The Burtch *Works* Study

Salaries of Predictive Analytics Professionals

September 2015

Burtch Works Executive Recruiting
Linda Burtch, Managing Director

TABLE OF CONTENTS

Section 1

INTRODUCTION: THE EVOLUTION OF PREDICTIVE ANALYTICS

The Evolution of Predictive Analytics

Continuing a trend, the use of predictive analytics continues to grow. Investments in data-driven decision making have become ubiquitous – they are being made by organizations in business, government, law, entertainment, non-profits, education, and more. As Burtch Works predicted at the beginning of the year, legacy corporations, sometimes less nimble and more process-bound than startups, are getting on board, to remain competitive with smaller, faster-moving firms in the marketplace. Innovative data analytics teams are everywhere, productively using predictive analytics.

Although it is not new that companies wish to use their data to make better business decisions, this is now imperative and analytics as a discipline is maturing. With data sources becoming more numerous and complex, and with increasing amounts of unstructured data, we're seeing more analytics professionals acquire the skills and tools necessary to manage these data. Predictive analytics professionals *themselves* are evolving, and the delineation between data scientists and other predictive analytics professionals is getting fuzzier by the day.

So what's next? This focus on being data-driven, and the way it distinguishes the leaders from the laggards, has moved analytics professionals to the forefront when critical corporate decisions must be made. Analytics professionals are poised to take leadership positions in global corporations within the next 10 to 20 years. Some of the so-called "digital natives", where data has always been an integral part of the product, are already headed up by quantitative pros, but even for those firms that are just getting on board with the data movement, this transition to analytical leaders is imminent.

Defining Predictive Analytics Professionals

We have historically defined predictive analytics professionals (PAPs) as those who can, "apply sophisticated quantitative skills to data describing transactions, interactions, or other behaviors of people to derive insights and prescribe actions". PAPs are distinguished from business intelligence professionals or financial analysts by the enormous quantity of data with which they work, well beyond what can be managed in Excel. However, this definition also encompasses data scientists, but they are excluded from this study because of their distinguishing ability to work with unstructured data, resulting in different compensation.

Data scientists are a subset of PAPs who have the computer science skills necessary to acquire and clean or transform unstructured or continuously streaming data, regardless of its format, size, or source. Unstructured data may include video data, audio data, social media web scrapes, sensor data, raw log files, or long blocks of human language. For more information about data scientists, you may consult our *Burtch Works Study: Salaries of Data Scientists*, published in April 2015, but this report will focus specifically on PAPs that work with structured data. For more information on how we identified predictive analytics professionals for this study see Appendix A on page 27.

Compensation of Predictive Analytics Professionals: Insights from the Past Year

Burtch Works would like to present our latest comprehensive salary report, *The Burtch Works Study: Salaries of Predictive Analytics Professionals.* This report contains data on 1,757 predictive analytics professionals (PAPs) for whom we know compensation, as well as demographic and job characteristics. This information was collected by our Burtch Works recruiters during the 12 months ending April 2015. These 1,757 PAPs work for more than 800 different companies located across the United States.

Our reports show salary variations for PAPs – including both individual contributors and managers – as well as the proportions eligible for a bonus, and the median and average bonuses received. This report also shows how these have changed since the last study was published in September 2014. Lastly, it shows how predictive analytics salaries vary based on characteristics of jobs, such as job level, industry, and location, and with characteristics of PAPs themselves, such as gender and residency status.

Sixty-one percent of this sample consists of individual contributors and their median base salary increased at all job levels. 77% of individual contributors are eligible for a bonus, which is a six point increase over 2014. The median bonus received varies from $8,100 to $18,100, depending on job level. The other 39% of the sample are managers. Median base salary of managers also increased at all job levels. 94% are eligible for a bonus, an increase of three percentage points over last year. The median bonus received by managers varies from $23,000 to $75,000 depending on job level.

For individual contributors and managers, increases in median base salary vary by level. Level 2 individual contributors had the smallest increase in median base salary, compared to last year, 2%, and those at level 3 had the largest increase, 9%. For managers, those at level 1 had the smallest increase, 3%, while those at level 2 had the largest increase, 6%.

For all PAPs, compensation varies the most depending on job type and level: whether an individual contributor or manager, and with scope of responsibility. The median base salary of individual contributors varies from $76,000 for those at level 1 to $125,000 for those at level 3. The median base salary of managers varies from $125,500 for those at level 1 to $235,000 for those at level 3. The proportion of individual contributors eligible for a bonus varies from 69% for those at level 1 to 87% for those at level 3. Over 92% of managers at all levels are eligible for bonuses. Regardless of job level, the median bonus paid to managers is significantly greater than the median bonus paid to individual contributors.

Compensation of PAPs also varies based on characteristics including education level, and region and industry of employment. Historically, PAPs working in the Northeast and on the West Coast have been paid more than other PAPs, and PAPs working for consulting firms were paid more than those working in other industries. We still see this regional variation, but industry-related compensation data are murkier. As was true in 2013 and 2014, entry-level individual contributors who hold a green card or are on an H-1B visa earn more than U.S. citizens.

Section 2 specifically addresses how compensation of PAPs has changed since the 2014 study, while Section 3 has more detail about how compensation varies with both attributes of PAPs, like education, and characteristics of their jobs, such as level.

About Burtch Works

Burtch Works Executive Recruiting is the leading resource for difficult-to-find, highly qualified analytic and marketing research talent in the United States. Our team has decades of experience in quantitative and marketing research recruiting, and each recruiter understands the particular distinctions of their area of expertise to collaboratively search for talented professionals who will be perfectly suited to each role.

As more and more firms adopt data-driven practices to remain competitive, the quantitative fields are seeing incredible growth, and Burtch Works has built a very diverse network of thousands of professionals to address the growing number of quantitative positions nationwide. This network is the basis of a business built on long-established relationships with candidates and clients. Linda Burtch, Burtch Works' founder and Managing Director, has emphasized that the most rewarding aspect of her career is creating the perfect match, and has established a dedicated team of recruiters who share this vision for Burtch Works.

Ms. Burtch has over 30 years' experience in quantitative recruiting, and has an extensive knowledge of the analytics fields and how the industry has rapidly evolved over the past few years. She often writes on topics of interest to the analytics community, and keeps her finger on the pulse of current trends that affect clients and candidates alike. Ms. Burtch and her colleagues keep in touch with over 20,000 quantitative professionals in every industry across the country, many of whom Burtch Works has known throughout their careers.

By maintaining strong relationships with both candidates and clients, Burtch Works has the unique opportunity to examine hiring and compensation trends over time, and publishes several groundbreaking studies each year that investigate demographic and compensation data for predictive analytics, marketing research, and data science professionals. *The Burtch Works Studies* provide an exceptional vantage point on compensation for professionals across the country, and contain critical information both for individuals mapping their career strategy and hiring managers hoping to recruit and retain qualified additions to their teams.

Section 2

PREDICTIVE ANALYTICS PROFESSIONALS: HOW COMPENSATION HAS CHANGED

The Sample

This sample contains 1,757 of the more than 20,000 quantitative professionals with whom Burtch Works maintains contact. Burtch Works collected the data for this study in interviews conducted over the 12 months ending April 2015, which is the year immediately following the period of interviews for the 2014 study. Professionals were included in the sample only if (1) they satisfied Burtch Works' criteria for predictive analytics professionals, and (2) Burtch Works obtained complete information about that individual's compensation, demographic, and job characteristics.

How Changes in Compensation Were Measured

Some of the 1,757 PAPs in this sample were also in the samples for our previous studies (published in 2013 and 2014), but since others were not, changes in compensation were *not* measured by differencing current compensation and compensation reported for the previous study and taking medians (and other percentiles) of the differences. Instead, changes were measured by comparing medians (and other percentiles) of current compensation to those reported in the previous study.

Changes in Base Salaries

- For PAPs at every job level, median base salaries reported during the past year are greater than those summarized in the 2014 study.

- Salaries of level 3 individual contributors increased the most. The median of salaries reported by these PAPs increased by 9%. For other job categories, the increase in median salary varied from 2% to 6%.

- Although the median base salary for level 1 individual contributors did not increase as much as it did last year (it increased 3% this year compared to a 14% increase in the previous report), it is interesting to note that the 75th percentile salaries increased 8%, implying that the exceptional talent at this level are realizing larger increases.

- For managers, those at level 2 realized the largest increase, 6%. As more firms seek managers to initiate or advance their analytics capability, we expect compensation to continue to escalate for these in-demand mid-level leaders.

