



THE BERLIN STARTUP SALARY REPORT

An analysis of earnings in Berlin's entrepreneurial landscape

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A collaboration between:

Jobspotting

<https://jobspotting.com>



Jobspotting is a recommendations engine that suggests relevant jobs to users based on their skills and experience. The engine is powered by Skills Graph and Semantic Analysis technology. The company was founded in 2013 in Berlin, Germany and is today active in 10 countries on 4 continents.

BerlinStartupJobs.com

<http://berlinstartupjobs.com>



BerlinStartupJobs.com is the leading platform for inspiring jobs in the German capital. It was founded in 2011 with the aim to connect startups in Berlin with talented professionals.

Aalen University

<https://www.hs-aalen.de>



Aalen University is the leading research institution among the Universities of Applied Sciences in Baden-Württemberg. One of the key missions of Aalen University is to deliver a focused education to our 5,700 students by combining the developments in industry with the latest research findings. The institution builds on this tradition by expanding its research capabilities and intensifying its relationship with firms. Its unique innovation centre Inno-Z established in 2015 serves as a business incubator for our graduates and facilitates the transfer of innovative products and processes between the University and the industry.

Foreword

Globalisation, digitisation and technical progress fundamentally changed our daily lives. Evidence of this is perhaps most obvious in our work. Almost every day, we see the genesis of new jobs, new titles, and new skills that must be learned. Job seekers may be faced with a growing variety of opportunities, but they must also confront questions about the kind of jobs that would really suit their skills, and what companies are actually looking for.

The real key to intelligent, user-oriented job search is, in our opinion, transparency of the job market. Our goal is to give job seekers as much information as possible, not just specifics about companies and vacancies, but also up-to-date info on in-demand skills and professions. Our vision is that one day, students will be able to use this knowledge to make informed educational decisions.

Concrete, contextual information on the earning potential of positions and sectors is no less important. In the startup industry, of which we are a part, it's hard to find quantitative information on salaries. Our partner, BerlinStartupJobs.com conducted a salary survey that is the basis of this report, and the first contribution to the transparency we hope to foment. The results of the survey make it clear that this young industry still has some major hurdles to overcome, for example, a stark gender pay gap.

By releasing this data in cooperation with Prof. Dr. Ingo Scheuermann and Aalen University, we hope not only to supply relevant information to job seekers, but to encourage some necessary discussions, and to provide a platform for further investigation.

I would like to warmly thank BerlinStartupJobs.com for creating this survey and for furnishing us with the results. We are also greatly indebted to Aalen University, in particular to Prof. Dr. Ingo Scheuermann for his support and for his illuminating insights which helped us to draw the correct conclusions from the raw data.

My special thanks also to the entire Jobspotting team, especially our Chief Data Officer at Jobspotting, Jan Backes without whom none of this would have been possible.

Robin Haak, April 2016

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Executive Summary

Berlin's reputation as 'poor but sexy' precedes it. International, creative people have long been drawn to its liberal diversity, and facilitated by low costs, the city became the perfect place to spark a disruptive tech scene.

Now, as supportive infrastructure grows and the scene matures, Berlin's entrepreneurial culture is flourishing. This in turn makes the city very attractive to the young and ambitious, and so the cycle continues.

According to the Institute for Strategy Development (IFSE), which recently published its report on the tech hub called [Booming Berlin: A Closer Look at Berlin's Startup Scene](#), startups are a major employer of internationals.

"The 620,000 registered foreigners in the city make up 16.5 percent of Berlin's total population. The city is a long way ahead of the German average (8.9 percent of total population). According to Berlin Partner, 186 different nationalities reside in the city. This is not only reflected in the multicultural cityscape but also within the startup scene. With 49 percent of its startup employees not being German citizens, Berlin's startup workforce is more diverse than Silicon Valley's (45 percent foreign workers) and only topped by London according to the Global Startup Ecosystem Report."

So, Berlin is clearly still considered a sexy place to live, but is it still poor? That's surprisingly hard to define. What people earn in Germany is a closely guarded secret, making it difficult to find conclusive salary information. It's especially tough for job seekers, as salary ranges are not advertised alongside job descriptions, with little indication of what people are paid for the positions they occupy.

This lack of basic transparency makes it hard for job candidates to know what to expect from a position or how much bargaining power they have during salary negotiations. Thus, there is a pressing need to provide people with reliable information that could allow them to better understand the local jobs market.

As Berlin is a key hub of the European tech scene, it is crucial that job seekers – both local and international – understand precisely what they can expect financially in order to make the best decisions for their careers.

To that end, BerlinStartupJobs.com hosted an anonymous survey since April 2013, which asked respondents to share details about salaries, work experience, industries and level of contentment with current roles. Participants could also provide additional feedback about their roles and their experience of living and working in Berlin. The entire survey and graph plots can be found in the appendices.

Key Findings:

- The BerlinStartupJobs.com salary survey was answered by 3,388 active job seekers, 60% of whom already lived in Berlin.
- Respondents are quite young, with over 40% aged between 26 and 30 years.
- Despite the youth of the respondents, the sample also includes very experienced (10+ years) senior experts and managers.
- Respondents report over 65 different nationalities, and nearly 80% are non-Germans.
- Respondents who live in Berlin are significantly less experienced, and are more likely to work for a startup than those living outside of Berlin.
- As might be expected, respondents who did not work for startups earn salaries that are significantly higher than those of startup employees. However, Berlin salaries are notably higher than non-Berlin salaries, despite Berlin respondents reporting to be less experienced, and the higher startup saturation in the city.
- For full-time positions, a higher level of experience has a substantial positive influence on salaries, with Berlin respondents in receipt of higher mean salaries across all experience levels than non-Berlin participants.
- A higher startup age also drives salaries up, but to a much lesser extent than work experience. Again across all startups, regardless of company age, mean salaries are higher for Berlin.
- With respect to the highest paid job types, it is most promising to work in software development and management.
- The gender pay gap is considerable, with sizable salary differences between male and female respondents. Men are being paid significantly more than women across all job areas and experience levels both for the Berlin and non-Berlin samples. In fact, the gap is even wider in Berlin.
- Interestingly, salaries for college/university dropouts are higher than for graduates, only surpassed by respondents that hold Ph.Ds.
- Overall, respondents are vastly unhappy with their current position, although this isn't hugely surprising given that the source of the survey is a jobs portal. Berlin respondents are significantly happier than their non-Berlin counterparts. Men are happier than women with their current position, and startup employees are happier than those who do not work for startups.
- The majority of respondents feel underpaid, showing no significant differences with respect to gender, company type, or whether they live in Berlin.

Survey Highlights

The Berlin Salary Survey was answered by 3,388 respondents, 60% of whom already reported to live in Berlin. There was a very high concentration of non-German respondents (nearly 80%), likely to have been influenced by the survey's availability solely through the English language.

As the IFSE report quoted above states that the percentage of non-German nationals working for startups in Berlin is 49%, this survey is clearly quite heavily weighted towards international respondents.

Respondents were quite young, with the majority (over 40%) falling into the 26 – 30 age bracket. Those that lived in Berlin were significantly less experienced than those who didn't already live in the city. Berlin-based respondents were also far more likely to work for a startup.

As one might expect, people who did not work for startups earned significantly higher salaries than those who did. Despite this, and perhaps somewhat unexpectedly, Berlin residents reported salaries that were notably higher than those who did not live in Berlin.

Respondents reported to be vastly unhappy with their current positions, with women reporting to be significantly unhappier than men. The majority of respondents also felt underpaid, but startup employees tend to be much happier than those who do not work for startups. This is perhaps unsurprising given that the source of the survey is a startup jobs board.

Almost 82% of respondents hold a university degree, with 2.5% having obtained a Ph.D. 6% reported to have dropped out of university and interestingly, these respondents reported to earn higher salaries than university graduates, surpassed only by the Ph.D holders.

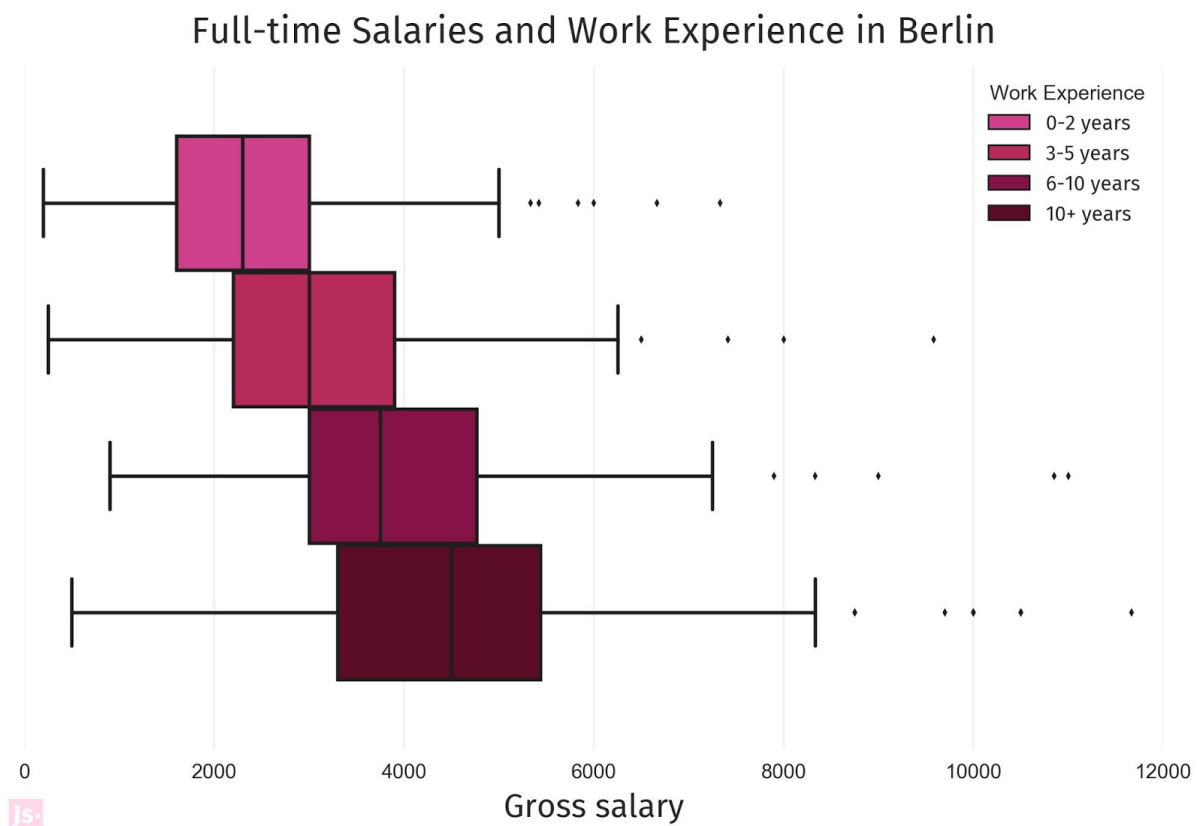


Fig. 10: Full-time salaries and experience for Berlin (basis: 2,026 respondents with full-time positions)

Taking just full-time positions – the majority contract type – a higher level of work experience is a substantial driver of higher salaries. The age of the startup a person worked for has a much less significant influence on how much they earned.

The respective median monthly gross salary for entry level positions – not internships – clocks in at €2,337, while those with 3 – 5 years experience take home a monthly median salary of €3,080. As would be expected, the more experience a respondent declared, the higher the median salary. Those with 6 – 10 years of experience earn a median of €3,845, and more than 10 years experience sees respondents taking home a median salary of €4,603.

It won't come as much of a surprise that the highest earners in Berlin are software developers and managers. The median starting salary for a software developer is €2,900 monthly, rising to a median of €5,000 monthly for those with 10 or more years of experience. Management salaries start a little lower at a monthly entry-level median of €2,500, with highly experienced managers out-earning software developers at the same experience level by taking home a monthly median salary of €5,300.

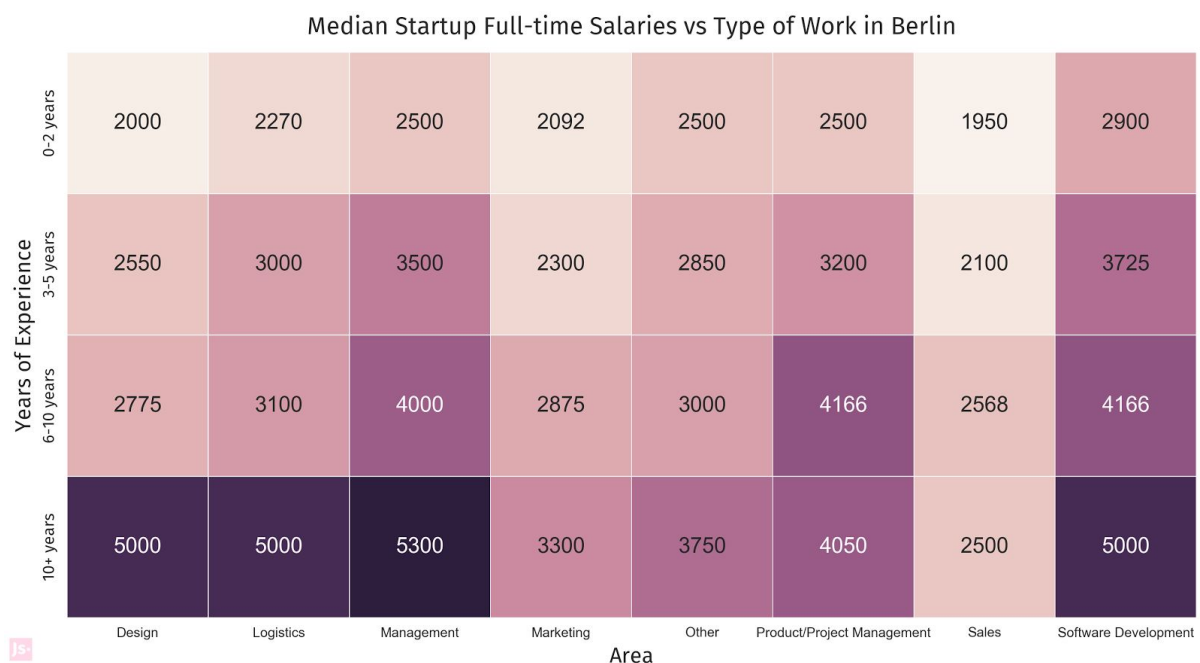


Fig. 18: Median startup salaries, job area and startup age for Berlin (2,026)

While startups may have a reputation for being more progressive and inclusive than large corporate machines, they still have a lot of work to do when it comes to salary inequalities. The gender pay gap is considerable, with sizable salary differences between male and female respondents.



Fig. 22: Berlin median salaries by years of experience and gender.

Men are being paid significantly more than women across all job areas and experience levels both for the Berlin and non-Berlin samples. In fact, the gap is even wider in Berlin. According to Eurostat estimates, the average gender pay gap across the EU is 16.4%, while in Germany the average is 22.4%. The Berlin Salary Survey shows a gap between median male and female salaries of almost 25%.

Conclusions

There are some clear limitations in the scope of the Berlin Salary Survey in that its respondents are chiefly international, likely to already be active job seekers and therefore probably more likely to feel underpaid or be unhappy in their current roles. However, the data offers some interesting insight into the current financial landscape of Berlin employees.

Median salaries before tax in Berlin are generally comparable to many other startup hubs, meaning that the city is perhaps a more appealing destination for those who want to work in a startup and still maintain a high quality of life.

However, there are also some obvious drawbacks, with low prospects for financial growth if you don't work in areas like software development, management, or design. Women too, might consider the city less rewarding in terms of earning prospects, but now know that they can negotiate more assertively for remuneration equal to their abilities. The information provided in this report will hopefully make it easier for eager job seekers to make informed professional and financial decisions that will boost their careers.

Berlin remains an incredibly attractive destination for those seeking employment, and the thriving startup scene will continue to be a driving force of innovation, change, creativity and success in the heart of Europe.

Introduction

Berlin is a nerve centre of the European startup scene, where costs are low, people are creative and international, and supportive infrastructure for emerging companies is rapidly improving.

Startups are growing in popularity as the employers of choice for younger generations, and have become a driving reason behind why many people now move to Berlin. They are not only seeking creative freedom, but are buoyed up by the promise of opportunity in the city's nascent startup scene.

However, unlike many other startup hubs in the world, it can be very hard to judge if moving to Berlin will be rewarding financially as well as professionally. In Germany, salary ranges are not generally advertised with the job description and as a result, there is very little knowledge out there about what people are paid for the positions they occupy.

As such, this lack of basic transparency makes the startup world – and employment in Germany in general – quite challenging for people trying to make the best professional and financial decisions.

