GOODMAN MASSON

2022 Actuarial Salary Survey Results.

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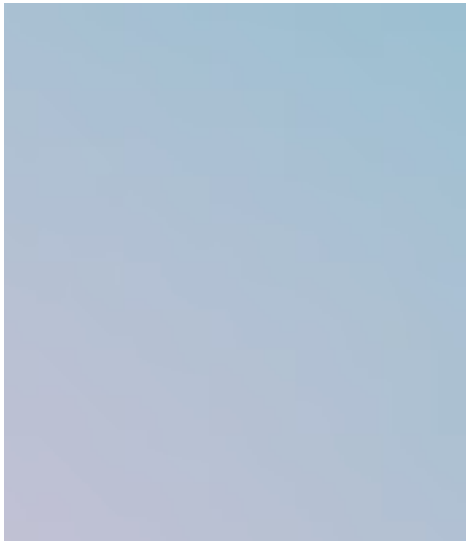

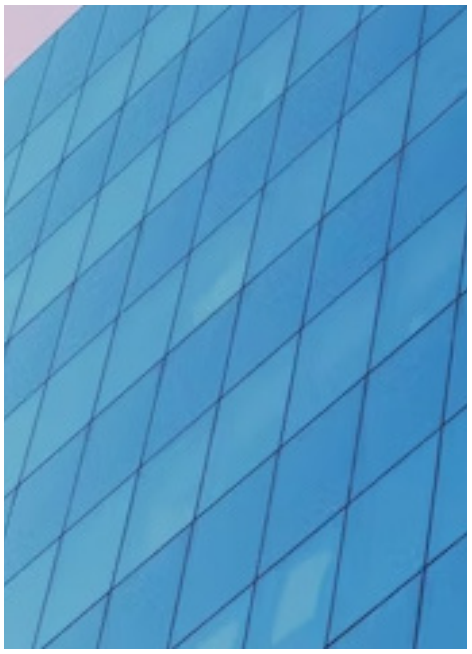

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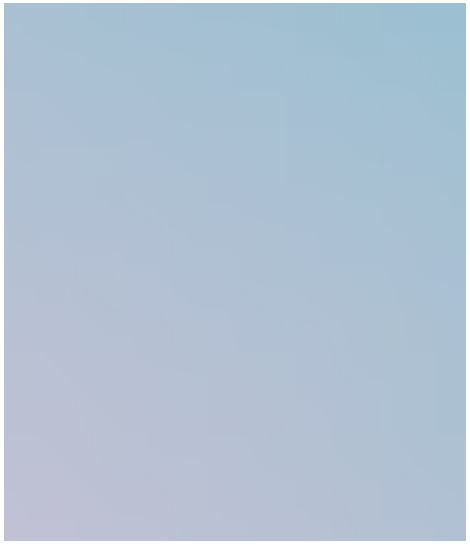

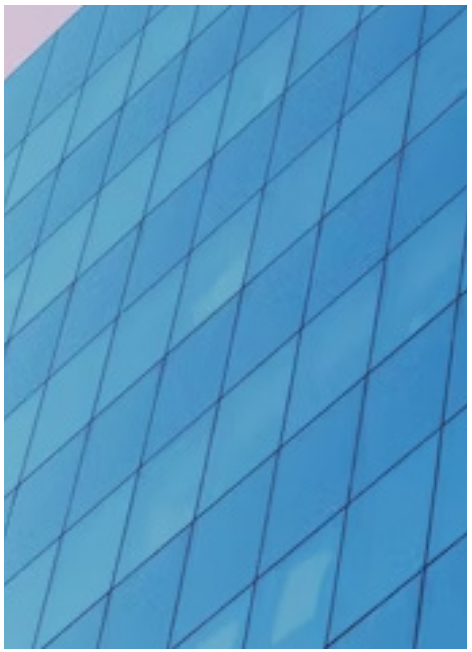

Introduction.

It's great to be able to present to you the results of Goodman Masson's new salary survey for UK General Insurance Actuaries. Some of you may have seen my last survey which was presented in 2020 in the midst of the pandemic and the economic outlook was uncertain.

Since that time we have gone from a job short market to a candidate short market with record numbers of jobs, not just in actuarial or financial services but across all sectors. This twinned with rising living costs and inflation as well as other factors has intensified the War for Talent and as a result we have seen salaries rise faster than they have in decades. So it seemed like an opportune moment to complete our second edition of the survey. All data was collected in August to September 2022 and the results shown are 100% based on the data we collected.

Prior to writing the survey we asked you for anything else you would want to include and have added in sections as a result of this, including on pay rises, pensions, office days and 3 protected characteristics. Thanks to all those who provided their input and the 1000+ actuaries who completed the survey.