Figure 1. *Comparison of Predictive Analytics Professionals' Median Base Salary by Job Category*
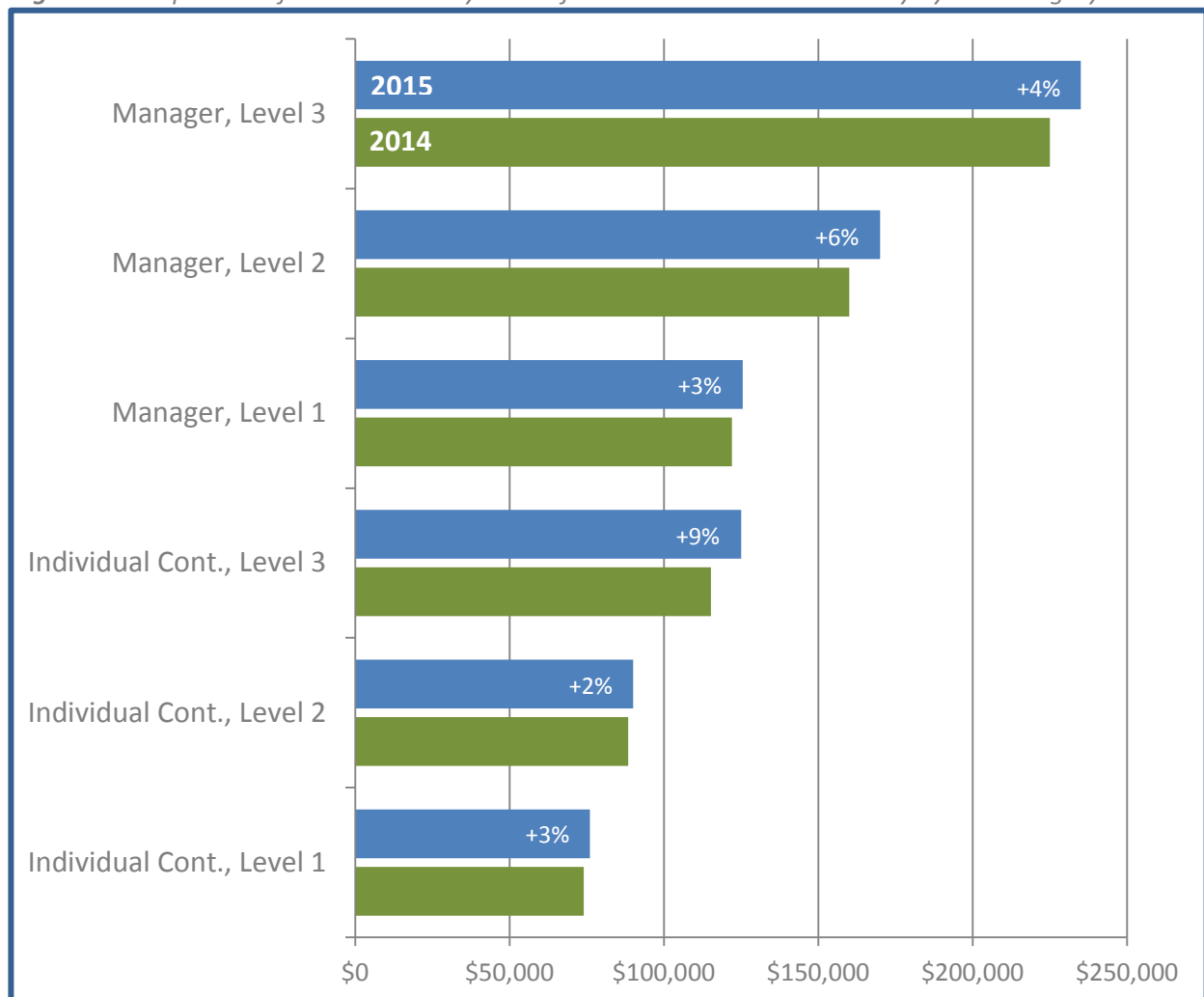
Figure 2. *Change in Base Salaries of Individual Contributors by Job Level*

Job Level	Year	25%	Median	75%
Individual Contributor, Level 1	2015	$65,000	$76,000	$91,500
	2014	$62,000	$74,000	$85,000
	Change	5%	3%	8%
Individual Contributor, Level 2	2015	$75,000	$90,000	$105,758
	2014	$72,500	$88,400	$100,000
	Change	3%	2%	6%
Individual Contributor, Level 3	2015	$105,000	$125,000	$150,000
	2014	$100,000	$115,250	$136,000
	Change	5%	9%	10%

Figure 3. *Change in Base Salaries of Managers by Job Level*

Job Level	Year	25%	Median	75%
Manager, Level 1	2015	$110,000	$125,500	$150,000
	2014	$110,000	$122,000	$142,000
	Change	0%	3%	6%
Manager, Level 2	2015	$145,000	$170,000	$195,000
	2014	$136,500	$160,000	$185,000
	Change	6%	6%	5%
Manager, Level 3	2015	$205,250	$235,000	$257,500
	2014	$197,500	$225,000	$256,500
	Change	4%	4%	<1%

Changes in Bonuses

- The proportion of PAPs eligible for a bonus increased for every job category, with the most significant increases for individual contributors.

- Across all job levels, over 92% of managers are now eligible for a bonus.

- The median bonus received increased at every job level, and increases varied from 4% for level 2 individual contributors to 20% for level 1 managers.

- The largest increase in dollars received occurred for the most senior managers, similar to last year's trend, and the median bonus received at that job level increased by over $5,000.

Figure 4. Change in Bonuses of Individual Contributors by Job Level

Job Level	Year	Percent Eligible	Median Received
Individual Contributor, Level 1	2015	69.1%	$8,100
	2014	60.9%	$7,500
	Change	-	8%
Individual Contributor, Level 2	2015	75.7%	$10,000
	2014	67.2%	$9,600
	Change	-	4%
Individual Contributor, Level 3	2015	87.0%	$18,100
	2014	80.4%	$15,750
	Change	-	15%

Figure 5. Change in Bonuses of Managers by Job Level

| Job Level	Year	Percent Eligible	Median Received
Manager, Level 1	2015	92.1%	$23,000
	2014	91.1%	$19,200
	Change	-	20%
Manager, Level 2	2015	95.4%	$35,000
	2014	89.6%	$30,625
	Change	-	14%
Manager, Level 3	2015	94.1%	$75,000
	2014	92.1%	$69,875
	Change	-	7%

Section 3

PREDICTIVE ANALYTICS PROFESSIONALS: DEMOGRAPHIC PROFILE & COMPENSATION

Compensation by Job Category

Variation in PAPs' compensation correlates most strongly with their job category: with whether a PAP is an individual contributor or manager, and with their scope of responsibility (job level). To learn more about the different job levels, please see the Segmentations of PAPs section in Appendix A on page 30.

- The median base salary of individual contributors increases from $76,000 for those who are at level 1 to $125,000 for those who are at level 3. The median salary of managers increases from $125,500 for those who are at level 1 to $235,000 for those who are at level 3.

- 69% of level 1 individual contributors are eligible for a bonus, and the median of bonuses they received is $8,100, while 87% of level 3 individual contributors are eligible for a bonus, and the median of bonuses they received is $18,100. Over 92% of all managers are eligible for a bonus, and the median of bonuses they received increases from $23,000 for managers at level 1 to $75,000 for those at level 3.

*Figure 6.* Distribution of Predictive Analytics Professionals by Job Category
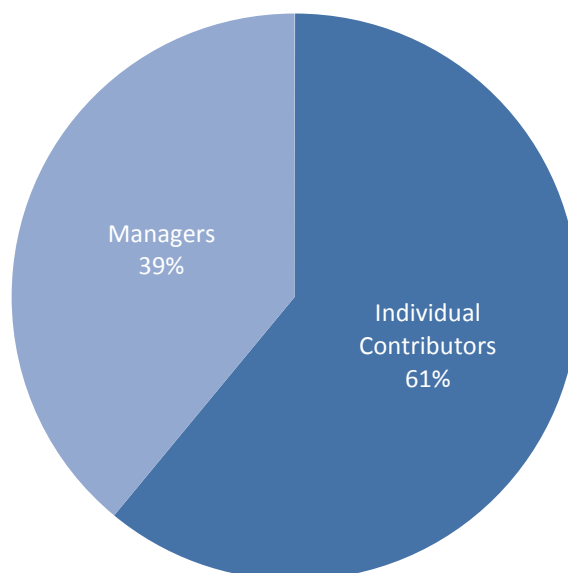
Figure 7. Compensation of Individual Contributors by Job Level

Individual Contributor Job Level	N	Base Salary				Bonus		
		25%	Median	Mean	75%	Eligible	Median	Mean
Level 1	363	$65,000	$76,000	$81,797	$91,500	69.1%	$8,100	$11,795
Level 2	358	$75,000	$90,000	$93,917	$105,758	76.7%	$10,000	$12,878
Level 3	345	$105,000	$125,000	$127,952	$150,000	87.0%	$18,100	$24,071

Figure 8. Compensation of Managers by Job Level

Manager Job Level	N	Base Salary				Bonus		
		25%	Median	Mean	75%	Eligible	Median	Mean
Level 1	266	$110,000	$125,500	$129,712	$150,000	92.1%	$23,000	$25,960
Level 2	323	$145,000	$170,000	$170,338	$195,000	95.4%	$35,000	$39,413
Level 3	102	$205,250	$235,000	$238,258	$257,500	94.1%	$75,000	$82,494