This raises the (significantly less than) million dollar question: what are employees in Berlin actually earning?

Objective

The objective of The Berlin Salary Report is to shed light on what employees in Berlin are actually being paid. There has been a serious dearth of information surrounding pay averages which makes it very difficult for job seekers to know what to expect, or even what to ask for when it comes to salary negotiations. By directly asking job seekers about their salaries and experience, we are able to provide up-to-date information about what the current standards are across the Berlin startup scene. We hope this information will help people to make informed decisions about their next career moves, and also that it will highlight disparities and instigate conversations about the realities of the current status of the Berlin startup scene.

Methodology

Since April 2013, BerlinStartupJobs.com – hereafter BSUJ – hosted an anonymous [Salary Survey](#), asking participants to share details about their salaries, their experience, their industries and their level of contentment with their current roles. Founded by Hessam Lavi – the CEO of [Jobspotting](#) – in 2011, the site has become a crucial resource for anyone seeking a startup job in the city.

The survey could be accessed through BSUJ, and was advertised through the site itself, through its social media outlets¹, and was also circulated to friends and colleagues by the respondents themselves.

Between April 2013 and January 2016, traffic on BSUJ amounted to 1.2M unique visitors, of which 26,400 (2.2%) visited the Salary Survey page. In total, 3,619 people responded to the survey yielding an overall gross response rate of 0.3%. After some data cleansing, the full data set is available from 3,388 survey respondents (net response rate 0.28%).

The survey questioned job seekers active on BSUJ about their current level of job satisfaction (happy/unhappy), whether they perceived that they were being underpaid (yes – without a doubt/no – I’m happy with my salary/I don’t know), on their basic demographic information (i.e. age, gender, nationality), whether they were already resident in Berlin – these groups are denoted in the report by the tags Berlin/non-Berlin – and on their years of work experience and education level.

Respondents were also asked the following information about their current role:

- position / job title
- gross monthly salary
- contract type (i.e. full-time/part-time/freelance/internship)
- area of work (e.g. software development, content management etc.)
- company type (i.e. startup [by age of company: less than one year old; 1 – 3 years old; more than 3 years old], service agency, or traditional tech/media company)

Respondents were also given space to provide optional comments about living and working in Berlin, and space for any remaining additional comments or feedback.

The full survey is depicted in Appendix A or alternatively, can be accessed [here](#).

Sample Description / Composition

Demographics

Summary:

- 60% of respondents are already living in Berlin.
- Nearly 80% of respondents are non-German, with 65 different nationalities reported.
- The gender distribution of respondents is 70/30 male/female.
- Respondents are quite young, with over 40% aged between 26 and 30 years.

¹ Facebook, Twitter, Google+

Nationality

Given its distribution point through BSUJ, respondents answered this survey through English which points to a more international group. Indeed, nearly 80% of survey respondents reported a non-German nationality. Just 6% indicated that they are originally from Berlin.

Respondents reported 65 different nationalities, with almost 60% already living in Berlin. Once the sample was narrowed down to those working in Berlin startups, we had data for 2,026 people with a very similar distribution.

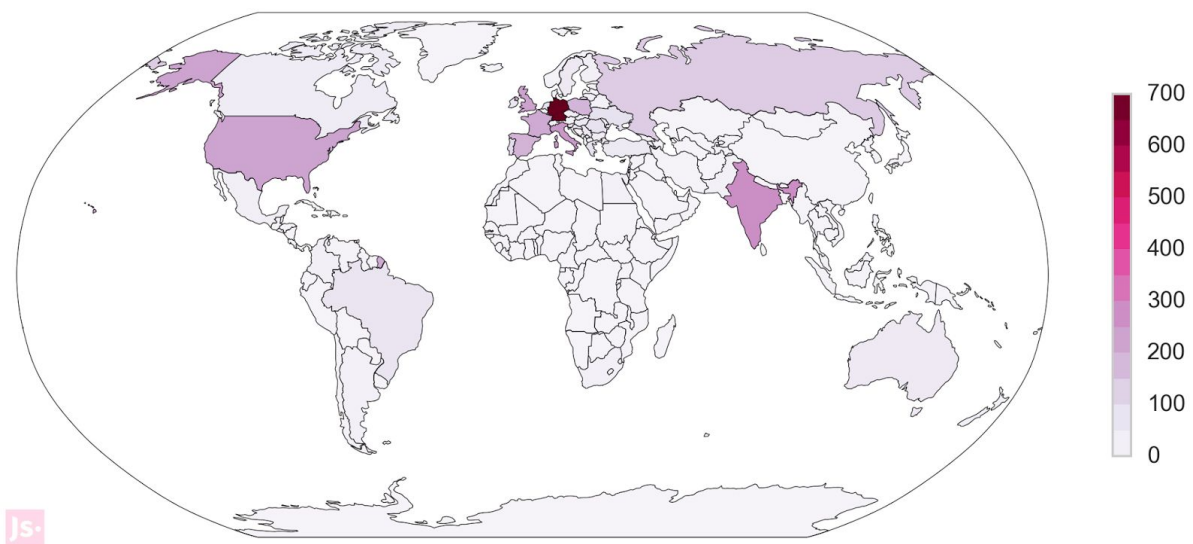


Fig. 0: Geographic distribution for all survey respondents (basis: 3,388)

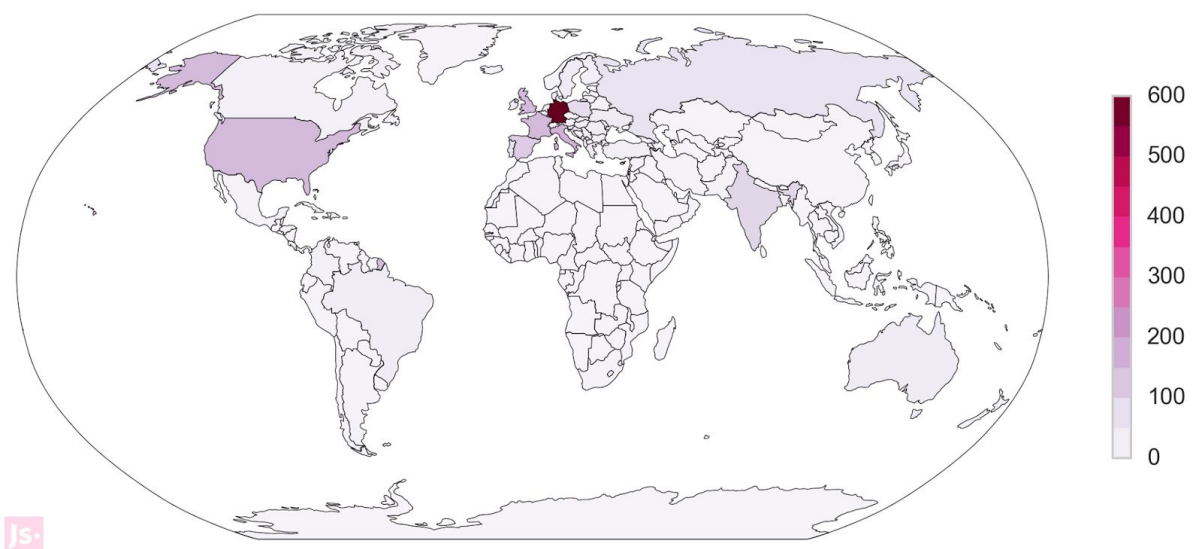


Fig. 1: Geographic distribution for respondents working in Berlin (basis = 2,026)

Age

The majority of respondents fall into the 26 – 30 age-group (approximately 40% of both the total and the Berlin subsample). The age brackets of 20 – 25 years old, and 31 – 35 years old each account for approximately one quarter of respondents respectively. This indicates that job seekers on BSUJ are generally quite young. There are no noticeable differences in age composition between the Berlin subsample and the total sample.

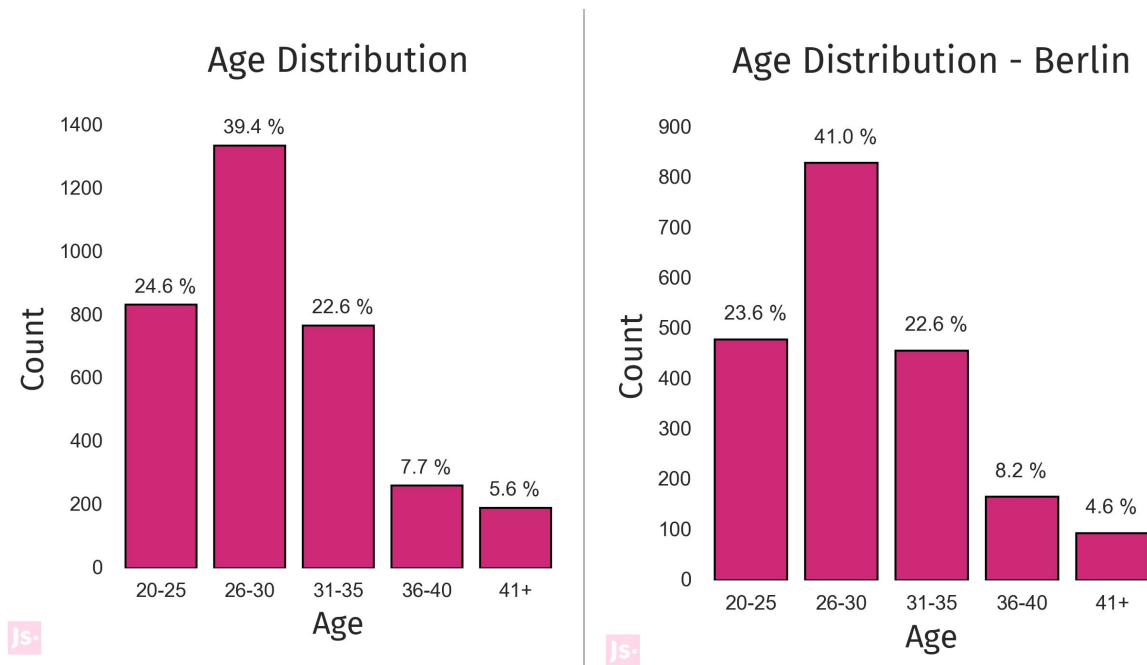


Fig. 2: Age distribution for respondents (overall₁ = 3,388, and in Berlin₂ = 2,026)

Gender

In terms of gender distribution, the sample is predominantly male with a 70/30 male/female split. This also applies to the Berlin subsample.

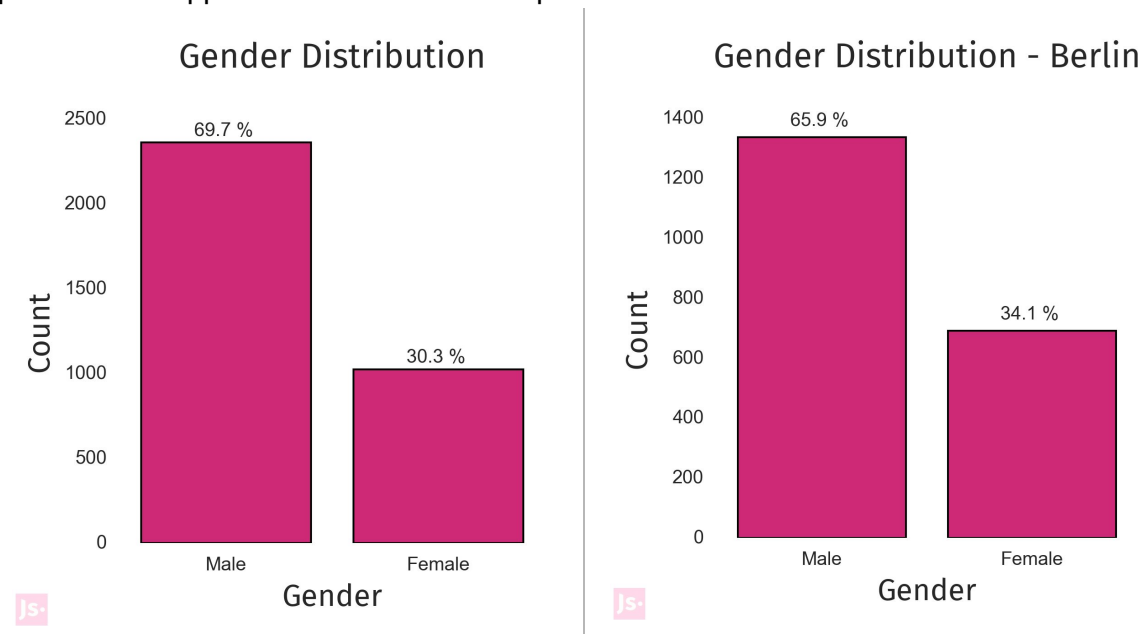


Fig. 3: Gender distribution for respondents (overall = 3,388 and in Berlin = 2,026)

Current Role

Summary:

- Berlin-based respondents are less experienced than those who live outside of Berlin.
- People who work for startups are significantly less experienced than those who work for non-startups.
- Around 60% of respondents work for startups, with very young startups (i.e. active less than one year) only accounting for about 1% of all startups.
- Berlin-based respondents are significantly more likely to work for startups than those based outside of Berlin.

Experience Level

Regarding experience, we see that the cohort with a medium experience level (3 – 5 years) is slightly dominant, followed by the least experienced group (0 – 3 years). Job seekers with 6 – 10 years of experience account for 22.3% of the sample, while those with 10+ years of experience make up 15.7%. Such a strong representation of highly experienced respondents is quite surprising given that one might have expected senior experts and managers to rely less on an online job portal and more on personal networks and/or headhunters.

As shown in Fig. 4, there are significant differences in experience between the Berlin and the non-Berlin samples, with Berlin respondents² having markedly less experience than the non-Berlin sample. This is also the case regarding startup companies which tend to have significantly less experienced employees³ as might be expected.

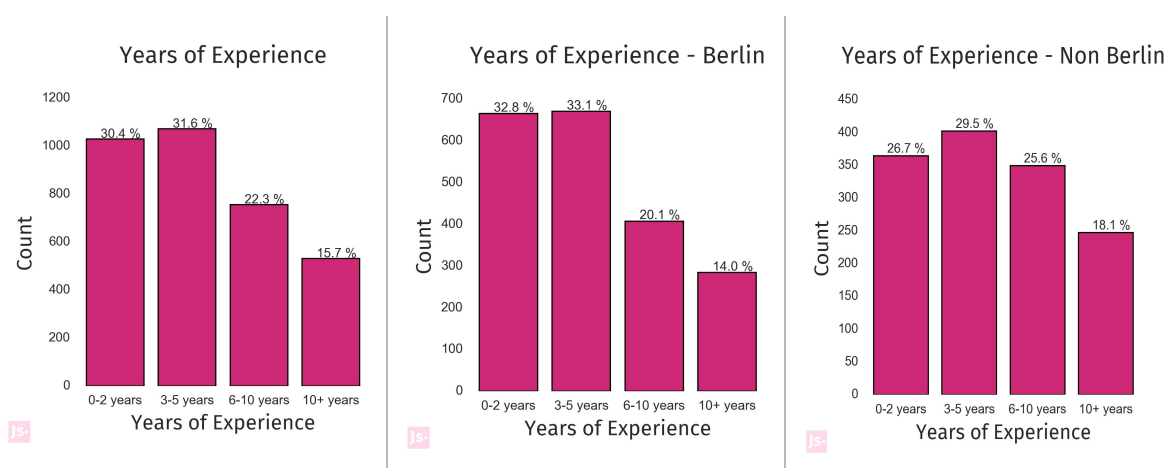


Fig. 4: Experience distribution for respondents (overall₁ = 3,388, and in Berlin₂ = 2,026)

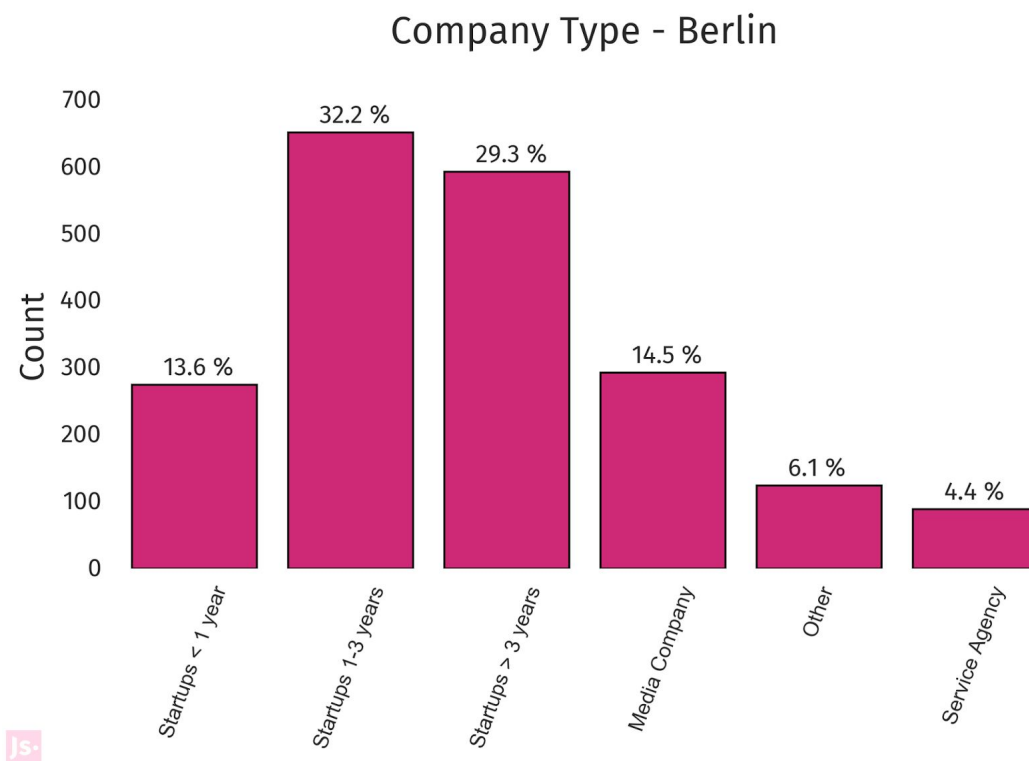
² The distribution/allocation of the experience levels is significantly different between the Berlin and the non-Berlin sub-samples (Pearson-Chi-squared independence test for contingency tables, p-value 0,0000).

