	0.20%	0.00	0.00%	-
Material Moving Workers	4,058.2	2.80%	0.00	0.00%	-

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