Figure 9. Median and Mean Base Salaries of Individual Contributors by Job Level
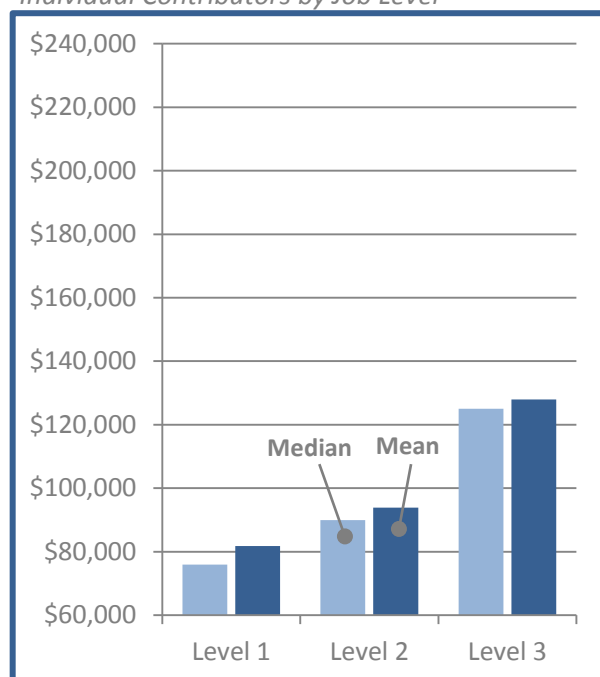
Figure 10. Median and Mean Base Salaries of Managers by Job Level
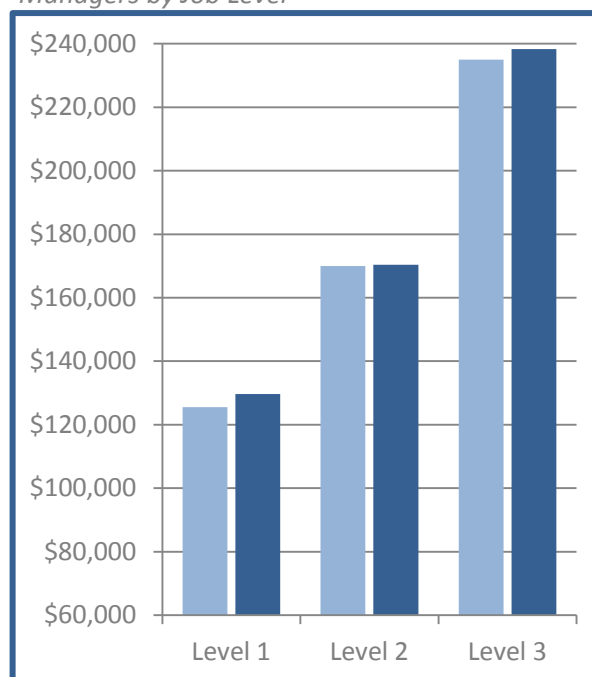
Compensation by Education

Although salaries have changed over the past year, the educational background of PAPs did not vary from last year's report. The vast majority (86%) of PAPs have an advanced degree, with 17% having a Ph.D. Those with a Ph.D. generally earn more.

- 86% of PAPs have a graduate degree: 18% of this year's sample have a Ph.D. or are Ph.D. ABD, and another 68% have a Master's degree.

- Among individual contributors at all levels, those with a Ph.D. are paid more. The median base salaries of individual contributors holding a Ph.D. range from $16,000 to $20,000 more than those holding a Master's degree, and $17,500 to $27,000 more than those holding a Bachelor's degree, depending on job level.

- Among all but the most senior (level 3) managers, those with a Ph.D. earn more than those with a Master's or Bachelor's degree.

Figure 11. *Predictive Analytics Professionals by Education*
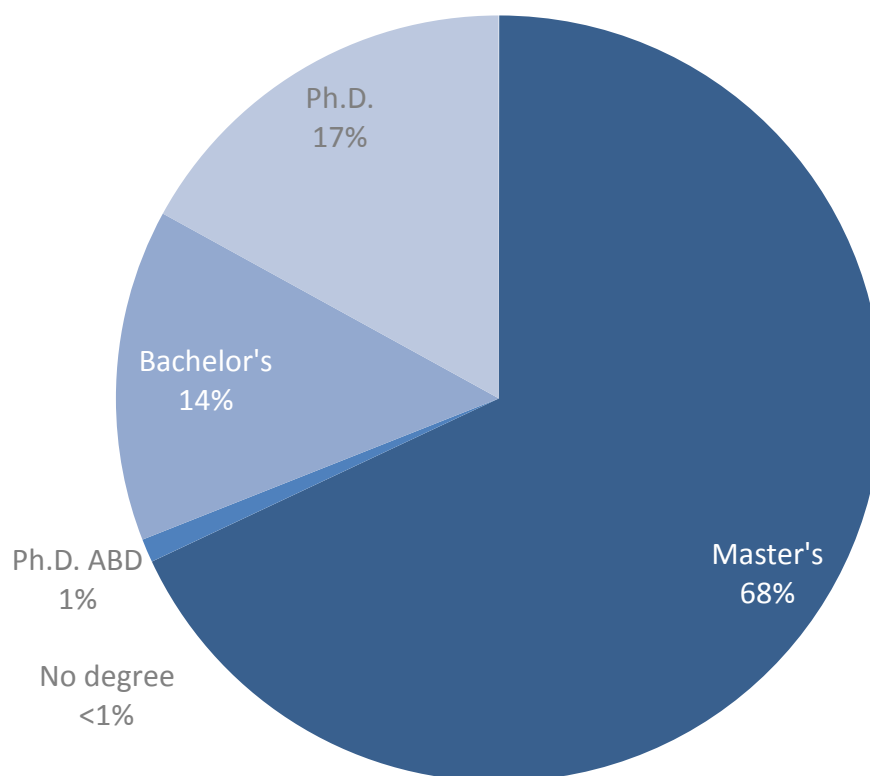
Figure 12. *Base Salary of Individual Contributors by Job Level and Education*

Job Level	Education	Base Salary				
		N	25%	Median	Mean	75%
Individual Contributor, Level 1	Bachelor's	62	$60,000	$71,000	$79,008	$88,125
	Master's	252	$65,000	$75,000	$79,742	$90,000
	PhD	47	$79,500	$93,500	$94,340	$109,000
Individual Contributor, Level 2	Bachelor's	45	$70,000	$83,000	$87,384	$100,000
	Master's	272	$75,000	$90,000	$92,066	$105,000
	PhD	36	$100,000	$110,000	$117,667	$126,250
Individual Contributor, Level 3	Bachelor's	46	$100,000	$122,508	$121,881	$144,500
	Master's	225	$105,000	$124,000	$125,657	$143,000
	PhD	70	$110,000	$140,000	$139,314	$156,500

Note: Individuals with no degrees and Ph.D. ABD were excluded because of the small sample size.

Figure 13. *Base Salary of Managers by Job Level and Education*

Job Level	Education	Base Salary				
		N	25%	Median	Mean	75%
Manager, Level 1	Bachelor's	25	$96,000	$112,000	$118,960	$140,000
	Master's	188	$108,375	$125,000	$127,551	$150,000
	PhD	47	$120,000	$140,000	$141,702	$167,000
Manager, Level 2	Bachelor's	40	$140,000	$175,000	$168,660	$188,250
	Master's	198	$140,000	$165,000	$163,693	$190,000
	PhD	79	$150,000	$185,000	$185,162	$215,000
Manager, Level 3	Bachelor's	19	$215,000	$250,000	$236,174	$260,000
	Master's	58	$207,000	$232,500	$241,172	$257,500
	PhD	24	$196,250	$228,500	$233,417	$257,500

Note: Individuals with no degrees and Ph.D. ABD were excluded because of the small sample size.

Compensation by Residency Status

A significant proportion of all PAPs are not U.S. citizens. Among individual contributors at levels 1 and 2, non-U.S. citizens are the majority.

- 40% of all PAPs are non-U.S. citizens with an F-1/OPT, H-1B, green card, or another visa that allows them to work in the U.S.

- 58% of level 1 individual contributors are not U.S. citizens. The proportion of foreign-born PAPs decreases with job level as many foreign-born PAPs obtain U.S. citizenship through corporate sponsorship or other means over time.

- Among level 1 individual contributors, the median base salary of those with a green card exceeds that of U.S. citizens by 20.0%. The median base salary of those working with an H-1B exceeds that of U.S. citizens by 4.7%. This salary difference may exist for several reasons: PAPs that are not U.S. citizens may have come to the U.S. to study and find work because of their exceptional talent, they may conduct more thorough job searches because they must seek out employers who will sponsor their visa, or they may be more willing to work in any location, affording them a wider choice of jobs.

- For level 3 individual contributors, this trend reverses: the median base salary for those who hold an H-1B visa is 21.5% lower than for those who are U.S. citizens and green card holders earn 7.7% less than U.S. citizens. Since foreign-born professionals will sometimes choose to remain with a single employer throughout the lengthy process of obtaining a green card, they miss opportunities to boost their job level and salary that may come with changing jobs.