³ The distribution/allocation of the experience buckets is significantly different between startups and non-startups (Pearson-Chi-squared independence test for contingency tables, p-value 0,0000).

Company Type

To determine the kinds of companies that people work for, we asked respondents to declare whether they worked for a startup, a traditional media company, a service agency, or another type of company. If they specified a startup, we asked them to state how long that company had been in operation. Overall, the answers were quite consistent across the entire survey, and the Berlin subsample. About 60% of respondents work in startups, with seed-stage companies – defined here as less than one year old – playing a less important role. Medium to highly mature startups – defined here as over three years old – account for almost 5% of the total startup number.

Media companies make up approximately 20% of the total sample, but only 13.6% of the Berlin subsample. This indicates that in Berlin, media companies are less common as compared to the total sample.



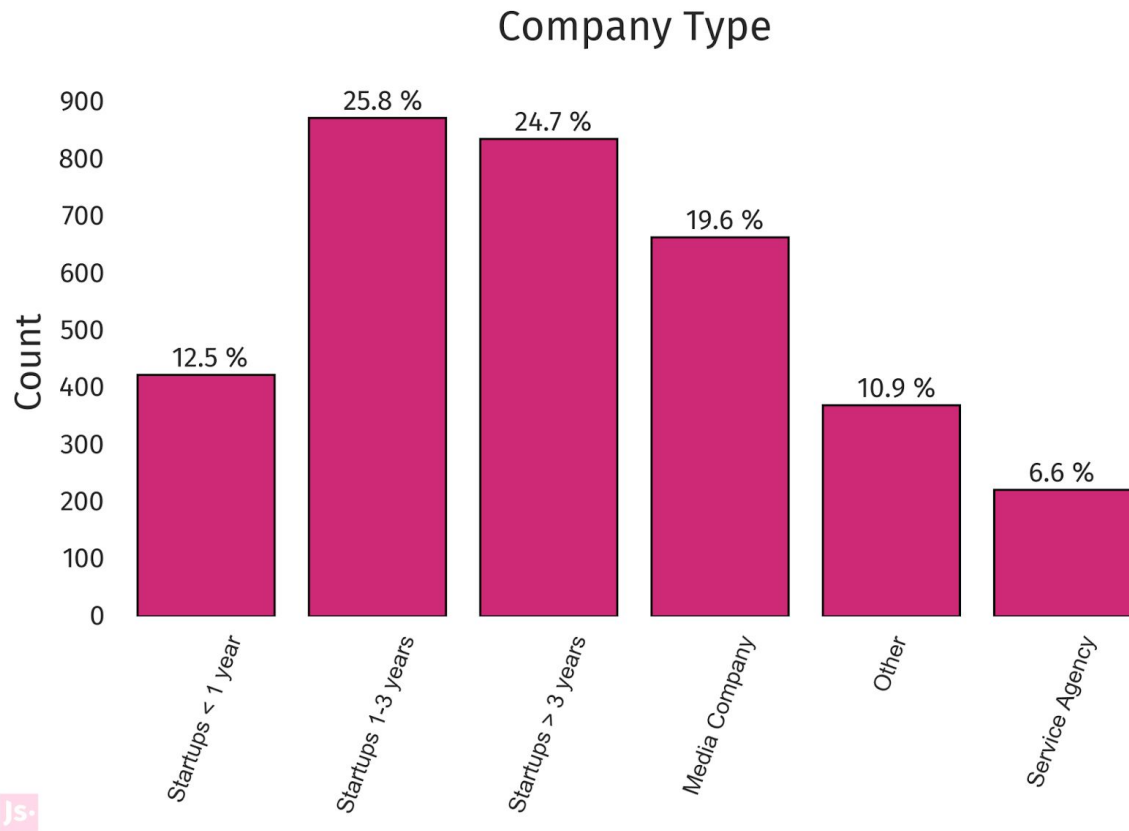


Fig. 5: Company type distribution (overall₁ = 3,388 and in Berlin₂ = 2,026)

Taking a statistical look at the cross table above, there is a significant difference⁴ between the type of company a respondent works for, and whether they live in Berlin. Berlin respondents are significantly more likely to work in startups as depicted in Fig. 6.

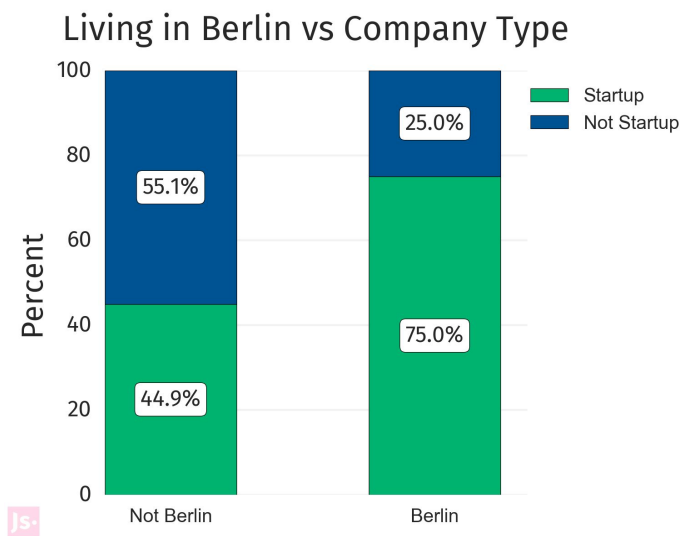


Fig. 6: Startups vs. Living in Berlin (overall₁ = 3,388)

⁴ As above, we conducted a Pearson-Chisquared independence test for contingency tables to examine the differences in the allocation of company types across the Berlin and non-Berlin subsamples. The calculated p-value of 0,0000 indicates a highly significant difference.

Education Level

Summary:

- Almost 82% of respondents hold a university degree.
- Just 2.5% of respondents have obtained a Ph.D.

The vast majority (81.56%) of survey respondents have a university degree, 6% are still attending university, 6% are dropouts (we will check in on these respondents later), and only 2.5% have obtained a Ph.D. This is similar across the Berlin and non-Berlin subsamples.

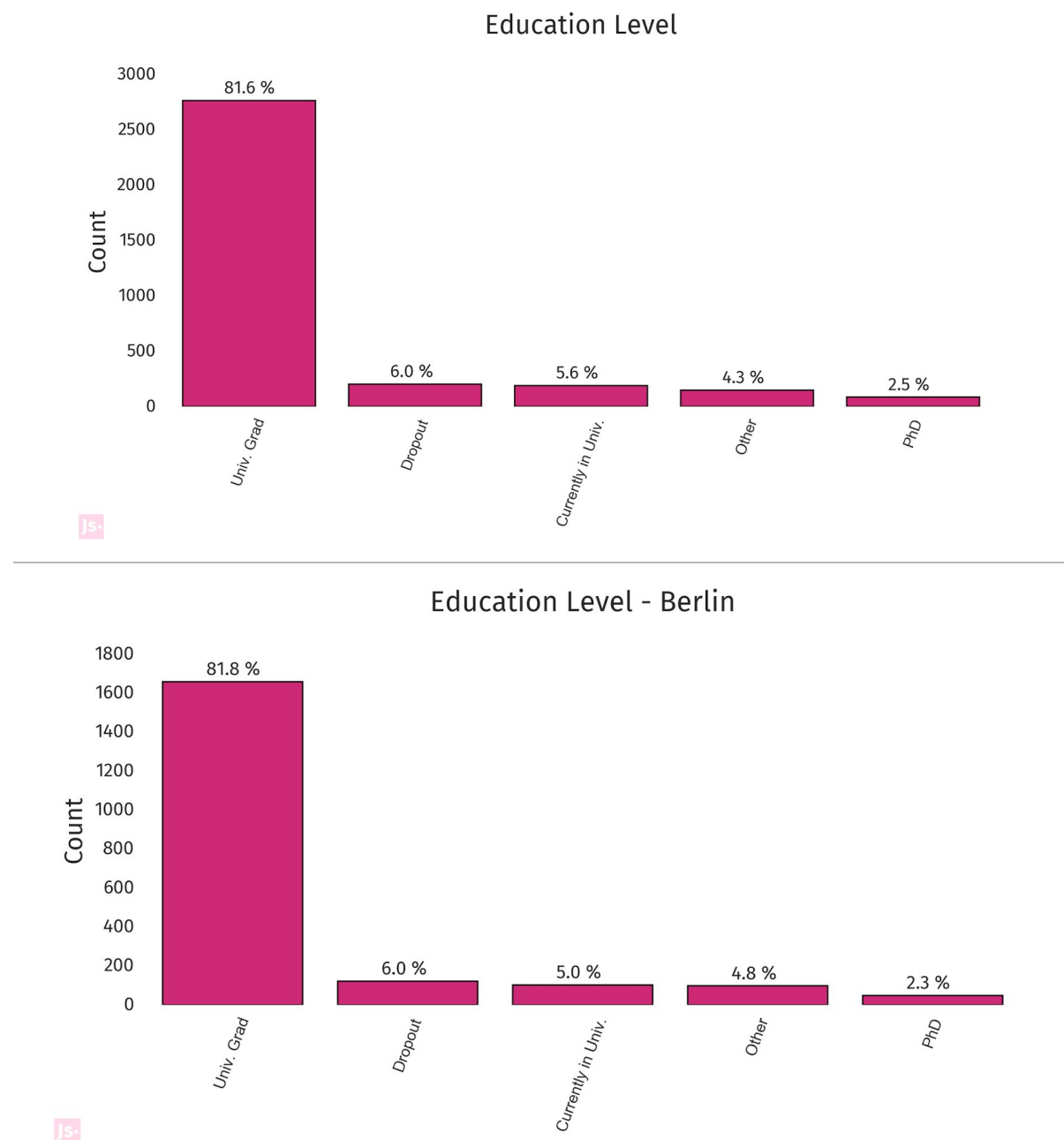


Fig. 7: Education level of respondents (overall₁ = 3,388, and in Berlin₂ = 2,026)

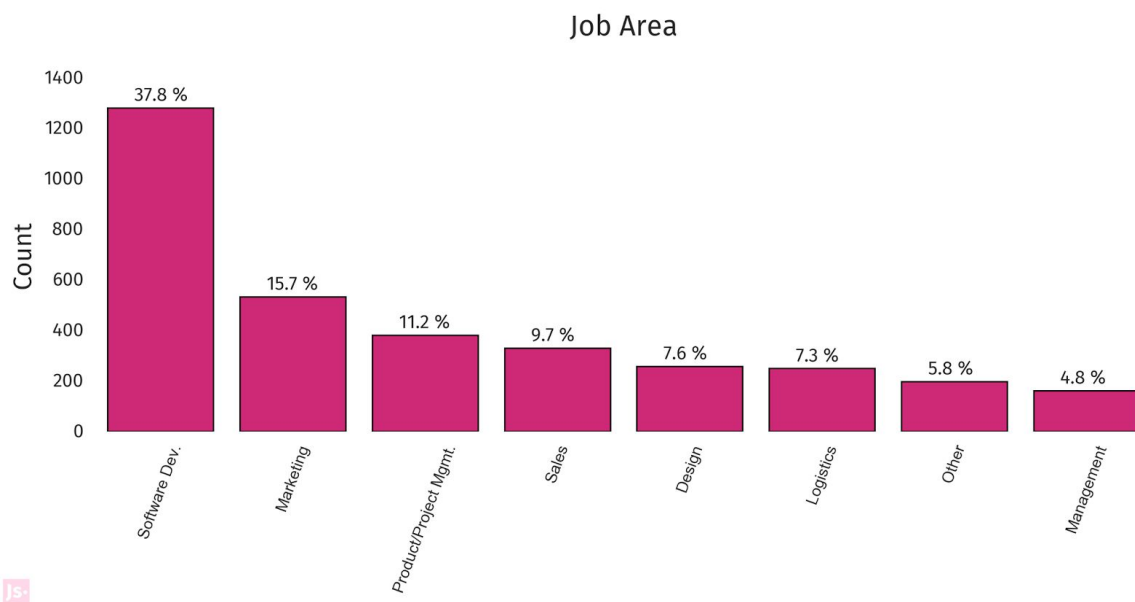
Job Areas

Summary:

- Full-time contracts were the most dominant type of employment.
- The most common types of jobs held by respondents are in software development, marketing and product/project management.

The percentage of people employed in self-described 'technical' positions as opposed to 'non-technical' jobs is roughly 37% tech (e.g. software development) to 63% non-tech (e.g. sales). In the Berlin subsample, tech jobs account for a slightly lower percentage of about 33%, indicating that Berlin respondents are slightly less likely to work in technical positions.

We see similar distributions of jobs across both the Berlin and non-Berlin subsamples. People who work in software development disciplines constitute the largest group, followed by those who work in marketing. Product/project management was the third most common job type reported by respondents. Managers bring up the rear accounting for circa 4.5% of job types across both subsamples.