Another big thank you to Jeremy Keating from Errars who has provided some additional analysis in the addendum. And finally one other actuary who wished to remain anonymous who put in a lot of time and effort to put this together.

I hope you find this useful and insightful. If you have any questions on the survey feel free to get in touch. Also if you have any feedback or suggestions for next time we'd love to hear from you.

Bill Burton | Associate Director

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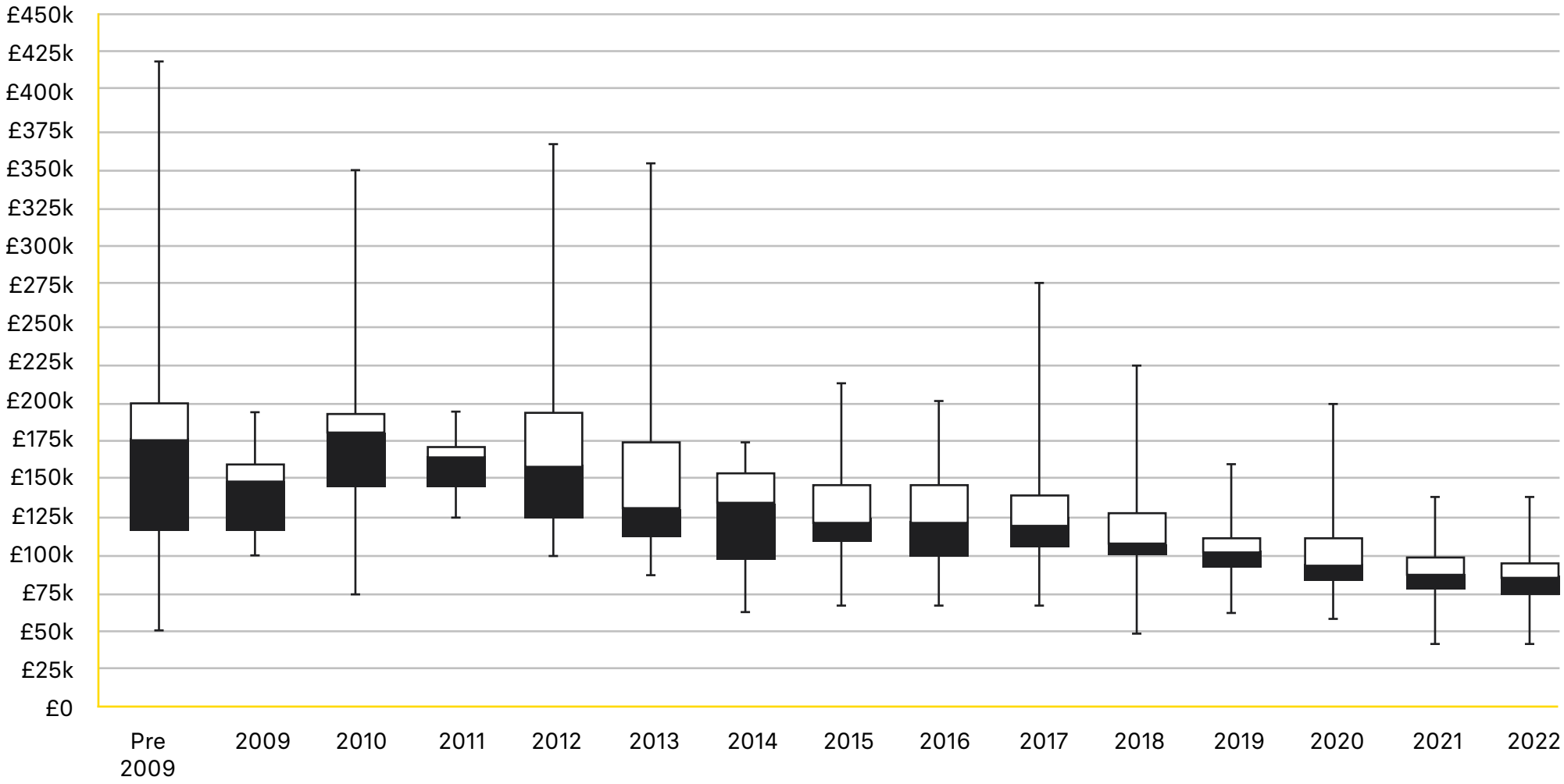
Qualified.