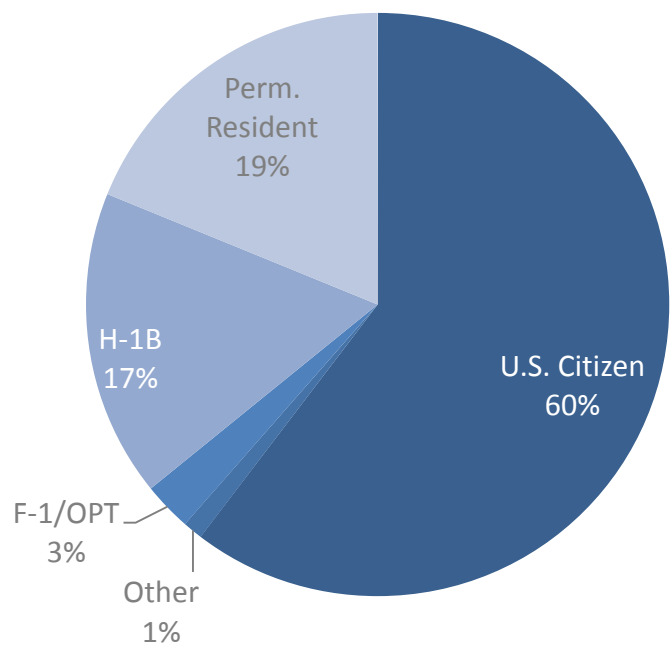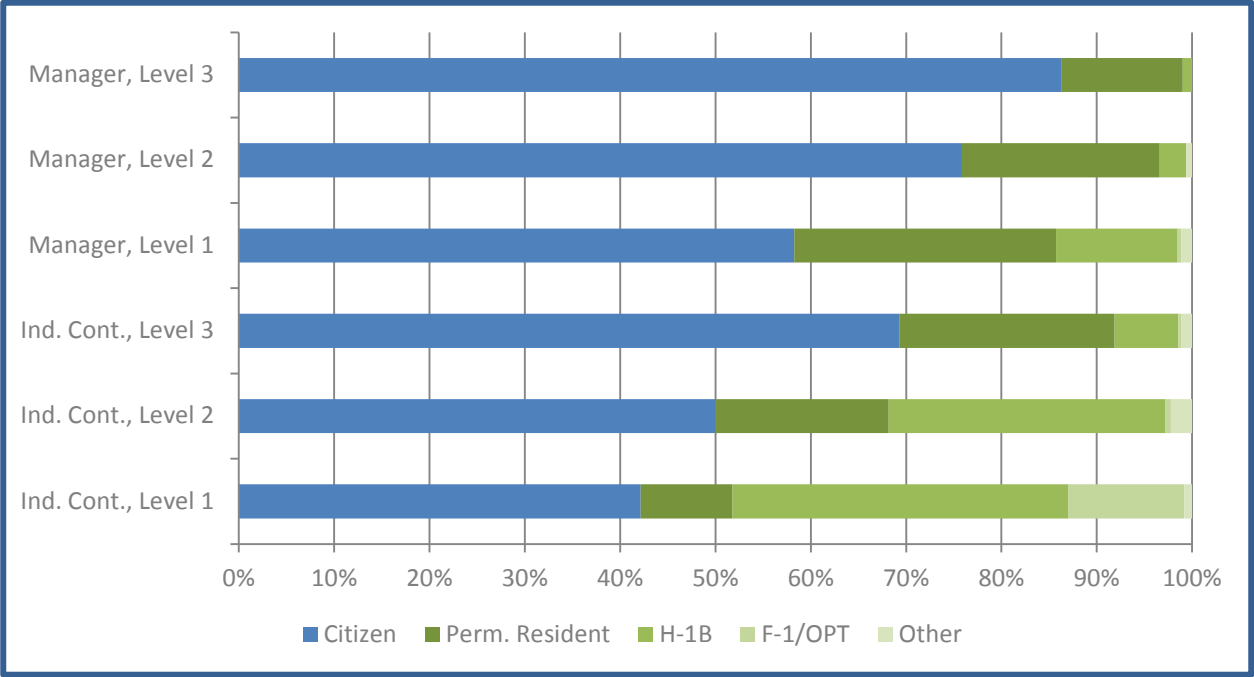*Figure 14.* Predictive Analytics Professionals by Residency Status

Figure 15. Residency Status of Predictive Analytics Professionals by Job Category

Figure 16. Median Base Salary of Individual Contributors by Job Level and Residency Status

Job Level	Residency Status	N	Median Base Salary	Difference from Citizen
Individual Contributor, Level 1	**Citizen**	**153**	**$75,000**	-
	Perm Res	35	$90,000	+20.0%
	H-1B	128	$78,500	+4.7%
	F-1/OPT	44	$70,000	-6.7%
Individual Contributor, Level 2	Citizen	179	$85,000	-
	Perm Res	65	$100,000	+17.6%
	H-1B	104	$90,000	+5.9%
	F-1/OPT	2	-	-
Individual Contributor, Level 3	Citizen	239	$130,000	-
	Perm Res	78	$120,000	-7.7%
	H-1B	23	$102,000	-21.5%
	F-1/OPT	1	-	-

Note: Individuals with 'other' residency were excluded due to small sample size.

Figure 17. Median Base Salary of Managers by Job Level and Residency Status

Job Level	Residency Status	N	Median Base Salary	Difference from Citizen
Manager, Level 1	**Citizen**	**155**	**$130,000**	-
	Perm Res	73	$130,000	0.0%
	H-1B	34	$116,250	-10.6%
	F-1/OPT	1	-	-
Manager, Level 2	**Citizen**	**245**	**$170,000**	-
	Perm Res	67	$167,500	-1.5%
	H-1B	9	$145,000	-14.7%
	F-1/OPT	0	-	-
Manager, Level 3	**Citizen**	**88**	**$232,500**	-
	Perm Res	13	$245,000	5.4%
	H-1B	3	-	-
	F-1/OPT	0	-	-

Note: Individuals with 'other' residency were excluded due to small sample size.

Compensation by Region

Similar to previous years' trends, for almost every job category the median salary of PAPs employed in the Northeast or on the West Coast are as great as, and often significantly larger than, those of PAPs employed in other U.S. regions.

Figure 18. Distribution of Base Salaries of Individual Contributors by Job Level and Region

Job Level	Region	Base Salary				
		N	25%	Median	Mean	75%
Individual Contributor, Level 1	Northeast	114	$66,125	$80,000	$83,710	$94,750
	Southeast	59	$65,000	$75,000	$82,797	$90,000
	Midwest	122	$60,375	$75,000	$77,660	$90,000
	Mountain	18	$65,000	$72,000	$77,722	$89,000
	West Coast	50	$70,500	$81,500	$87,820	$100,000
Individual Contributor, Level 2	Northeast	110	$77,750	$95,000	$99,595	$114,500
	Southeast	33	$77,500	$86,940	$92,974	$100,000
	Midwest	132	$73,000	$85,000	$87,020	$100,000
	Mountain	35	$76,500	$90,000	$88,804	$100,000
	West Coast	48	$80,000	$100,000	$104,246	$122,750
Individual Contributor, Level 3	Northeast	106	$117,000	$138,500	$136,953	$154,500
	Southeast	58	$100,625	$125,000	$128,805	$143,600
	Midwest	101	$100,000	$118,500	$121,016	$140,000
	Mountain	36	$93,750	$115,000	$113,347	$124,250
	West Coast	44	$110,000	$128,500	$133,011	$150,875