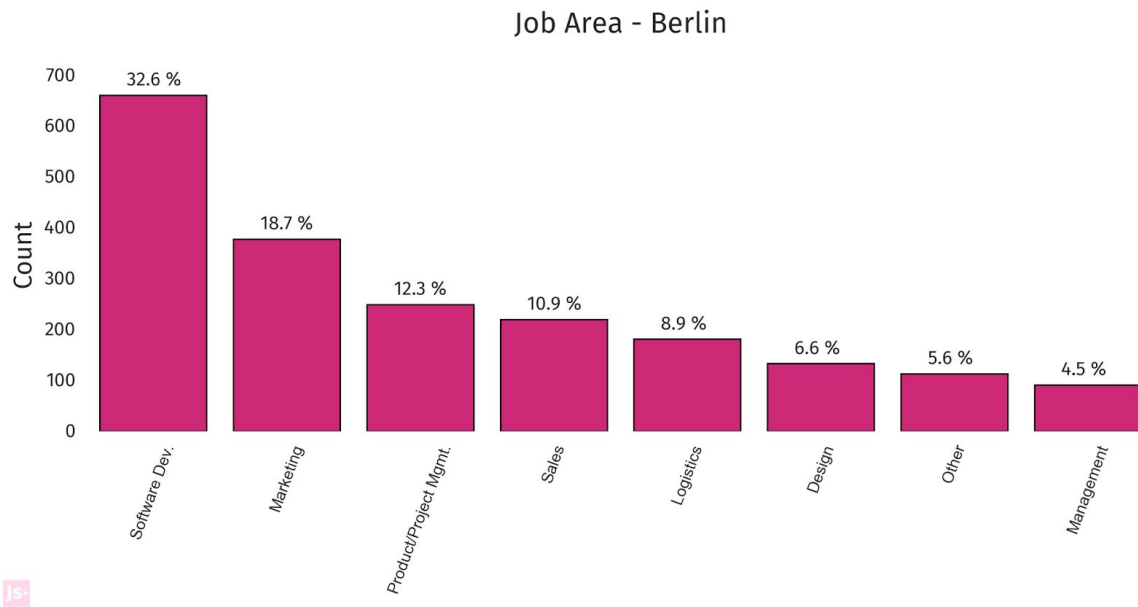
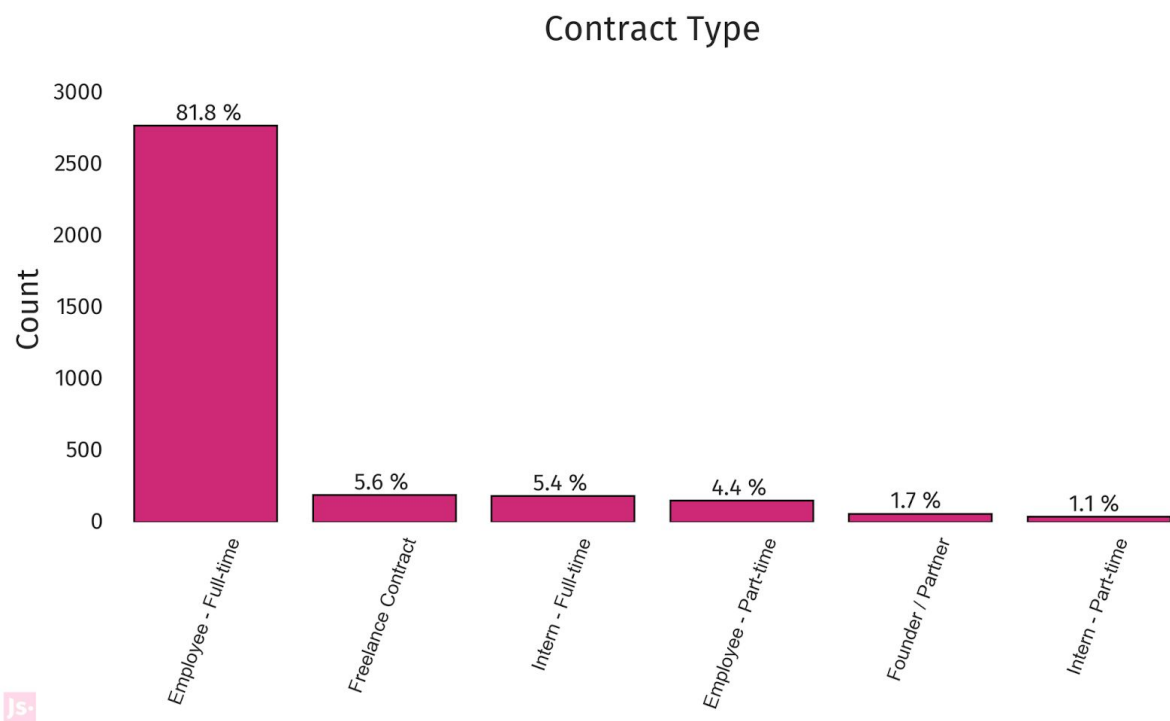


Fig. 8: Job area description of respondents (overall₁ = 3,388, and in Berlin₂ = 2,026)

Full-time contracts are clearly the most dominant (more than 80%) type of employment across both subsamples. Freelancers are the next most common, at a comparatively tiny 5.6%. Respondents who identify as founders, or part-time interns were the least represented.



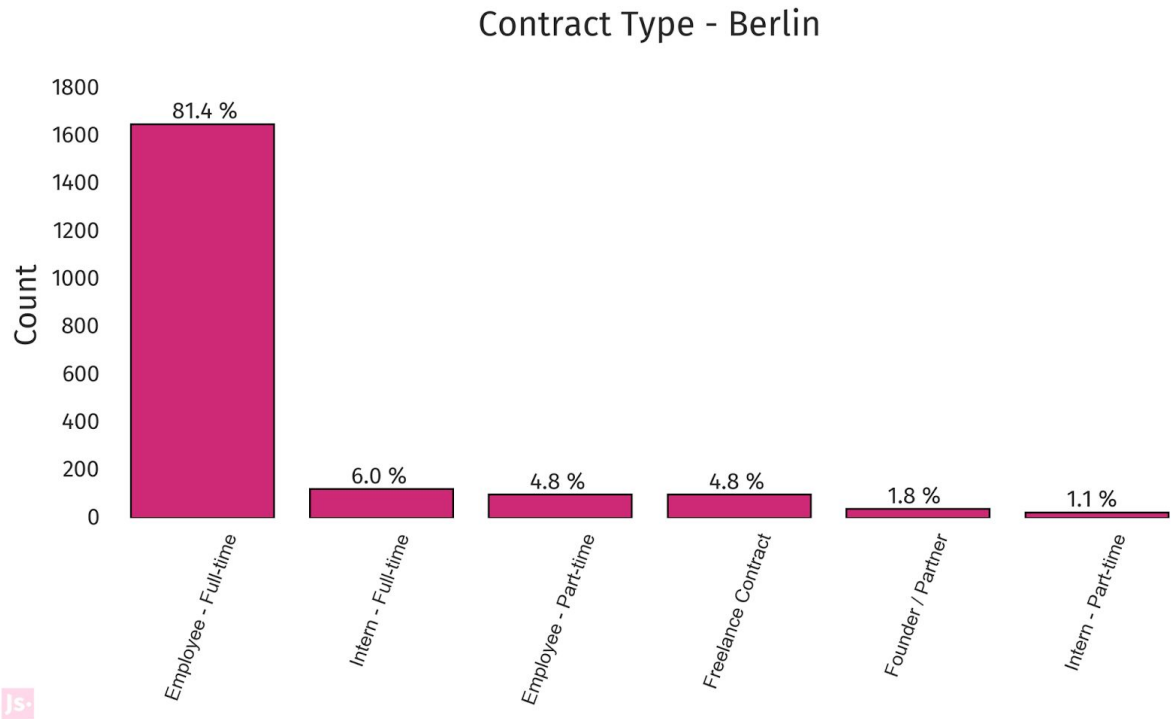


Fig. 9: Contract types for respondents (overall₁ = 3,388, and in Berlin₂ = 2,026)

Given that the site is a jobs portal, we can presume that respondents are likely to be active job seekers. It's important to note however, that 'job hopping' is common in the startup world, so many people like to keep up-to-date with current opportunities while employed.

Findings

Salary Findings

Our final data set consisted of 3,388 respondents. This is slightly lower than the original number as some data entered was partially incorrect⁵. In order to ensure a complete and consistent data sample, we had to clean up some of the responses.

Our key question relates to current monthly salary. Overall, we found that startup salaries are significantly lower than in non-startups, as shown in Table 1 below.

		n	mean	Standard Deviation	Standard Error Mean
salary	Startup	1520	2904.82	1700.284	43.611
	Non Startup	506	3247.50	1863.379	82.837

⁵ For example, in cases where salary stated included currency signs or the order of magnitude was obviously wrong (not a monthly but a yearly salary).

Table 1: Group statistics salary for startup vs. non-startup (2,026)

Surprisingly, we also found that salaries for Berlin respondents are slightly higher than those of the non-Berlin sample. This is despite the fact that Berlin respondents' work experience tends to be significantly less and startups are notably more frequent in the city. The mean values for both subsamples are significantly different such that Berlin respondents noticeably earn more than their non-Berlin counterparts⁶.

		n	mean	Standard Deviation	Standard Error Mean
salary	Berlin Salary	2026	2990.41	1748.285	38.841
	Non Berlin Salary	1362	2808.65	2108.814	57.141

Table 2: Group statistics salary for those who live in Berlin vs. those who do not live in Berlin. (3,388)

Berlin Salary Results

Summary:

- Unsurprisingly, respondents with more experience reported higher salaries.
- Mean salaries are generally higher in Berlin than those from outside of Berlin.
- Interns still earn very little, despite the introduction of a German minimum wage in January 2015.
- Work experience has a stronger influence on startup salaries than the age of the company.
- Mean salaries are generally higher in Berlin startups than in non-Berlin startups.
- Software development and management offer the best salary prospects.
- Those who are employed in sales and marketing are paid the least.
- There is a large gender pay gap across all job areas and experience levels.
- Somewhat surprisingly, median salaries for dropouts are higher than for university graduates.

Years of Work Experience

The strongest group represented in the survey are **full-time employees**. The respective median monthly gross salary for entry level positions – not internships – clocks in at €2,337, while those with 3 – 5 years experience take home a monthly median salary of €3,080. As would be expected, the more experience a respondent declared, the higher the median salary. Those with 6 – 10 years of experience earn a median of €3,845, and more than 10 years experience sees respondents taking home a median salary of €4,603. Of course, among full-time employees, there is quite a large range with several outliers in the upper end of the spectrum.

⁶ We conducted a t-test for independent samples (unpaired t-test) that turned out to yield high significance at $p=0,0000$. For more details about the t-test see https://en.wikipedia.org/wiki/Student%27s_t-test.

The variation of salary distributions with respect to work experience is shown in the boxplots in Fig. 10.

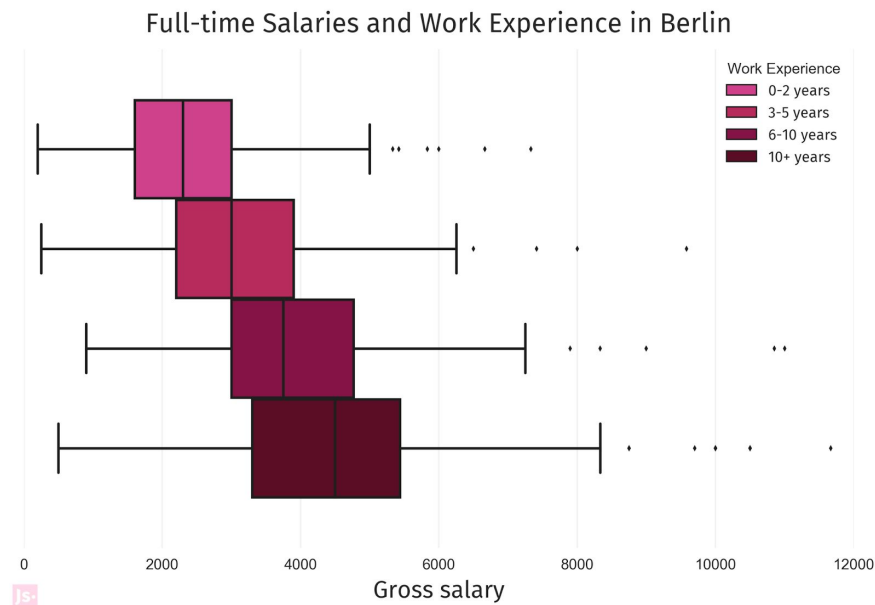


Fig. 10: Full-time salaries and work experience for Berlin (2,026)

By conducting a one-sided rank-correlation independence test⁷ we find that there is indeed a significant positive relationship between work experience and salary as shown in Table 3.

			Salary	Years of Experience
Spearman-Rho	Years Of Experience	Correlation Coefficient	0.503**	1.000
		Significance (one-sided)	.000	.
		N	2026	2026
	Salary	Correlation Coefficient	1.000	0.503**
		Significance (one-sided)	.	.000
		N	2026	2026

** . Correlation is significant at 1% level (one-sided).

Table 3: Spearman-Rho rank correlations for experience level vs. salary

For respondents not living in Berlin, salary distribution varies in the same way with more experience correlating to higher salaries (see Fig. 11 below).

⁷ The Spearman-Rho correlation coefficient measures the strength of the dependence of two variables. The independence test is then conducted to find out whether the correlation is statistically significant, i.e. meaningful given the underlying sample. For more details see:

https://en.wikipedia.org/wiki/Spearman%27s_rank_correlation_coefficient

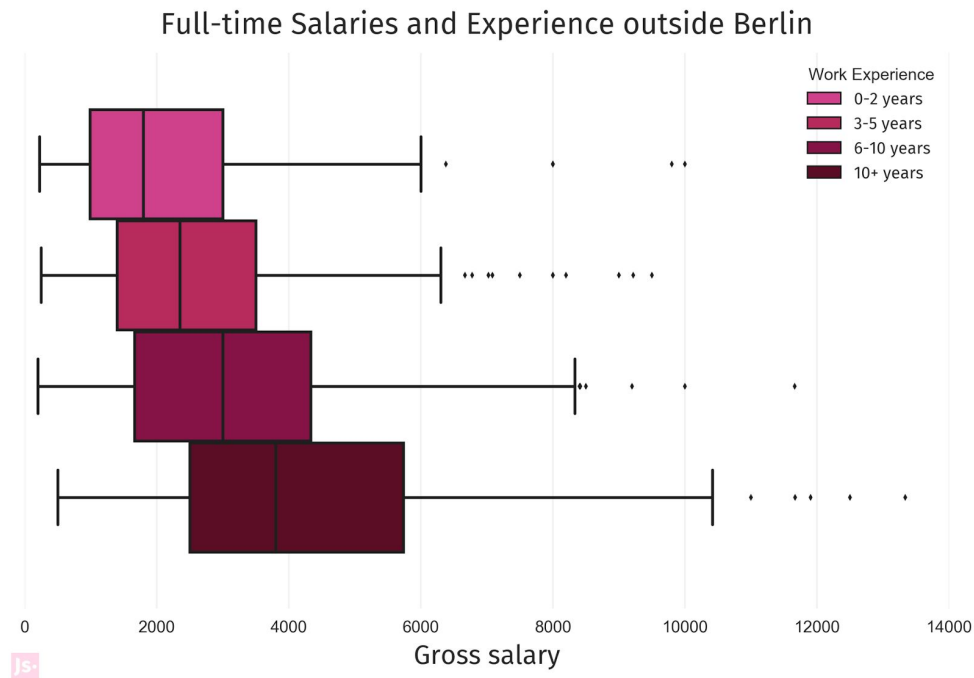


Fig. 11: Full-time salaries and work experience for non-Berlin residents (1,362)

Across the range of experience, mean salaries in Berlin are higher as shown in Fig. 12 below.

Mean Salaries by Years of Experience

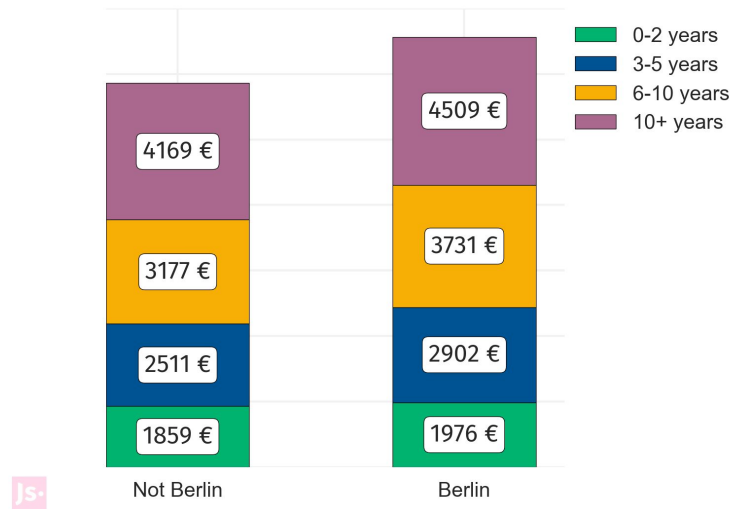


Fig. 12: Mean salaries for Berlin vs. non-Berlin and years of experience (3,388)

For **interns**, median salaries are significantly lower. Interns with little to no experience reported monthly median earnings of €660, with those at the higher end of the scale (75th percentile) reporting a monthly median of €1,000.

In January 2015, Germany introduced a minimum wage for the first time in its history. This meant that all employees, including interns could not earn less than €8.50 per hour. However, some interns still fall through the loopholes.

Companies are not obliged to pay interns who take on a compulsory trainee-/internship as part of their formal education. People who undertake voluntary internships of 3 months or less also don't have to be paid by their employers.



Fig. 13: Intern salaries for Berlin

When compared to traditional media companies, there were no obvious differences found as shown in Fig. 14 below.