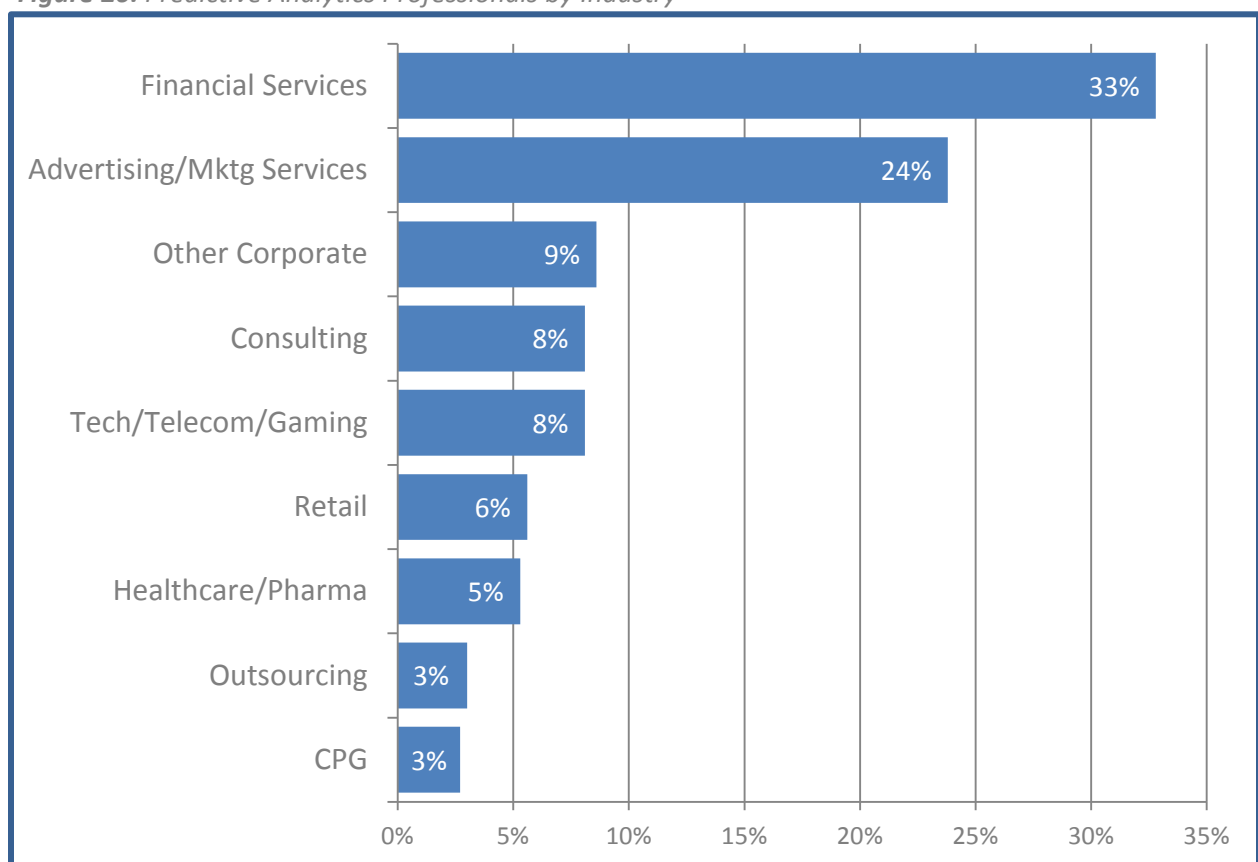*Figure 19.* Distribution of Base Salaries of Managers by Job Level and Region

Job Level	Region	Base Salary				
		N	25%	Median	Mean	75%
Manager, Level 1	Northeast	73	$120,000	$140,000	$136,589	$160,000
	Southeast	43	$105,750	$120,000	$122,256	$142,000
	Midwest	77	$100,000	$124,000	$124,864	$150,000
	Mountain	26	$99,500	$120,000	$123,181	$140,750
	West Coast	47	$117,500	$135,000	$137,411	$157,500
Manager, Level 2	Northeast	103	$155,500	$175,000	$176,010	$200,000
	Southeast	54	$121,000	$155,300	$158,303	$179,500
	Midwest	113	$141,000	$165,000	$169,223	$195,000
	Mountain	33	$140,000	$170,000	$173,700	$200,000
	West Coast	20	$150,000	$170,000	$174,375	$185,250
Manager, Level 3	Northeast	44	$225,000	$250,000	$256,136	$292,750
	Southeast	12	$192,500	$220,000	$224,417	$242,500
	Midwest	31	$197,500	$225,000	$224,661	$250,000
	Mountain	7	$189,150	$206,000	$208,257	$222,500
	West Coast	8	$208,750	$222,500	$239,625	$256,500

Compensation by Industry

Financial services firms and advertising or marketing services firms are the biggest employers of PAPs: 33% are employed by firms in the financial services industry, and 24% are employed in advertising or marketing services agencies.

Salaries vary significantly across industries.

Figure 20. Predictive Analytics Professionals by Industry

Figure 21. *Distribution of Base Salaries of Individual Contributors by Job Level and Industry*

Job Level	Industry	Base Salary				
		N	25%	Median	Mean	75%
Individual Contributor, Level 1	Advertising/Mktg Services	86	$60,000	$73,250	$76,483	$90,000
	Consulting	36	$61,750	$74,000	$82,889	$96,250
	CPG	3	-	-	-	-
	Financial Services	117	$70,000	$80,000	$89,060	$100,000
	Healthcare/Pharma	22	$60,625	$69,250	$72,864	$79,250
	Outsourcing	14	$72,250	$78,000	$78,336	$79,750
	Retail	23	$73,500	$81,000	$85,217	$98,000
	Tech/Telecom/Gaming	24	$68,750	$75,000	$80,667	$90,000
	Other Corporate	29	$65,000	$75,000	$72,903	$83,000
Individual Contributor, Level 2	Advertising/Mktg Services	85	$75,000	$90,000	$92,122	$101,000
	Consulting	27	$76,500	$90,000	$91,296	$107,500
	CPG	8	$80,000	$88,500	$98,000	$110,250
	Financial Services	118	$80,000	$97,000	$98,516	$110,000
	Healthcare/Pharma	21	$70,000	$85,000	$89,881	$110,000
	Outsourcing	11	$75,000	$80,000	$82,273	$88,500
	Retail	17	$85,000	$90,000	$96,438	$111,000
	Tech/Telecom/Gaming	28	$78,750	$106,250	$107,696	$126,250
	Other Corporate	33	$72,000	$80,000	$82,745	$90,000
Individual Contributor, Level 3	Advertising/Mktg Services	68	$102,750	$117,200	$120,899	$140,000
	Consulting	31	$130,000	$141,000	$151,210	$160,000
	CPG	9	$130,000	$135,000	$149,613	$149,520
	Financial Services	122	$108,000	$126,000	$128,880	$150,000
	Healthcare/Pharma	11	$103,000	$120,000	$122,424	$140,334
	Outsourcing	6	$142,000	$151,500	$156,000	$173,750
	Retail	19	$100,000	$112,000	$114,553	$132,500
	Tech/Telecom/Gaming	32	$109,000	$128,000	$128,391	$147,750
	Other Corporate	38	$100,000	$113,500	$118,218	$134,000

Figure 22. *Distribution of Base Salaries of Managers by Job Level and Industry*

Job Level	Industry	Base Salary				
		N	25%	Median	Mean	75%
Manager, Level 1	Advertising/Mktg Services	51	$112,500	$132,000	$133,957	$162,000
	Consulting	9	$130,000	$140,000	$145,889	$170,000
	CPG	10	$110,750	$120,000	$132,850	$153,375
	Financial Services	108	$110,000	$130,000	$131,192	$150,000
	Healthcare/Pharma	9	$141,000	$150,000	$152,000	$173,000
	Outsourcing	13	$80,000	$87,000	$97,638	$107,000
	Retail	15	$107,500	$121,000	$120,867	$128,000
	Tech/Telecom/Gaming	30	$111,250	$130,000	$133,033	$153,750
	Other Corporate	17	$110,000	$120,000	$119,512	$130,000
Manager, Level 2	Advertising/Mktg Services	90	$145,250	$170,000	$169,107	$190,000
	Consulting	33	$167,500	$195,000	$193,623	$210,000
	CPG	16	$156,250	$175,000	$179,750	$205,000
	Financial Services	85	$131,000	$160,000	$163,805	$190,000
	Healthcare/Pharma	25	$143,500	$180,000	$169,180	$196,000
	Outsourcing	9	$150,000	$170,000	$189,333	$200,000
	Retail	22	$147,750	$168,650	$172,900	$185,250
	Tech/Telecom/Gaming	16	$151,500	$174,500	$174,938	$208,250
	Other Corporate	26	$120,000	$156,500	$149,971	$169,250
Manager, Level 3	Advertising/Mktg Services	39	$212,500	$225,000	$238,333	$275,000
	Consulting	6	$235,000	$242,500	$268,333	$261,250
	Financial Services	27	$184,500	$210,000	$216,937	$250,000
	Healthcare/Pharma	5	$241,000	$250,000	$262,200	$270,000
	Tech/Telecom/Gaming	12	$228,750	$241,000	$256,000	$268,750
	Other Corporate	8	$204,000	$227,500	$231,375	$245,000

Compensation by Gender

- The current study suggests a slight overall decrease in the number of women in predictive analytics: 25%, versus 26% reported a year ago.

- In all job categories, a large majority of PAPs are men. As in previous years, the gender gap is most significant among the most senior-level managers: fewer than 10% are women.

- Men are paid more than women in all job categories of PAPs. The difference in median base salary between men and women is in no case greater than 13%.

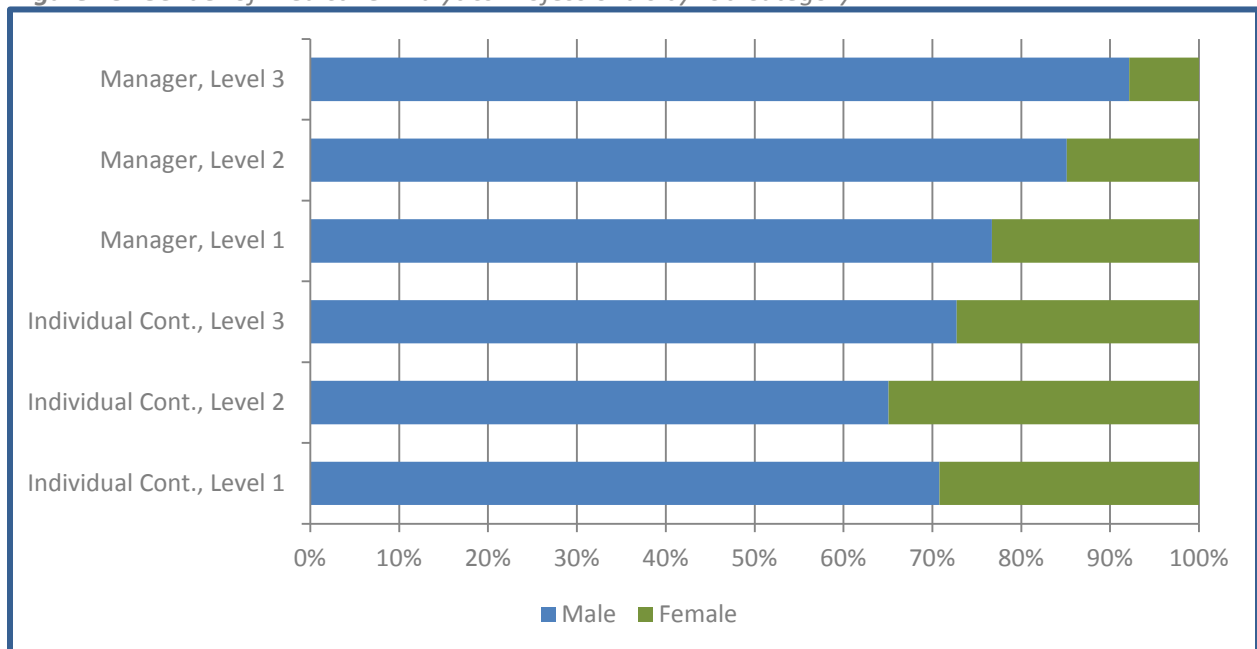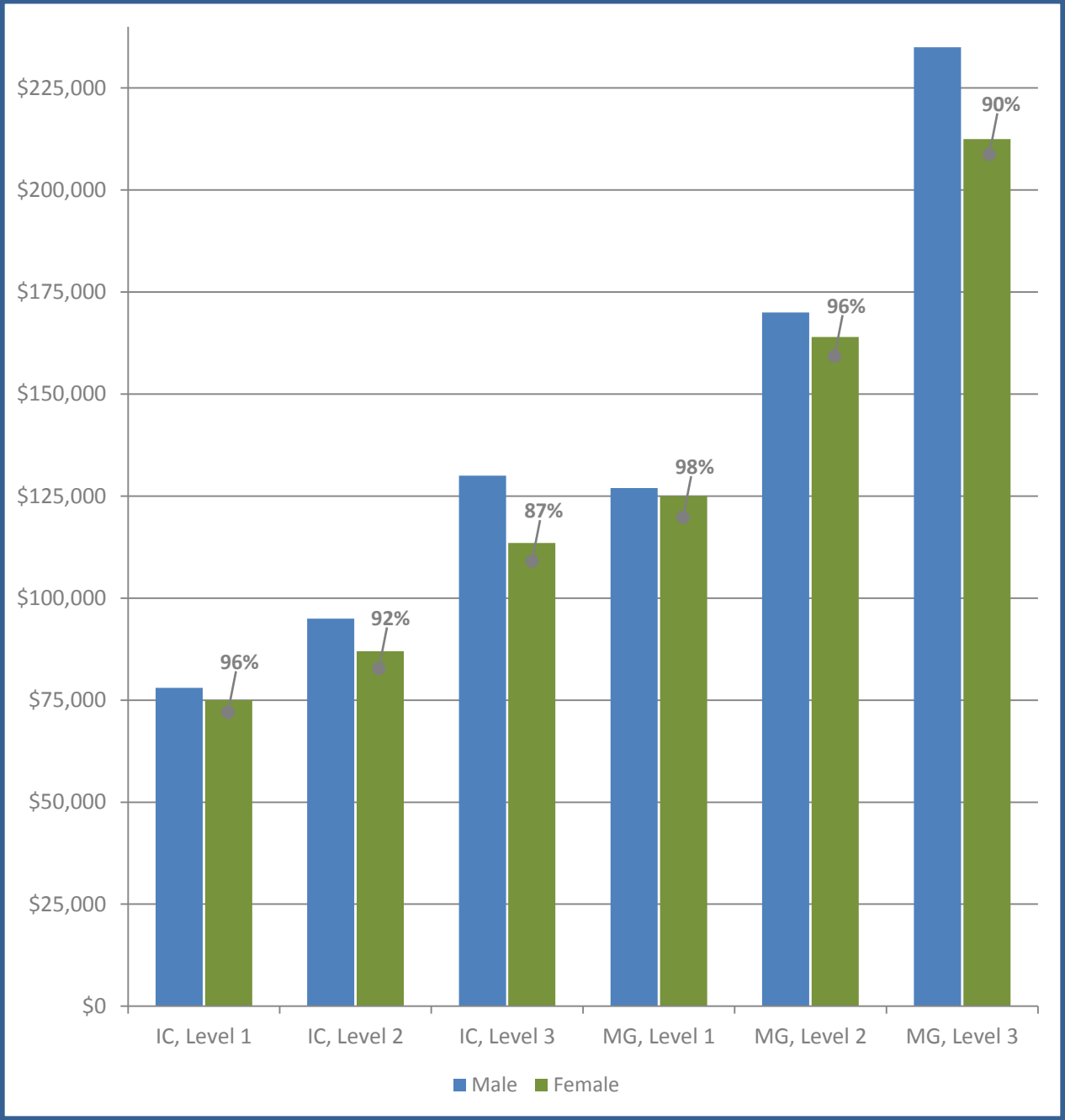*Figure 23.* *Gender of Predictive Analytics Professionals by Job Category*

**Figure 24.** *Median Base Salary by Job Category and Gender*

Predictive Analytics Professionals & Age

The recruiters at Burtch Works do not ask the age of the professionals with whom they work. However, they do ask them for their years of work experience, which is highly correlated with age, and shown below is the distribution of PAPs by years of experience. However, salary information is not shown here, because salaries are indirectly related to years of experience through job level.

Perhaps due to the recent attention to advanced analytics, younger professionals have been flocking to careers in predictive analytics, lowering the median and mean years of experience from 10 and 11.5 years respectively in last year's report. This group is young: the median years of experience is nine, and the mean is 10.5. Over 74% of PAPs have no more than 15 years of experience.

Figure 25. *Predictive Analytics Professionals by Years of Experience*

Median: 9.0 years
Mean: 10.5 years
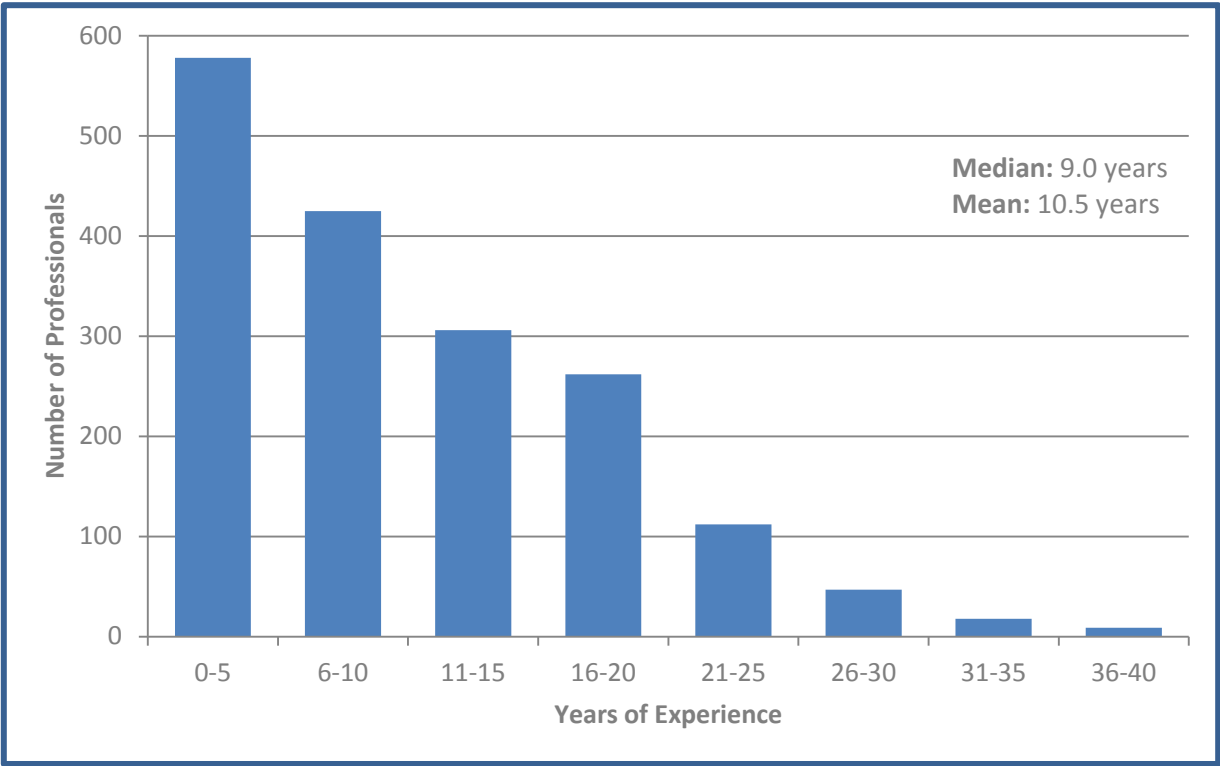
Section 4

APPENDIX A/Study Objective & Design

Study Objective

This study is a follow-up to *The Burtch Works Study: Salaries of Predictive Analytics Professionals*, published in September 2014, and its goals are to show (1) current compensation of PAPs and how it varies, and (2) how their compensation has changed since last year's report. By continuing to interview large numbers of PAPs annually, Burtch Works can show both short-term and long-term trends in the demographic attributes of PAPs and their compensation.