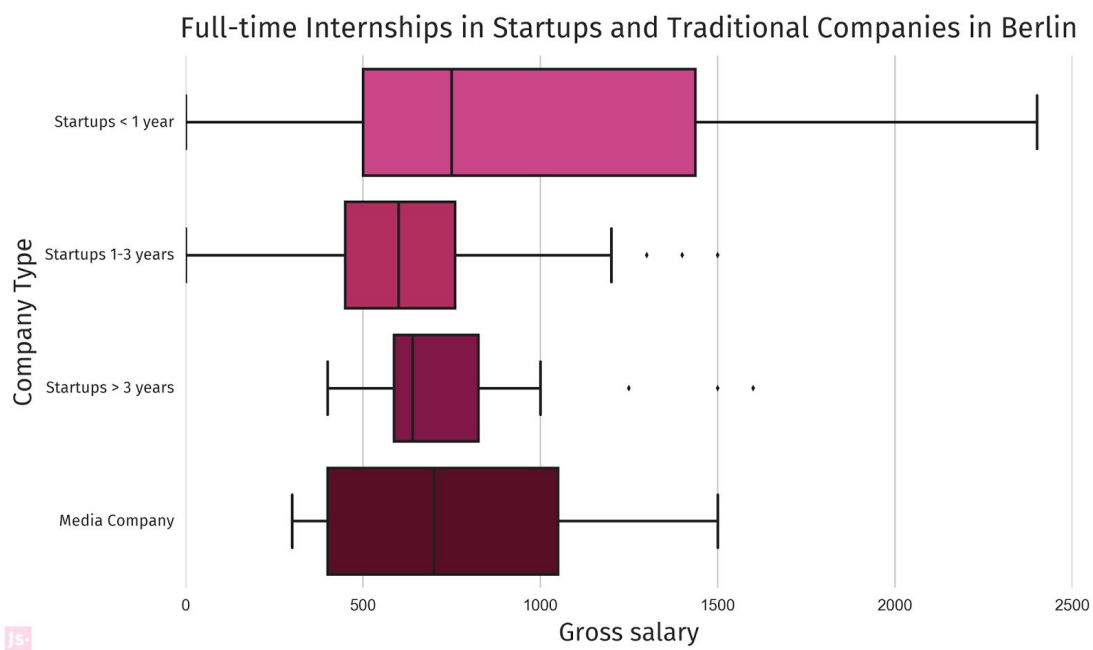


Fig. 14: Intern salaries for Berlin startups vs. traditional media companies

Age of Startup

Generally, the age of a startup does little to affect the median salary that full-time employees earn. For example, a startup that is less than a year old pays entry level employees a median of €2,200, while a startup older than 3 years pays employees at the same experience level €2,225 median.

A rank-correlation independence test⁸ for startup age and salary shows that while there is a weak correlation, it is *smaller* than for work experience and salary. This indicates that the age of the startup has a weaker influence on salaries than work experience.

			Salary	Startup Age
Spearman-Rho	Startup Age	Correlation Coefficient	.109**	1.000
		Significance (one-sided)	.000	.
		N	1520	1520
	Salary	Correlation Coefficient	1.000	.109**
		Significance (one-sided)	.	.000
		N	2026	1520

** . Correlation is significant at 1% level (one-sided).

Table 4: Spearman-Rho rank correlations for startup age vs. salary (all Berlin startups)

Where startup age actually does make a difference to median salary is for those employees who have 10 or more years of experience. Startups that have been operating for less than 1 year pay their most experienced staff a median monthly salary of €3,500, which increases to a median of €4,583 for those working with a startup that is over three years old. However, the older the startup, the larger the range of higher salaries for experienced employees.

⁸ The Spearman-Rho correlation coefficient measures the strength of the dependence of two variables. The independence test is then conducted to find out whether the correlation is statistically significant, i.e. meaningful given the underlying sample. For more details see: https://en.wikipedia.org/wiki/Spearman%27s_rank_correlation_coefficient.

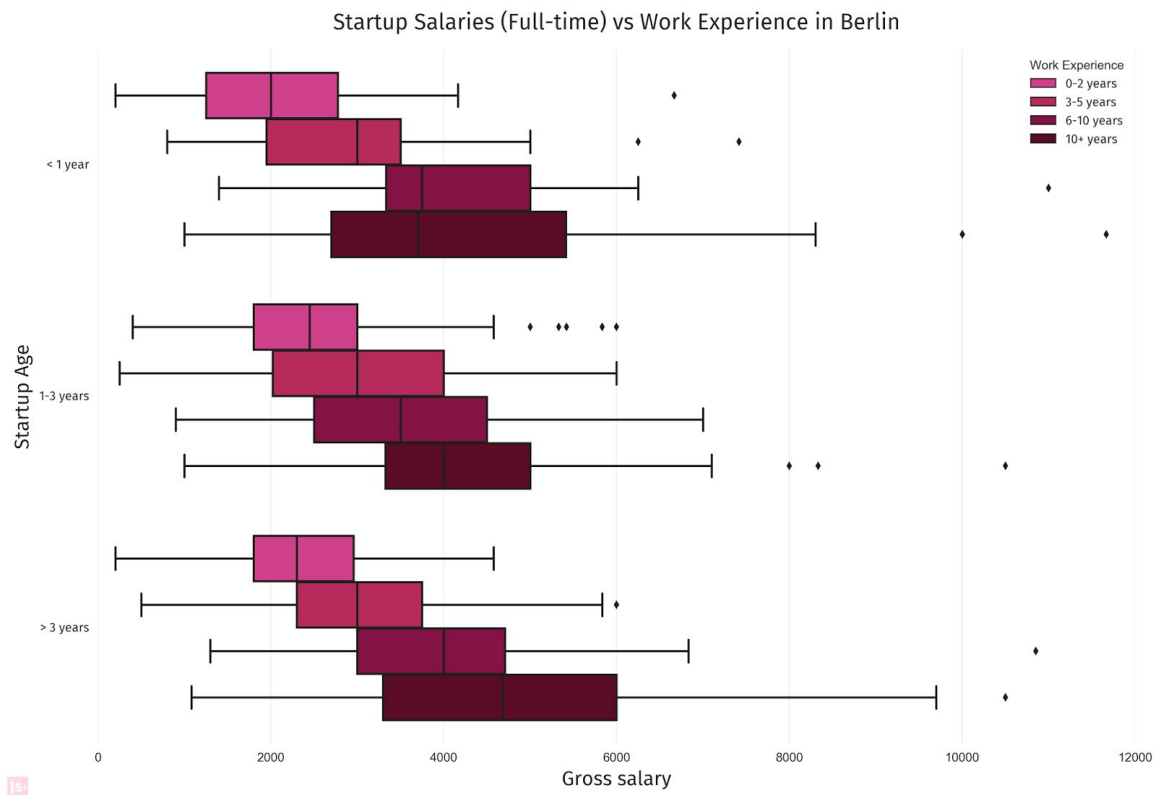


Fig. 15: Full-time salaries and work experience for Berlin (1,236)

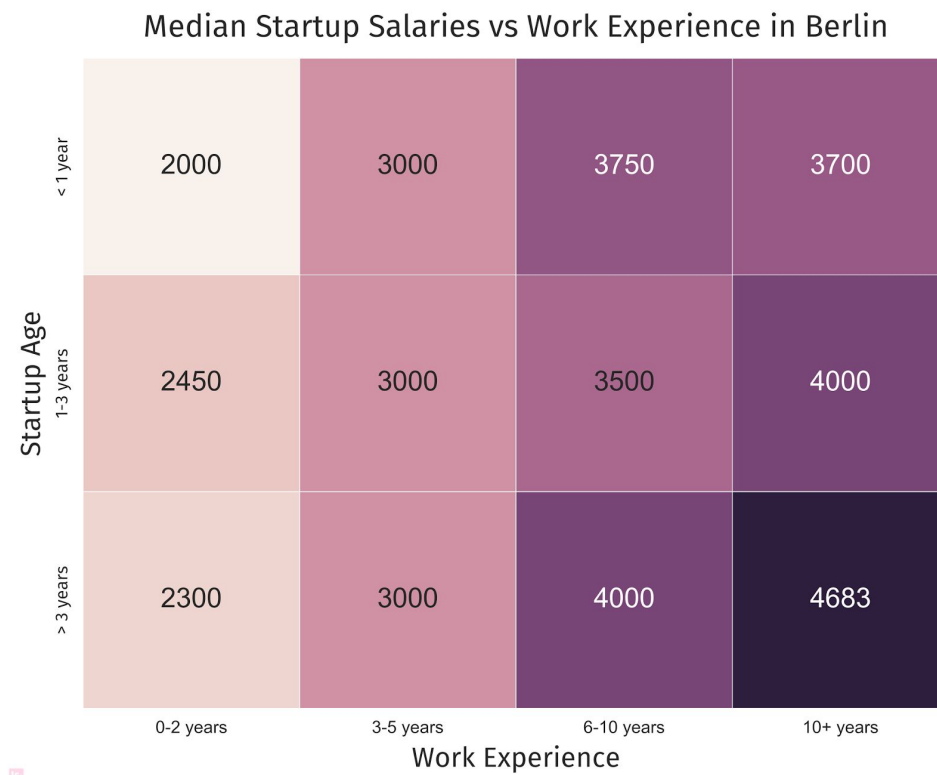


Fig. 16: Median startup salaries, work experience and startup age for Berlin (1,236)

In terms of salary differences between Berlin and non-Berlin respondents, mean salaries are higher in Berlin across all startup ages, but when we look at the median, salaries are still higher in Berlin, but with the exception of the youngest startups (i.e. less than one year old). This indicates a slightly skewed salary distribution.

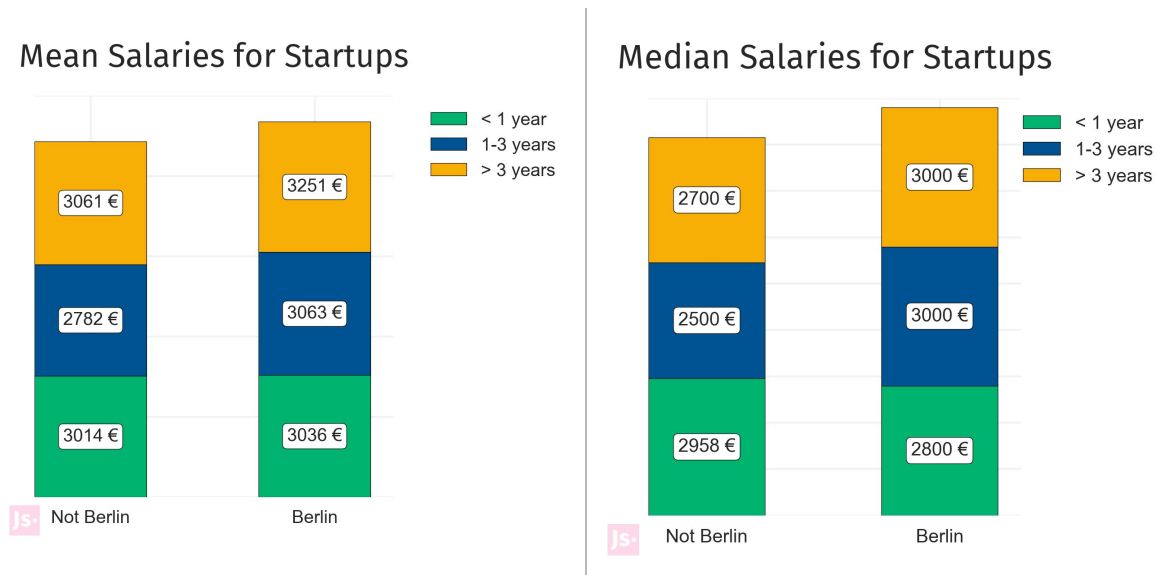


Fig. 17: Median and mean startup salaries for startup ages sorted by Berlin vs. non-Berlin (basis: full-time employees)

Job Area Analysis

For those eager to earn high salaries in Berlin startups, software development yields the best opportunities, regardless of experience level or company type. With little to no experience, software developers earn a median starting salary of €2,900. This comes as no surprise as even very young startups will pay a premium for good developers.

Software developers stay at the top of the salary scale until we reach the most qualified level (10+ years), where they are overtaken by management salaries. The median salary for a manager with over 10 years experience is €5,300, while for a software developer it's €5,000 as shown in Fig. 18 below.

The lowest entry level median salary is for Sales, where those with 0 – 2 years of experience earn a median salary of €1,950, and this only rises to €2,500 for those with 10+ years of experience. This however, does not take into account sales commission or bonuses.

Designers experience the most dramatic upswing in salary. Those with 0 – 2 years experience reported a median salary of €2,000, while over 10 years of experience yields a median salary of €5,000. Similarly, we see people who work in logistics experience a comparable salary increase pattern.

Product and project managers experience a solid incremental rise in salaries from €2,500 at entry level to €4,050 with 10+ years of experience. Marketers start with quite a low median

salary (€2,092) and stand to gain little increase, with those that have 10+ years of experience taking home a median salary of just €3,300.

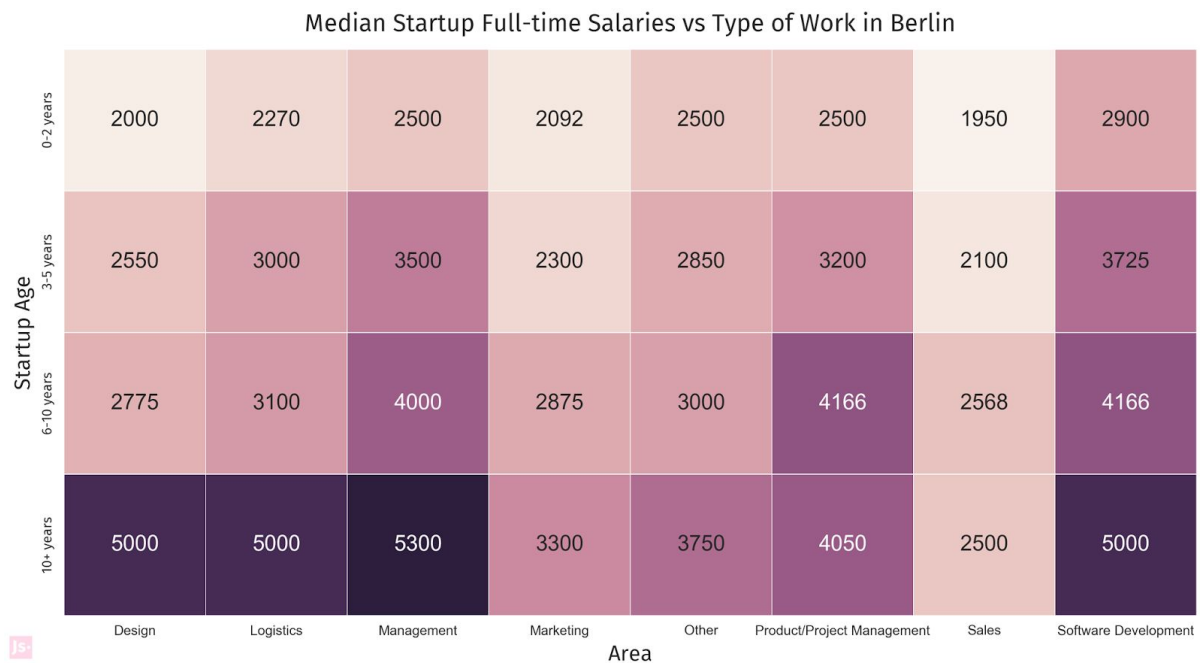


Fig. 18: Median startup salaries, job area and startup age for Berlin (2,026)

For more detailed plots related to the salary results for sample job areas see Appendix B.

Gender Differences

Does gender make a difference to what people are earning in Berlin startups? From the outset, yes. However, it's important to consider here that the majority of respondents to the salary survey were male. In turn, you could posit that this is simply reflective of the overall gender spread of the Berlin startup scene.

Among **full-time startup employees** in Berlin, the median salary for male respondents was €3,333, while female respondents reported a median salary of €2,500. The salaries of female respondents are concentrated in a much smaller range (25th percentile = €1,800, 75th percentile = €3,100) than those of the male respondents (25th percentile = €2,400, 75th percentile = €4,250). The highest earners of the female respondents earned only slightly more than the median of male earners, as shown in Fig. 19 below.

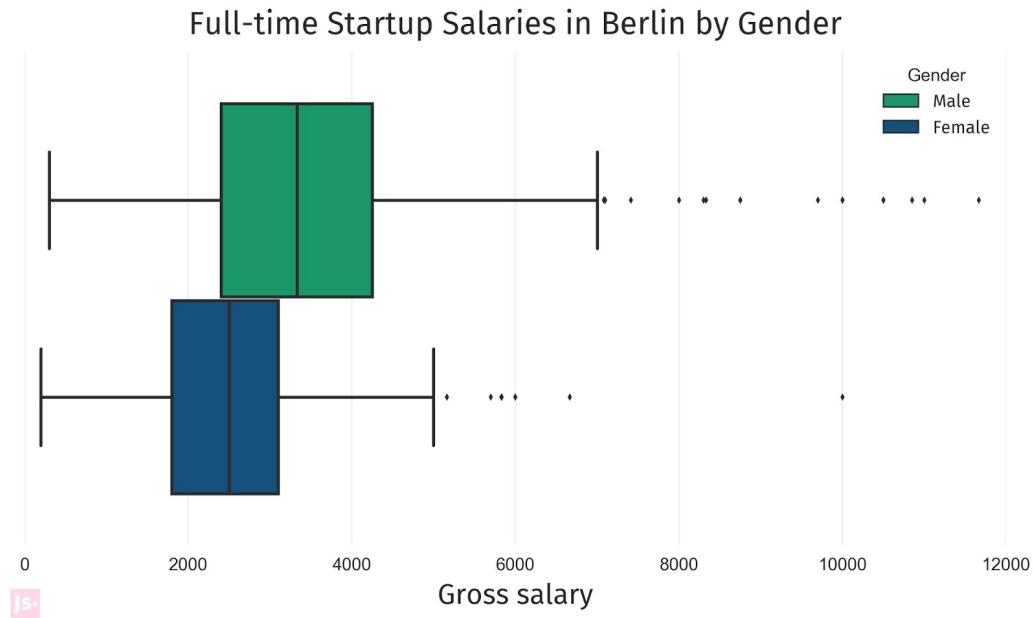


Fig. 19: Salary distribution for full-time startup employees in Berlin by gender (1,236)

Taking a closer look and conducting a rank correlation independence test⁹ we find that the correlation is highly significant and negative (as we have coded male = 1 and female = 2 in the nominal variable gender). This means there is a statistically meaningful negative correlation between gender and salary indicating that women having significantly lower salaries than men.

			Gender	Salary
Spearman-Rho	Gender	Correlation Coefficient	1.000	-.269**
		Significance (one-sided)	.	.000
		N	2026	2026
	Salary	Correlation Coefficient	-.269**	1.000
		Significance (one-sided)	.000	.
		N	2026	2026

** . Correlation is significant at 1% level (one-sided).

Table 5: Spearman-Rho rank correlations for gender vs. salary

This gender wage gap is also apparent in the non-Berlin subsample. Even though it seems more pronounced for Berlin, salaries are consistently higher in Berlin (see Fig. 20 below).

⁹ The Spearman-Rho correlation coefficient measures the strength of the dependence of two variables. The independence test is then conducted to find out whether the correlation is statistically significant, i.e. meaningful given the underlying sample. For more details see: https://en.wikipedia.org/wiki/Spearman%27s_rank_correlation_coefficient.

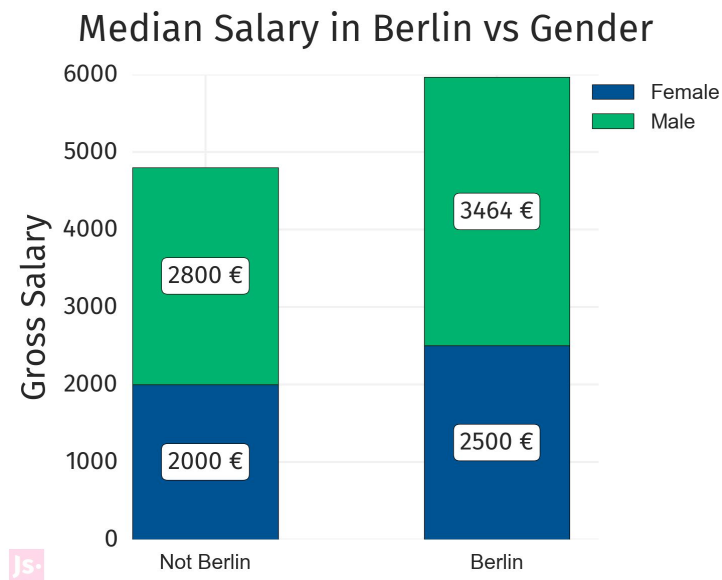


Fig. 20: Salary distribution for full-time employees in Berlin vs. non-Berlin by gender (basis: full-time employees)

Even from an initial glance at Fig. 21 below, there is a clear gender pay gap in Berlin salaries which starts at entry-level and widens significantly as respondents get older. The median salary of male respondents aged 20 – 25 is €2,000, while female respondents of the same age earn a median salary of €1,500. The most pronounced gap is during the ages of 36 – 40 with male respondents earning a median salary of €4,000, while females earn a median of €2,720. While the gap appears to close slightly for those aged over 41, there is still a gap of €800. Note also that there is a wider margin of error for the older respondents.

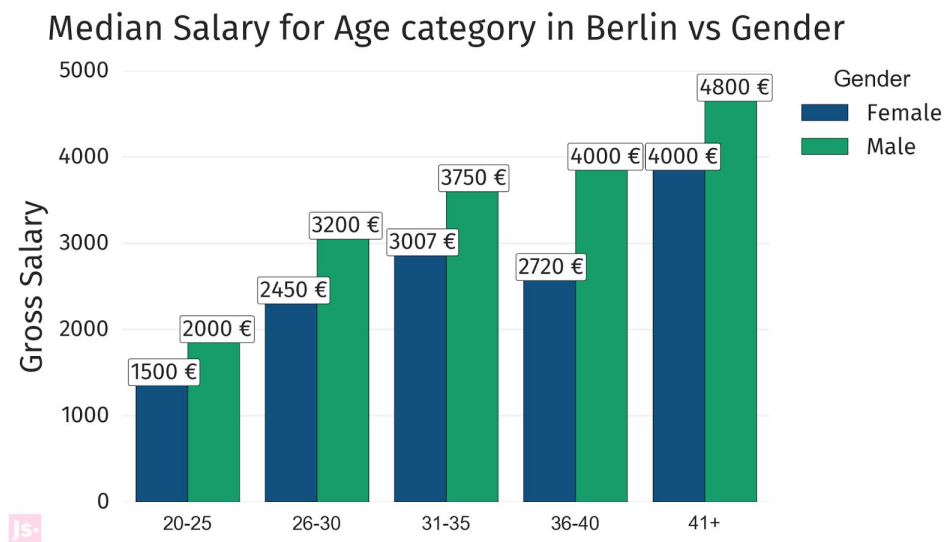


Fig. 21: Median salaries for age by gender for Berlin

The gender gap is also apparent across all experience levels as shown below in Fig. 22. In fact, when looking at experience as opposed to age, the wage gap is even more pronounced. In this context, the gap starts relatively small with a difference of €200 between male and female respondents with 0 – 2 years of experience. With 6 – 10 years of experience, male

respondents are earning a median salary that is a full €1,000 more than their female counterparts, and with over 10 years of experience, males earn a median salary that is €1,250 higher than females of the same experience level.

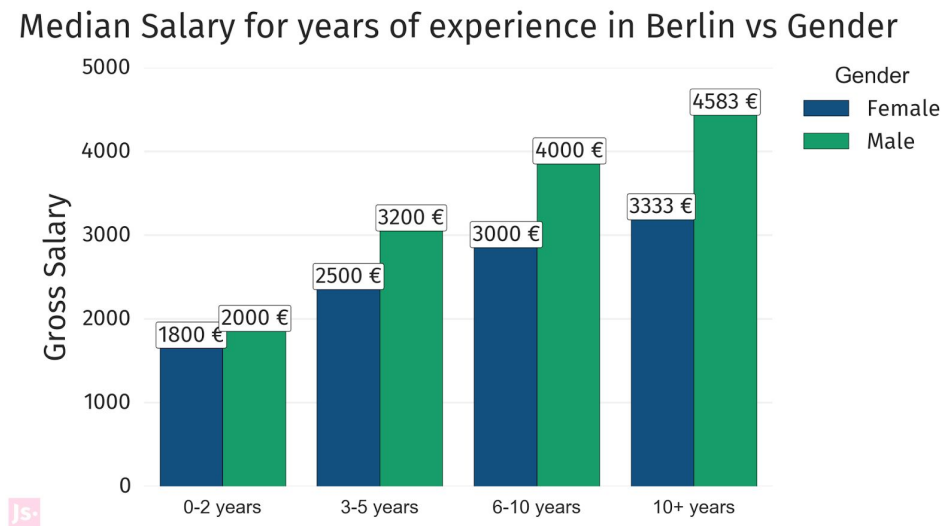


Fig. 22: Berlin median salaries by years of experience and gender.

There is also a marked difference by gender with regard to varying job areas, which shows that males and females get paid different salaries even for the same roles, as shown in Fig. 23 below. Note that the spread is highest in software development, management, and product/project management positions.

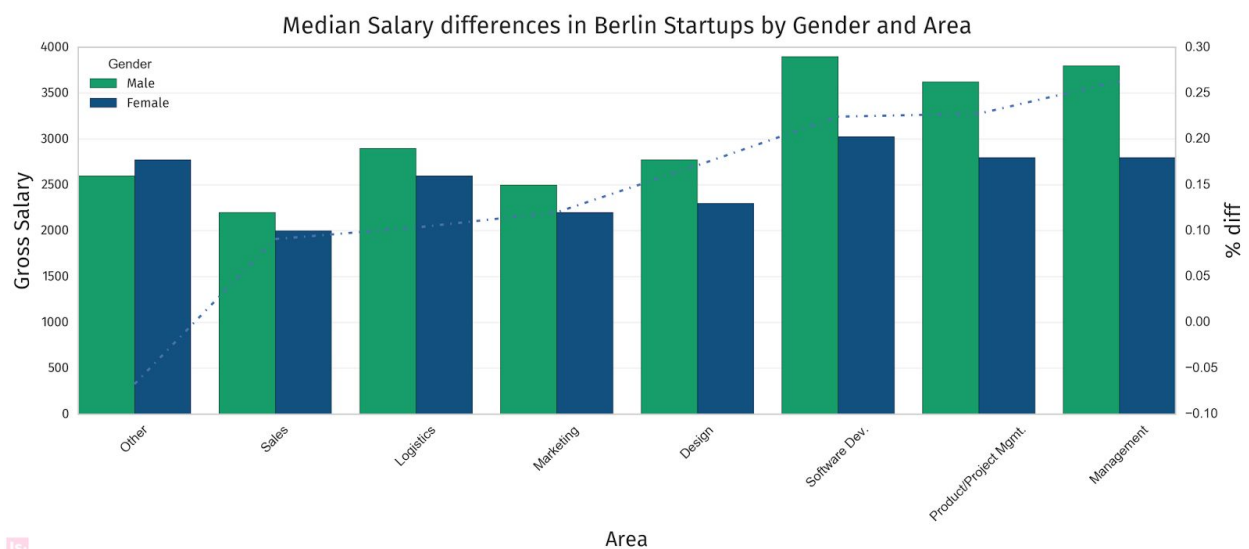


Fig. 23: Median salaries for job areas by gender for Berlin

Education Differences

With respect to education background we surprisingly find that median salaries for dropouts (€3450) are higher than for university / college graduates (€3000), only topped by Ph.D

holders (€3750) (see Fig. 24 below). It's worth noting however that dropouts only account for 6% of all respondents.

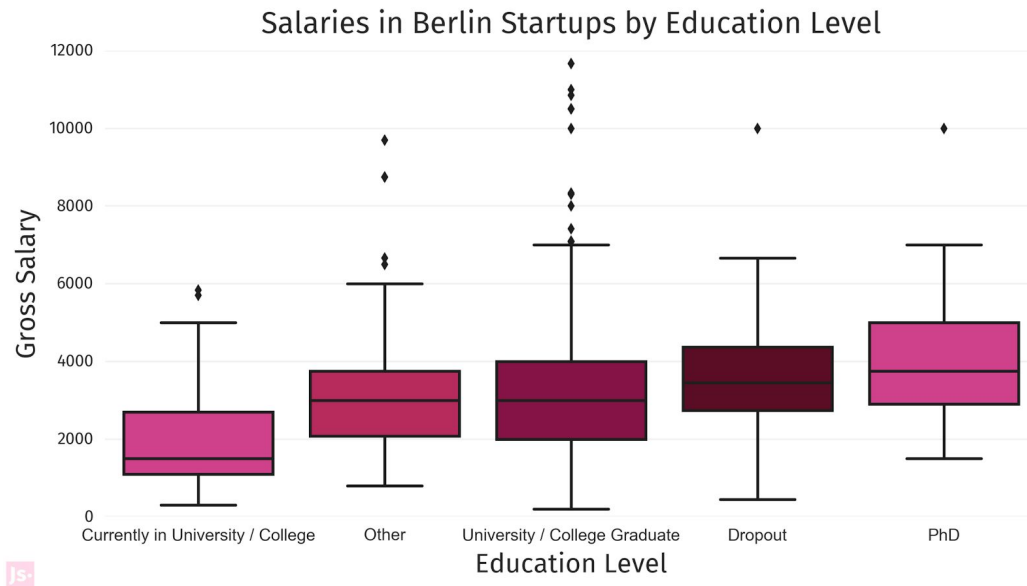


Fig. 24: salary distribution vs. education level in Berlin Startups

The median salaries for the different education levels are statistically different from each other¹⁰. In Berlin, mean salaries are higher across all education levels – up to 500€ higher for university/college graduates and dropouts, slightly higher for Ph.Ds, and around 450€ higher for current students. This indicates that generally in Berlin, more educated people are generally more likely to earn more.

Median Salary vs Education Level

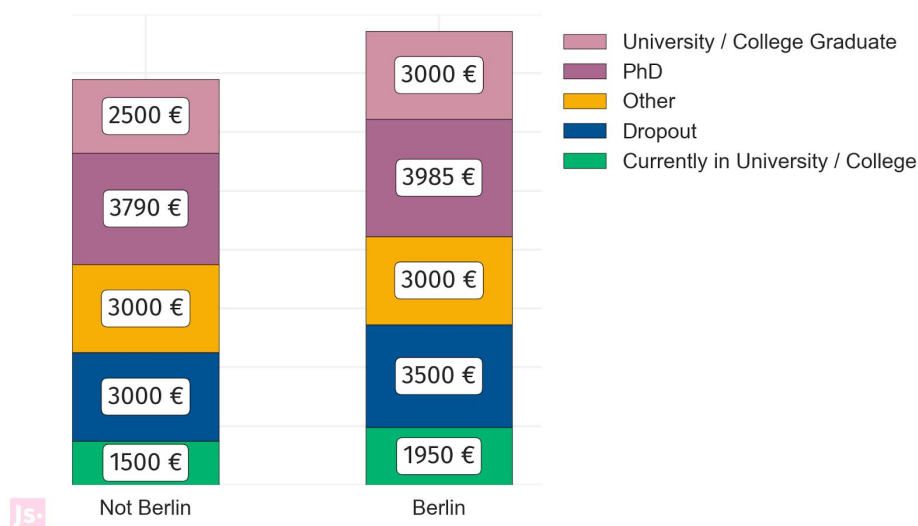


Fig. 25: salary distribution vs. education level for Berlin vs non-Berlin (basis: full-time employees)

¹⁰ One-factor ANOVA analysis significant at $p=0.00000$. For more details see https://en.wikipedia.org/wiki/One-way_analysis_of_variance.

From an overall linear regression analysis¹¹ of the data, we can confirm the following overall findings with regard to job area and educational level:

- Gender, company type, age and years of experience are highly significant with positive influence on salaries.
- For job areas, only management and product/project management have a significant positive influence on salaries
- The education levels Ph.D, university/college graduate and being a dropout have a significant positive impact on salaries.

General Contentment with Current Role

Summary:

- Respondents are by and large unhappy in their current roles.
- Respondents that live in Berlin are happier than those who do not.
- People who work for startups are happier than those who do not.
- Female respondents are slightly less happy in their roles than males.

We also asked respondents whether or not they are happy with their current role. Overall, for all full-time employees, nearly ⅔ are not happy as seen in Fig. 26. This is not all that surprising as respondents are all job seekers active on BSUJ.

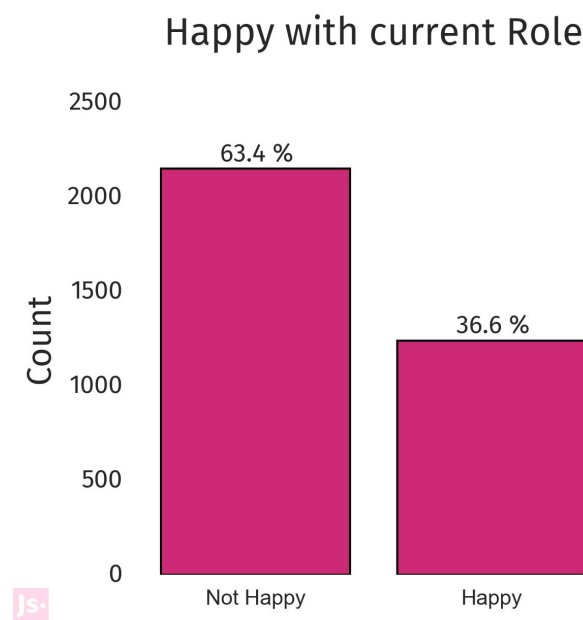


Fig. 26: happiness with current role (basis: full-time employees)

¹¹ Linear regression measures the strength of the relationship between salary and its influence factors. A statistically significant relationship means that there is a meaningful linear influence of one these factors like, e.g. gender. For more details see https://en.wikipedia.org/wiki/Regression_analysis.