Why the Burtch Works Studies Are Unprecedented

The Burtch Works Studies contain groundbreaking salary and demographic data for PAPs, and are unique because:

- **Burtch Works' studies focus solely on predictive analytics professionals –** The study samples include only professionals who are predictive analytics professionals, and exclude professionals that other salary reports may include, such as business intelligence, operations research, information technology, and consumer insights professionals.

- **Burtch Works obtains this data by interviewing predictive analytics professionals –** Instead of relying on data provided by human resources departments or from a self-reported online survey, Burtch Works interviews every PAP individually. An important advantage of the interview process is that Burtch Works recruiters are able to obtain information about PAPs that is not usually provided by human resource departments that may affect their compensation, such as education and residency status. Additionally, because of their intricate understanding of the profession, recruiters are able to obtain corrections or clarifications when information provided by the PAPs does not seem credible.

- **Burtch Works salary studies show how compensation varies by region, industry, education, gender, and residency status –** The sample size is big enough to show compensation data, collected over the past year, at a granular level. Further trends are illuminated with each consecutive report.

The Sample & How Changes in Compensation Were Measured

This sample contains 1,757 of the more than 20,000 quantitative professionals with whom Burtch Works has contact. Burtch Works collected the data for this study in interviews conducted over the 12 months ending April 2015, which is the year immediately following the period of interviews for the 2014 study. Professionals were included in the sample only if (1) they satisfied Burtch Works' criteria for predictive analytics professionals, and (2) Burtch Works obtained complete information about that individual's compensation, demographic, and job characteristics.

Some of the 1,757 PAPs in this sample were also in the samples for our previous studies (published in 2013 and 2014), but since others were not, changes in compensation were *not* measured by differencing current compensation and compensation reported for the previous study and taking medians (and other percentiles) of the differences. Instead, changes were measured by comparing medians (and other percentiles) of current compensation to those reported in the previous study.

Identifying Predictive Analytics Professionals

PAPs apply sophisticated quantitative skills to very large sets of data describing transactions, interactions, or other behaviors of people to discern patterns in those behaviors and to prescribe actions for their firms. What distinguishes them from other quantitative professionals, like for instance financial analysts or web analytics professionals, is the volume of data with which they work. PAPs include data scientists, but data scientists are not included in the sample for this study because they operate on very large sets of *unstructured* data, requiring additional computer science skills, while other PAPs work with more structured data. Burtch Works is tracking the compensation of data scientists in separate studies which can be found on our website, the latest published in April 2015.

To identify PAPs, Burtch Works uses these criteria:

1. **Educational Background –** PAPs typically have a degree – usually an advanced degree, for instance, a Master's or Ph.D. – in a quantitative discipline such as Applied Mathematics, Statistics, Economics, or Operations Research. Some professionals with an MBA are also PAPs if their MBA program had a quantitative emphasis. (Burtch Works expects the number of MBAs among PAPs to increase because many business schools are introducing predictive analytics programs.)

2. **Skills –** PAPs are proficient users of analytic tools for discerning patterns in data. Also, they can use one or more computer tools for operating on large data sets (see criterion 3), such as SAS and R.

3. **Dataset Size –** The size of the datasets with which PAPs work are measured in gigabytes, terabytes, or petabytes.

4. **Job Responsibilities –** PAPs have job responsibilities in the following areas:

   - **Analytical Database Marketing:** Studies existing customers using methods such as customer segmentation, campaign targeting and effectiveness, propensity modeling, and customer lifetime value analysis.

   - **Credit Risk Analytics:** Measures consumer, enterprise, and market risk levels. Results of analyses might impact the price of product, such as the interest rate for a credit card or its availability, as in the case of a loan.

   - **Marketing Science:** Predicts consumer behavior using analytics such as marketing mix modeling. Analysis can use transaction-, store-, or market-level data.

Professionals whose jobs are described as analytics management, business intelligence, marketing research, and operations research are not considered PAPs, because they do not work with large datasets or because, in the case of operations researchers, their function is to optimize well-described processes rather than search for patterns in data. Although data scientists are PAPs, they were excluded from this sample, because they have atypical computer science skills, resulting in

significantly higher compensation, and were the focus of a separate study, *The Burtch Works Study: Salaries of Data Scientists,* which was released in April 2015.

Completeness & Age of Data

A PAP was included in the sample only if Burtch Works has complete data about his or her compensation, and demographic and job characteristics.

All of the 1,757 PAPs in the sample were interviewed over the 12-month period ending April 2015, which is the year immediately following the period of interviews for the 2014 study. All were interviewed by Burtch Works recruiters executing searches for clients.

Segmentations of Predictive Analytics Professionals

To examine how compensation of PAPs varies, Burtch Works used characteristics of their jobs (level, location of employer, industry) and demographic characteristics (gender, years of experience, education, residency status) to segment PAPs and then measure how compensation varies across segments. Burtch Works developed the following job categories for the first *Burtch Works Study* in 2013 and the definitions remain the same for the 2014 and 2015 reports:

Figure 26. Definition of Individual Contributor Job Levels

| Individual Contributors		
Level	*Responsibility*	*Typical Years of Experience*
Level 1	Learning the job, hands-on analytics and modeling	0-3 years
Level 2	Hands-on with data, working with more advanced problems and models, may help train analysts	4-8 years
Level 3	Considered an analytics Subject Matter Expert, mentors and trains analysts	9+ years

Figure 27. Definition of Manager Job Levels

Managers		
Level	*Responsibility*	*Typical Number of Reports*
Level 1	Tactical manager who leads a small group within a function, responsible for executing limited projects or tasks within a project	1-3 reports (direct or matrix)
Level 2	Manager who leads a function and manages a moderately sized team, responsible for executing strategy	4-9 reports (direct or matrix)
Level 3	Member of senior management who determines strategy and leads large teams, manages at the executive level	10+ reports (direct or matrix)

Burtch Works divided the U.S. into these five categories:

- Northeast
- Southeast
- Midwest
- Mountain
- West Coast

Figure 28. *U.S. Geographic Regions*
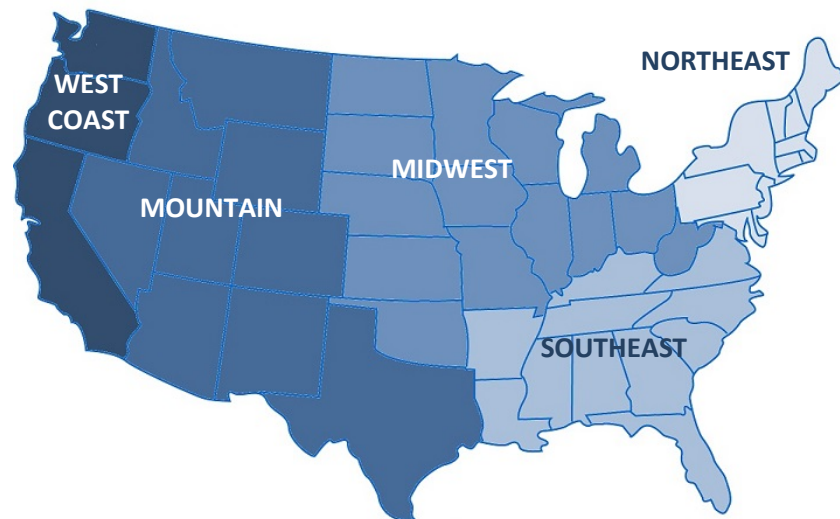
Note: The Northeast includes areas of Virginia within 50 miles of Washington, DC, and the Midwest includes areas of Pennsylvania within 75 miles of Pittsburgh.

The firms for which PAPs work were divided into these nine industries:

- Advertising/Marketing Services
- Consulting
- Consumer Packaged Goods
- Financial Services
- Healthcare/Pharmaceuticals
- Outsourcing
- Retail
- Tech/Telecom/Gaming
- Other

Each PAP was assigned to one of these five residency status categories:

- U.S. Citizen
- F-1/OPT
- H-1B
- Permanent Resident
- Other

Finally, each PAP was assigned to one of these five education categories:

- No college degree
- Bachelor's degree
- Master's degree
- Ph.D. all-but-dissertation (ABD)
- Ph.D.