Having a closer look, we find that respondents living in Berlin are significantly happier¹² than job seekers not living in Berlin, indicating that Berlin is indeed appealing as a centre of employment. Also, it is fair to assume that given that respondents were searching for new roles on BSUJ, respondents that do not live in Berlin are eager to do so.

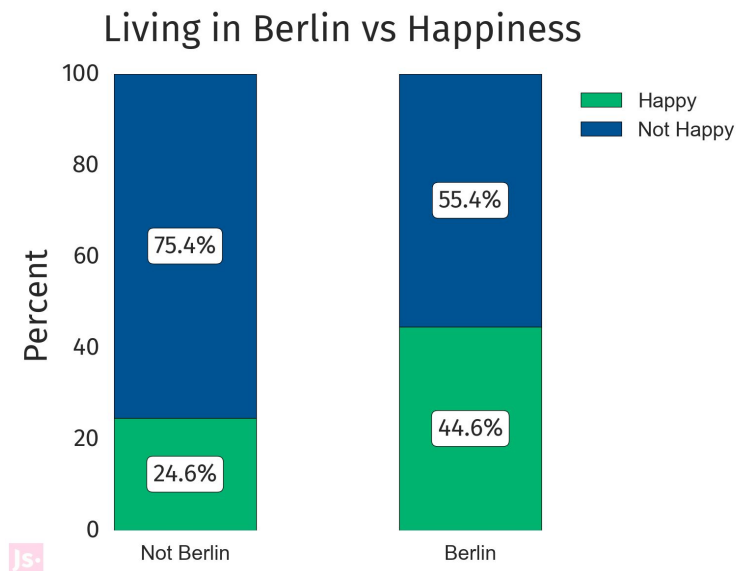


Fig. 27: happy with current role vs. Berlin / non-Berlin (basis: all respondents - 3,388)

The company type also has a significant influence¹³ on respondents' overall happiness, with those working for startups reporting to be much happier than those that don't (see Fig. 28).

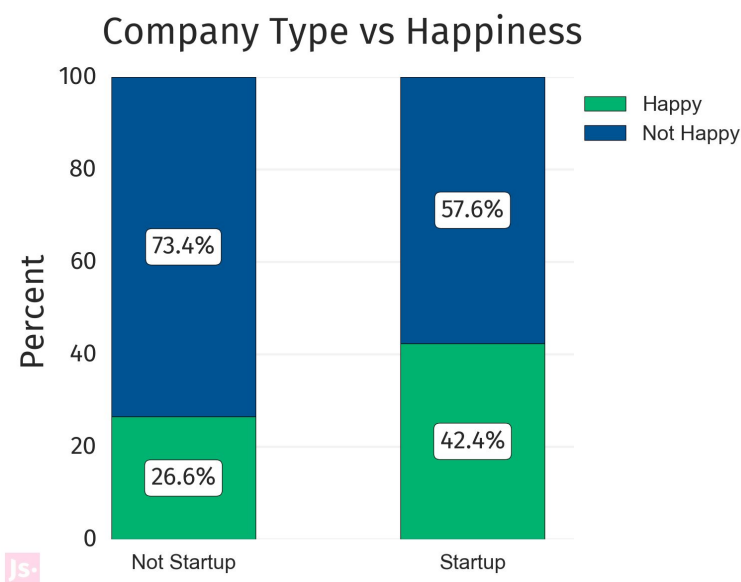


Fig. 28: happy with current role vs. startup / non-startup (basis: all respondents - 3,388)

¹² We conducted a Pearson-Chisquared independence test for contingency tables to examine the differences in happiness across the Berlin and non-Berlin subsamples. The calculated p-value of 0,0000 indicates a highly significant difference.

¹³ Similarly, we did a Pearson-Chisquared independence test for differences in happiness with respect to company types that turned out to be highly significant at p=0.0000.

With respect to gender, female survey participants are less happy than their male counterparts but only slightly less so (see Fig. 29). To find out more, see Logistic Regression in Appendix A.

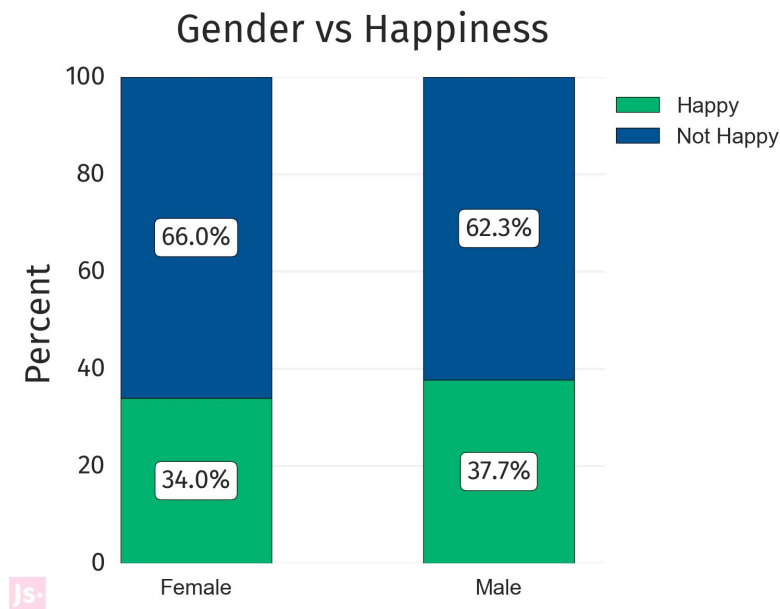


Fig. 29: happy with current role vs. gender (basis: all respondents - 3,388)

Subjective assessment about feeling underpaid

Generally, the respondents' subjective assessments of feeling underpaid don't vary significantly regardless of whether they live in Berlin, of gender, or of the company type that employs a respondent, as seen in the figures below. Across the board, respondents feel underpaid – a very probable motive for job seeking on BSUJ.

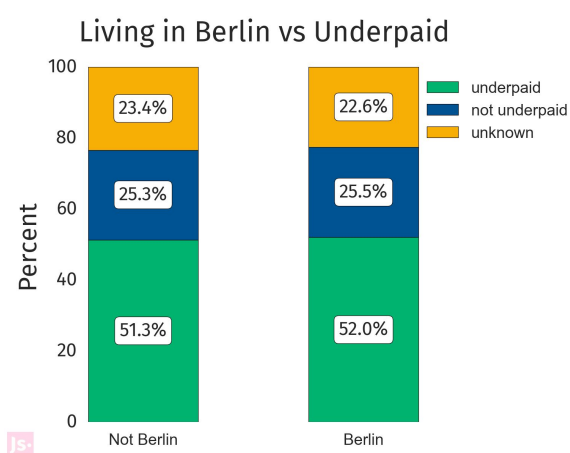


Fig. 30: feeling underpaid vs. living in berlin (basis: all respondents - 3,388)

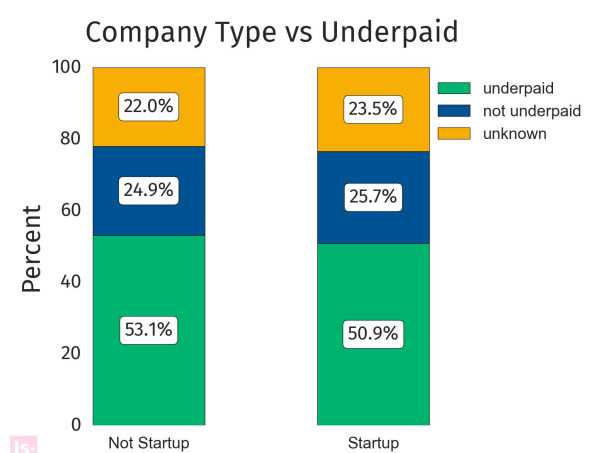


Fig. 31: feeling underpaid vs. company type (basis: all respondents - 3,388)

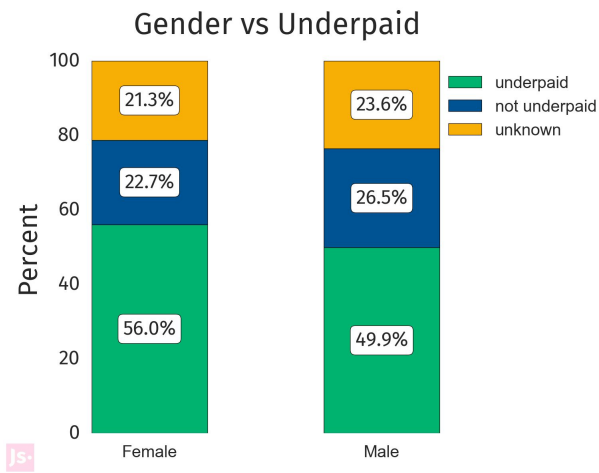


Fig. 32: feeling underpaid vs. gender (basis: all respondents - 3,388)

Appendix A

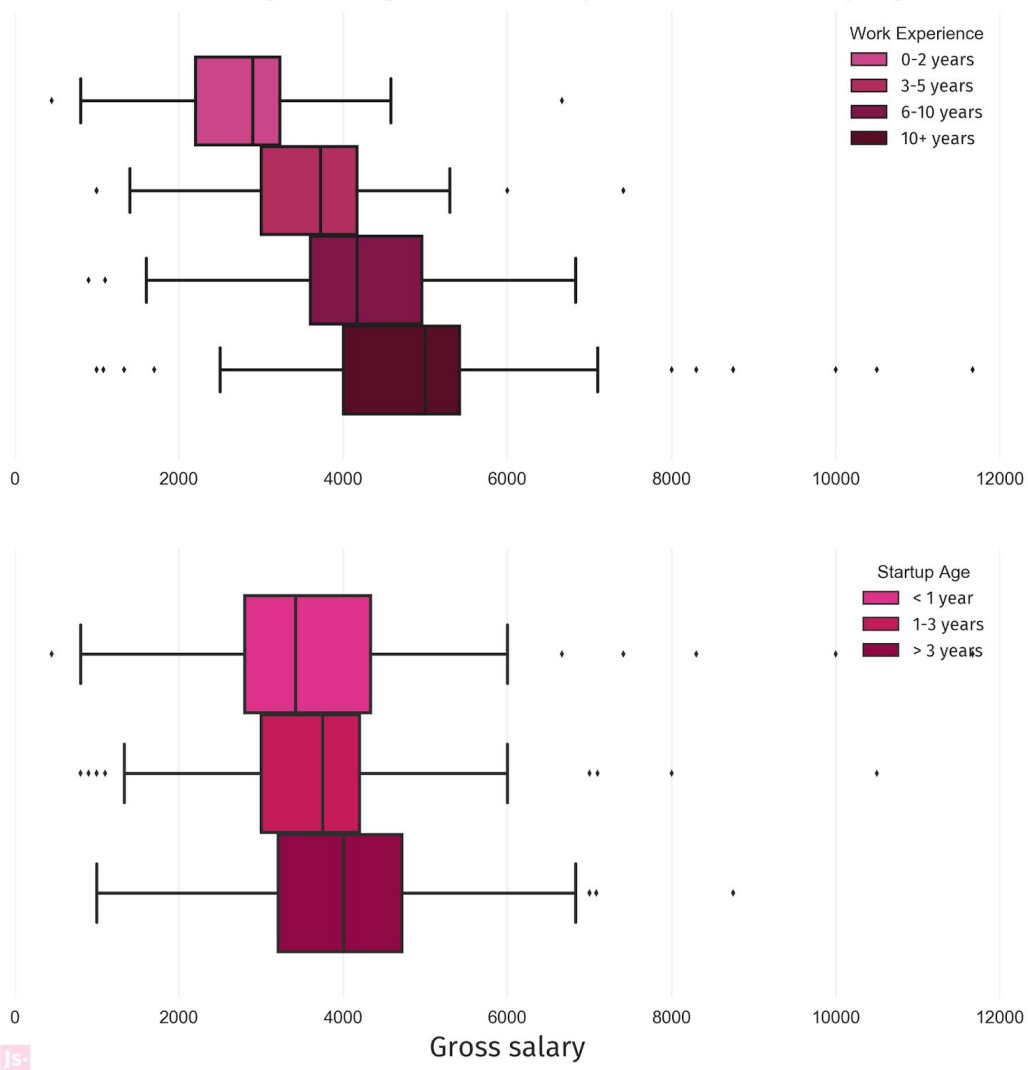
Questionnaire

The survey can be found here: <http://berlinstartupjobs.com/startup-salary-survey/>

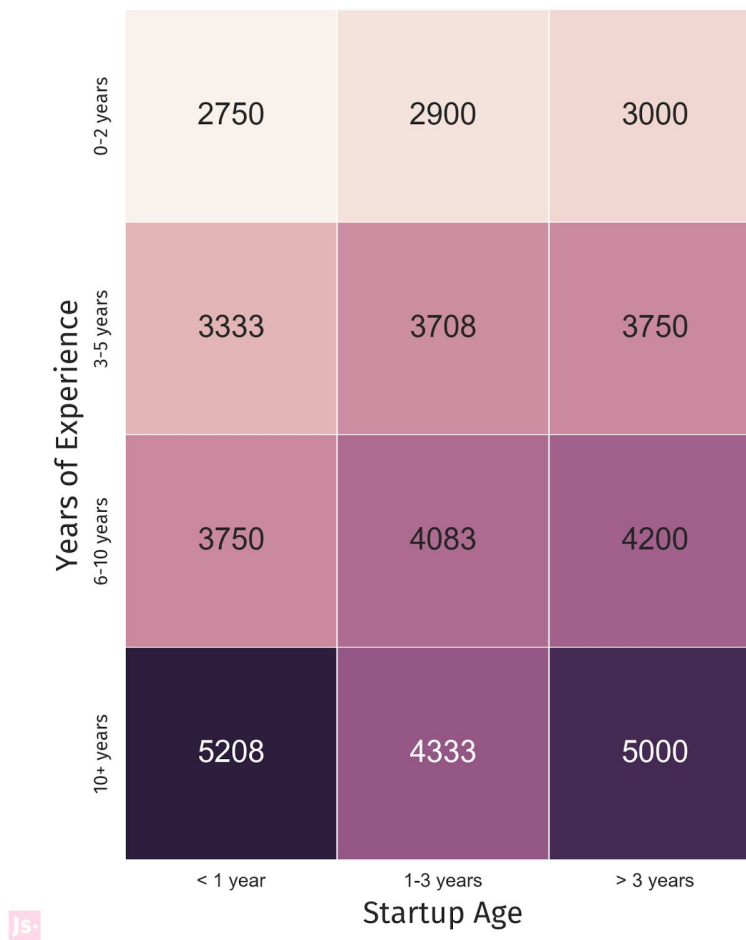
Appendix B

Software Engineering Case Study

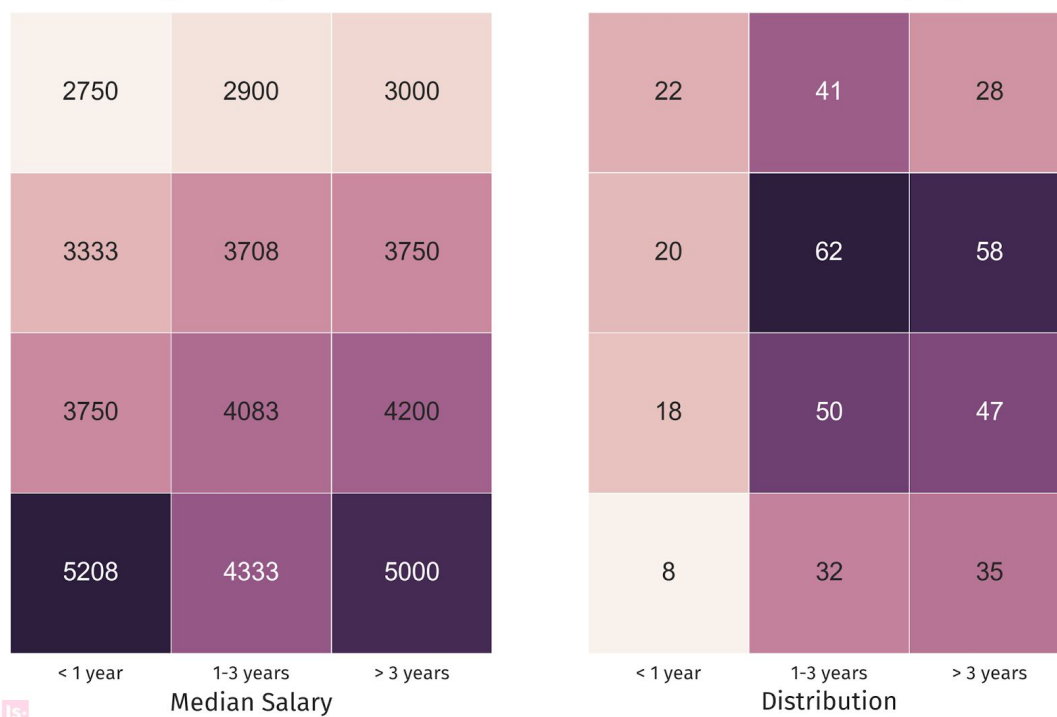
Software Engineering Salaries - Experience vs Startup Age



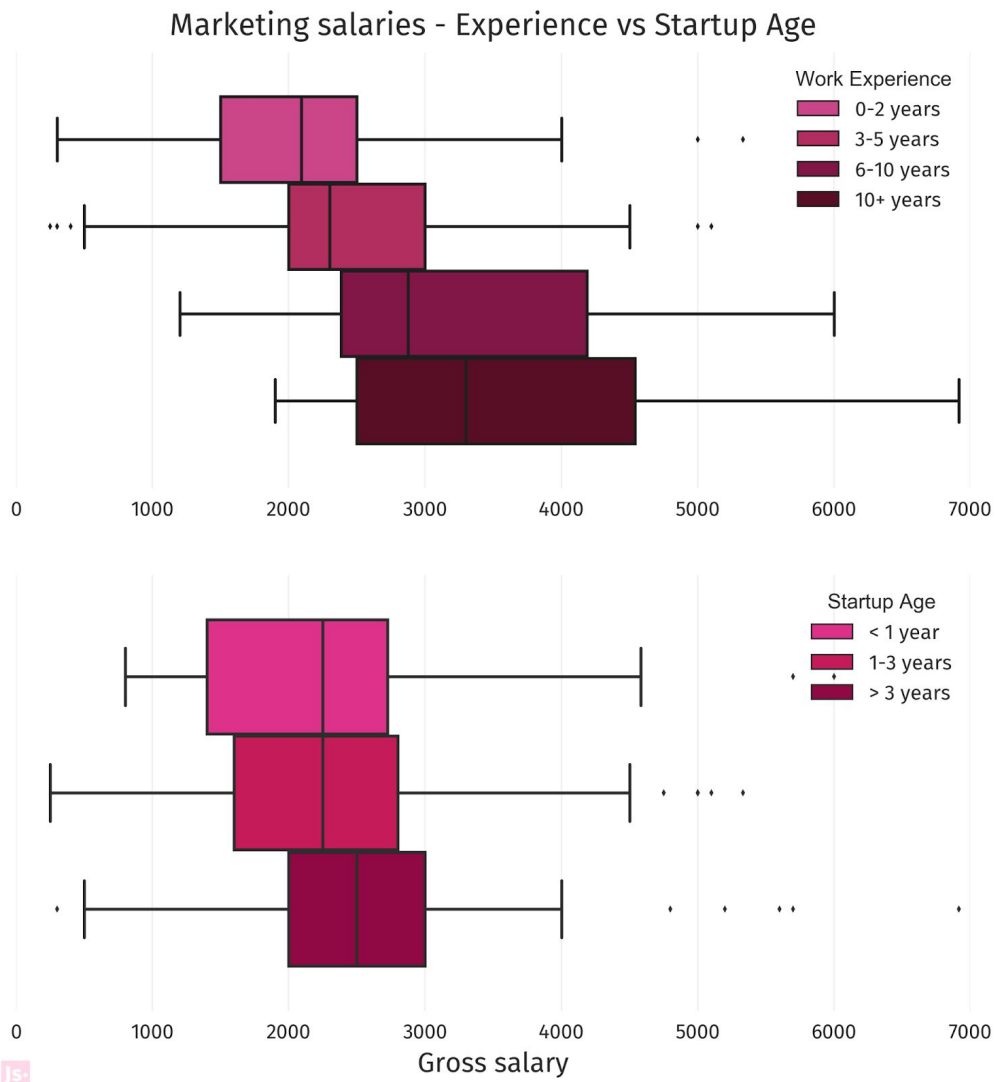
Developer Median Salaries - Startup Age vs Experience



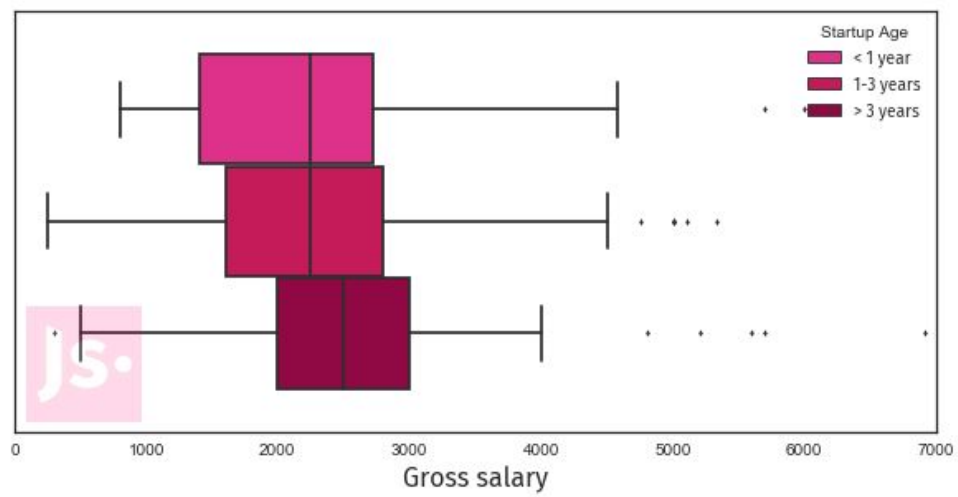
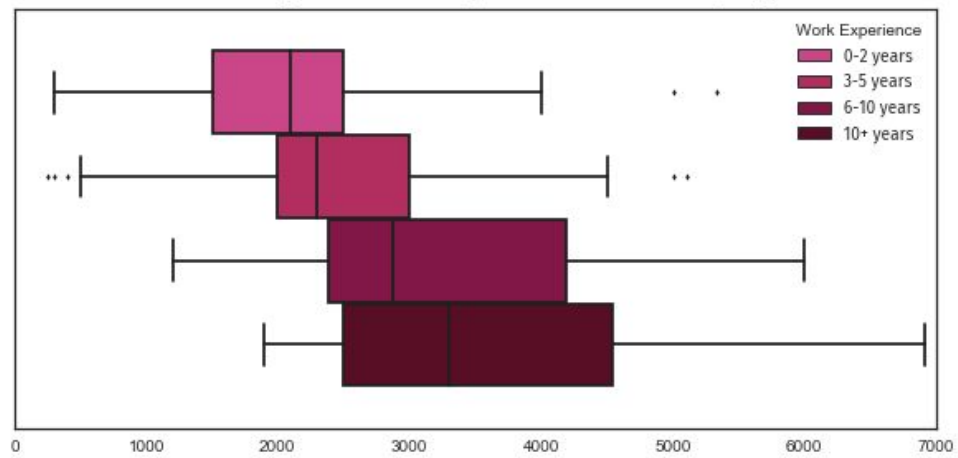
Software Engineering Salaries - Experience and Distribution vs Startup Age



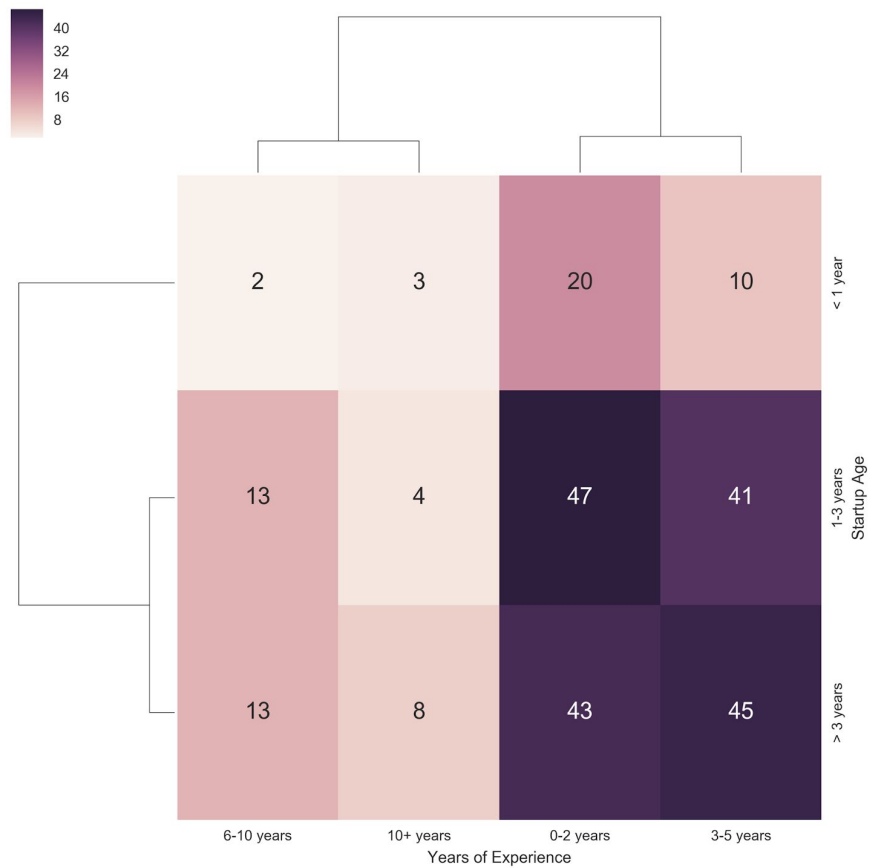
Marketing Case Study



Marketing salaries - Experience vs Startup Age



Marketing Job Distribution in Startups vs Years of Experience



Salary Regression

OLS Regression Results

Dep. Variable:	salary	R-squared:	0.349
Model:	OLS	Adj. R-squared:	0.342
Method:	Least Squares	F-statistic:	52.73
Date:	Wed, 24 Feb 2016	Prob (F-statistic):	8.11e-126
Time:	15:53:03	Log-Likelihood:	-12774.
No. Observations:	1491	AIC:	2.558e+04
Df Residuals:	1475	BIC:	2.567e+04
Df Model:	15		
Covariance Type:	nonrobust		

	coef	std err	t	P> t	[95.0% Conf. Int.]
Intercept	302.1418	288.362	1.048	0.295	-263.502 867.785
C(education_level)[T.Dropout]	652.4275	266.169	2.451	0.014	130.318 1174.537
C(education_level)[T.Other]	469.3971	276.306	1.699	0.090	-72.598 1011.392
C(education_level)[T.PhD]	993.9843	321.643	3.090	0.002	363.059 1624.910
C(education_level)[T.University / College Graduate]	536.6733	231.013	2.323	0.020	83.525 989.822
C(gender)[T.Male]	293.7256	79.155	3.711	0.000	138.457 448.995
C(area)[T.Logistics]	188.9319	197.061	0.959	0.338	-197.618 575.482
C(area)[T.Management]	807.9816	225.957	3.576	0.000	364.750 1251.213
C(area)[T.Marketing]	-82.5106	178.703	-0.462	0.644	-433.049 268.028
C(area)[T.Other]	115.2794	230.451	0.500	0.617	-336.767 567.326
C(area)[T.Product/Project Management]	537.1647	186.819	2.875	0.004	170.705 903.624
C(area)[T.Sales]	-230.8965	188.076	-1.228	0.220	-599.822 138.029
C(area)[T.Software Development]	764.5850	171.091	4.469	0.000	428.978 1100.192
company_type	133.0603	36.364	3.659	0.000	61.729 204.391
age_cat	181.4439	43.948	4.129	0.000	95.236 267.652
years_of_experience	498.4369	45.205	11.026	0.000	409.765 587.109

Omnibus:	294.466	Durbin-Watson:	2.010
Prob(Omnibus):	0.000	Jarque-Bera (JB):	1170.249
Skew:	0.905	Prob(JB):	7.65e-255
Kurtosis:	6.945	Cond. No.	73.0

Happiness with Current Role Regression

Logit Regression Results

Dep. Variable:	happy_with_current_role	No. Observations:	2298
Model:	Logit	Df Residuals:	2280
Method:	MLE	Df Model:	17
Date:	Wed, 24 Feb 2016	Pseudo R-squ.:	0.06395
Time:	16:15:34	Log-Likelihood:	-1440.1
converged:	True	LL-Null:	-1538.5
		LLR p-value:	1.276e-32

	coef	std err	z	P> z	[95.0% Conf. Int.]
Intercept	-0.3912	0.364	-1.074	0.283	-1.105 0.323
C(live_in_berlin)[T.not_berlin]	-0.9323	0.103	-9.038	0.000	-1.135 -0.730
C(company_type)[T.< 1 year]	-0.0755	0.145	-0.522	0.602	-0.359 0.208
C(company_type)[T.> 3 years]	-0.1183	0.113	-1.048	0.295	-0.340 0.103
C(company_type)[T.Media Company]	-0.4240	0.128	-3.309	0.001	-0.675 -0.173
C(education_level)[T.Dropout]	-0.3727	0.340	-1.097	0.273	-1.039 0.293
C(education_level)[T.Other]	-0.4617	0.360	-1.283	0.200	-1.167 0.244
C(education_level)[T.PhD]	-0.7226	0.421	-1.718	0.086	-1.547 0.102
C(education_level)[T.University / College Graduate]	-0.4836	0.293	-1.648	0.099	-1.059 0.091
C(area)[T.Logistics]	0.7759	0.270	2.874	0.004	0.247 1.305
C(area)[T.Management]	0.7271	0.300	2.422	0.015	0.139 1.315
C(area)[T.Marketing]	0.3464	0.241	1.437	0.151	-0.126 0.819
C(area)[T.Other]	0.3806	0.310	1.228	0.220	-0.227 0.988
C(area)[T.Product/Project Management]	0.2705	0.250	1.081	0.280	-0.220 0.761
C(area)[T.Sales]	-0.3570	0.264	-1.350	0.177	-0.875 0.161
C(area)[T.Software Development]	0.5755	0.226	2.551	0.011	0.133 1.018
C(gender)[T.Male]	0.1687	0.112	1.510	0.131	-0.050 0.388
salary	0.0001	2.74e-05	3.935	0.000	5.41e-05 0.000

Feeling underpaid Regression

Logit Regression Results

Dep. Variable:	feel_underpaid	No. Observations:	2134
Model:	Logit	Df Residuals:	2112
Method:	MLE	Df Model:	21
Date:	Wed, 24 Feb 2016	Pseudo R-squ.:	0.1166
Time:	16:27:56	Log-Likelihood:	-1205.1
converged:	True	LL-Null:	-1364.2
		LLR p-value:	6.184e-55

	coef	std err	z	P> z	[95.0% Conf. Int.]
Intercept	1.0532	0.430	2.451	0.014	0.211 1.895
C(live_in_berlin)[T.not_berlin]	-0.1971	0.112	-1.765	0.078	-0.416 0.022
C(company_type)[T.< 1 year]	-0.1205	0.177	-0.682	0.495	-0.467 0.226
C(company_type)[T.> 3 years]	0.2856	0.139	2.057	0.040	0.013 0.558
C(company_type)[T.Media Company]	0.2393	0.152	1.570	0.116	-0.059 0.538
C(company_type)[T.Other]	0.2873	0.198	1.449	0.147	-0.101 0.676
C(company_type)[T.Service Agency]	0.2895	0.224	1.293	0.196	-0.149 0.728
C(education_level)[T.Dropout]	0.2365	0.401	0.590	0.555	-0.550 1.023
C(education_level)[T.Other]	0.4663	0.435	1.071	0.284	-0.387 1.320
C(education_level)[T.PhD]	0.9247	0.494	1.870	0.061	-0.044 1.894
C(education_level)[T.University / College Graduate]	0.1693	0.355	0.477	0.633	-0.526 0.865
C(gender)[T.Male]	0.0767	0.122	0.630	0.529	-0.162 0.315
C(area)[T.Logistics]	0.1798	0.283	0.636	0.525	-0.374 0.734
C(area)[T.Management]	0.2461	0.320	0.770	0.441	-0.380 0.873
C(area)[T.Marketing]	0.4095	0.253	1.619	0.106	-0.086 0.905
C(area)[T.Other]	0.0119	0.307	0.039	0.969	-0.590 0.614
C(area)[T.Product/Project Management]	0.2495	0.258	0.968	0.333	-0.256 0.755
C(area)[T.Sales]	0.2299	0.262	0.876	0.381	-0.284 0.744
C(area)[T.Software Development]	0.3473	0.231	1.504	0.133	-0.105 0.800
age_cat	0.2137	0.068	3.157	0.002	0.081 0.346
years_of_experience	0.1283	0.071	1.800	0.072	-0.011 0.268
salary	-0.0006	3.79e-05	-14.533	0.000	-0.001 -0.000