Section 5

APPENDIX B/Glossary

Glossary of Terms

This section provides definitions of terms used in this report.

ABD (All-but-dissertation). ABD is a level of education. A person whose level of education is ABD has completed all coursework for a Ph.D. but not a dissertation.

Base Salary. An individual's gross annual wages, excluding variable or one-time compensation such as relocation assistance, sign-on bonuses, bonuses, and long-term incentive plan compensation.

Big Data Professionals. See Predictive Analytics Professionals.

Bonus. Short-term variable compensation usually awarded annually, such as individual or company performance-based bonuses. This does not include long-term incentive plan compensation or awards of stock or stock options.

Data Scientist. A predictive analytics professional who has both the proficiency for data management required to make enormous sets of unstructured data accessible and also the analytical skills for deriving useful information from those data.

F-1/OPT. A residency status that allows a foreign undergraduate or graduate student who has a non-immigrant F-1 student visa to work in the U.S. without obtaining an H-1B visa. The student is required to have either completed his degree or pursued it for at least nine months.

Geographic Region. One of five groups of states that together comprise the entire United States. These five groups of states – Northeast, Southeast, Midwest, Mountain, and West Coast – are shown in Figure 28 on page 31.

H-1B. A non-immigrant visa that allows a U.S. firm to temporarily employ a foreign worker in a specialty occupation for a period of three years, which is extendable to six and beyond. If a foreign worker with an H-1B visa quits or loses his job with the sponsoring firm, the worker must either find a new employer to sponsor an H-1B visa, be granted a new non-immigrant status, or leave the United States.

Individual Contributor. An employee who does not manage other employees. Individual contributors among the PAPs in the Burtch Works sample have all been assigned to one of three levels:

> *Level 1:* Responsible for learning the job; hands-on with analytics and modeling; 0-3 years of experience

> *Level 2:* Hands-on with data, working with more advanced problems and models; may help train Analysts; 4-8 years of experience

> *Level 3:* Considered an analytics Subject Matter Expert; mentors and trains analysts; 9+ years of experience

Industry. One of nine groups of firms employing data professionals. These nine industries are Advertising/Marketing Services, Consulting, Consumer Packaged Goods, Financial Services, Healthcare/Pharmaceuticals, Outsourcing, Retail, Tech/Telecom/Gaming and Other.

> *Advertising/Marketing Services:* An industry consisting of firms that provide services to other firms that include advertising, market research, media planning and buying, and marketing analysis.

> *Consulting:* Industry that includes both large corporations and small "boutique" firms that provide professional advice to the managers of other firms.

> *Consumer Packaged Goods:* Companies whose products are sold quickly and at relatively low cost, including non-durable goods (e.g. groceries, toiletries) and lower quality consumer electronics.

> *Financial Services:* Firms that provide money management, lending, or risk management services, including banks, insurance companies, and credit card organizations.

> *Healthcare/Pharmaceuticals:* Firms that provide healthcare services, such as hospitals, and firms that manufacture medicinal drugs.

Outsourcing: Companies whose primary workforce is contracted by their clients, in order to move labor out of the internal business process to a third party organization. Many outsourcing companies utilize off-shore resources to complete work for clients.

Retail: Organizations that purchase goods from a manufacturer to be sold for profit to the end-consumer.

Tech/Telecom/Gaming: Firms that create or distribute technology products or services, such as computer manufacturers and software publishers, and firms that provide telecommunications services.

Other: Companies whose industry falls outside of the eight categories described above, such as airline companies, distribution firms, media, and entertainment.

Manager. An employee who manages the work of other employees. Managers among the PAPs in the Burtch Works sample have all been assigned to one of three levels:

Level 1: Tactical manager who leads a small group within a function, responsible for executing limited-scale projects or tasks within a project; typically responsible for 1-3 direct reports or matrix individuals.

Level 2: Manager who leads a function and manages a moderately sized team; responsible for executing strategy; typically responsible for 4-9 direct reports or matrix individuals.

Level 3: Member of senior management who determines strategy and leads large teams; manages at the executive level; typically responsible for 10+ direct reports or matrix individuals.

Mean. Also known as the average, it is the sum of a set of values divided by the number of values. For example, the mean of N salaries is the sum of the salaries divided by N.

Median. The value obtained by ordering a set of numbers from smallest to largest and then taking the value in middle, or, if there are an even number of values, by taking the mean of the two values in the middle. For example, the median of N salaries is the salary for which there are as many salaries that are smaller as there are salaries that are larger.

N. The number of observations in a sample, sub-sample or table cell.

OPT. See F-1/OPT.

Permanent Resident. A residency status that allows a foreign national to permanently live and work in the United States. Those with this status have a United States Permanent Residence Card, which is known informally as a green card.

Predictive Analytics Professionals (PAPs). Individuals who can apply sophisticated quantitative skills to data describing transactions, interactions, or other behaviors of people to derive insights and prescribe actions. They are distinguished from the "quants" of the past by the sheer quantity of data on which they operate, an abundance made possible by new opportunities for measuring behaviors and advances in technologies for the storage and retrieval of data.

Salary Study. A study conducted to measure the distributions by salary of those in specific occupations. Traditionally, these studies have been executed by obtaining salary data from the human resources departments of firms employing professionals in those occupations rather than by interviewing those employees themselves.
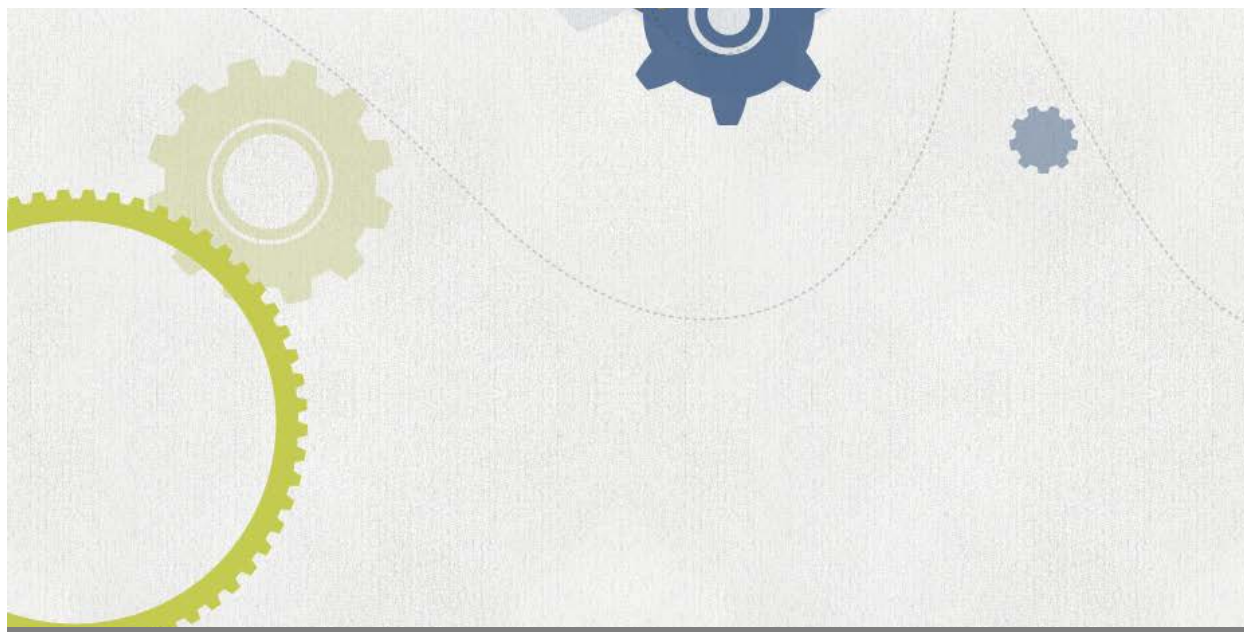
ABOUT BURTCH WORKS

Burtch Works is a targeted executive recruiting firm dedicated to placing quantitative talent nationwide. Our recruiters have decades of experience recruiting for their specialties, with a wide network of highly qualified professionals in a variety of quantitative disciplines. We've also developed strong relationships with hundreds of hiring managers and human resources professionals at firms ranging from growing startups to Fortune 50 corporations.

We closely follow talent movement and hiring trends, and have developed the groundbreaking *Burtch Works Studies* as comprehensive industry reports on demographics and compensation within our fields of specialty. Linda Burtch, our founder and Managing Director, has over 30 years' experience in quantitative recruiting, and has been interviewed for her insights on the hiring market by The New York Times, The Wall Street Journal, CNBC, Mashable, Forbes.com, The Chicago Tribune, Fox News, All Analytics, Analytics Magazine, and InformationWeek.

CONTACT US

Looking to hire quantitative or marketing research talent for your organization? Email clients@burtchworks.com. Planning your career and want to know what open positions might match your experience? Email your resume to candidates@burtchworks.com to get started. For general information, please call 847-440-8555, or email info@burtchworks.com.