£450k
£425k
£400k
£375k
£350k
£325k
£300k
£275k
£250k
£225k
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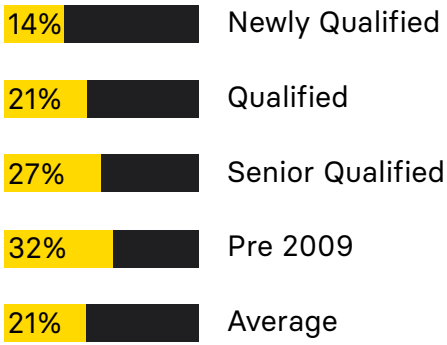
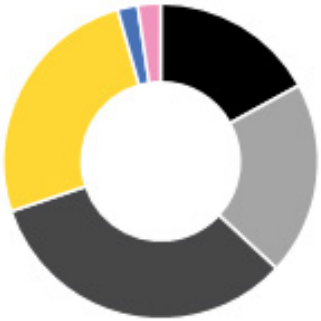
£175k
£150k
£125k
£100k
£75k
£50k
£25k
£0
Pre 2009
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022

Qualified.

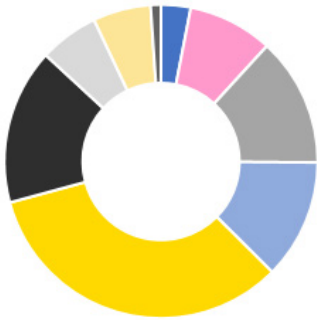
Average Bonus

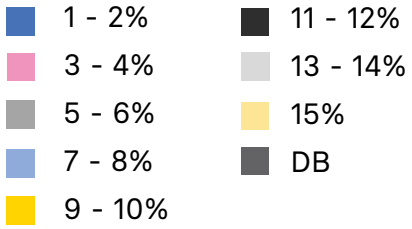


Office Days

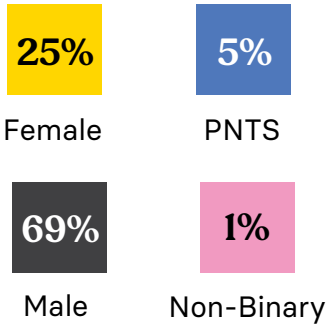


Pension





Gender Split



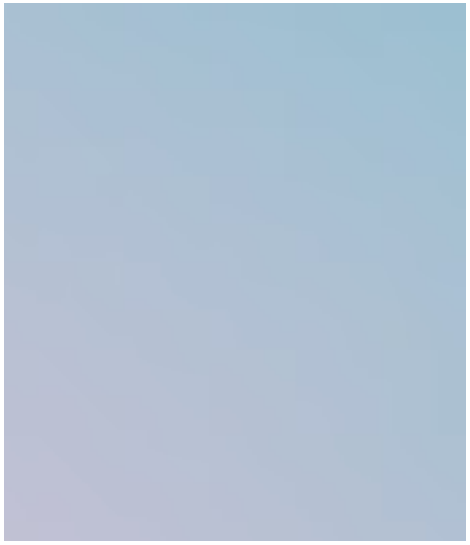
Summary

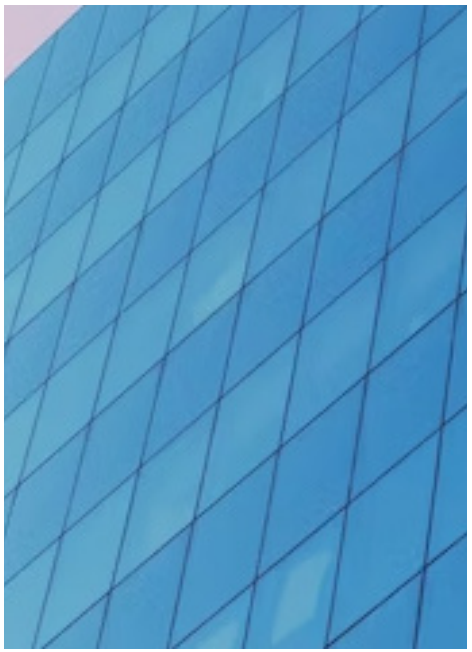
Salaries rise by years of experience, and this is clearly shown in the graph here. However, what this chart also shows is that salaries seemed to rise sharpest every 3-4 years. So for the qualified part of the survey we decided to group the respondents into four main bands:

Newly Qualified - FIA
Qualified - FIA
Senior Qualified - FIA
Pre 2009 Qualified - FIA < 2009

We used box and whiskers graphs to show the salary range, median, upper and lower quartile by qualification year. These charts are based solely on base salary and group together all actuaries who qualified in that particular year regardless of specialism or any other factors.

We decided to present bonus data into these main groups as within these groups the average level was similar and again, it's clear to see that bonus % goes up with years of post-qualification experience (PQE) 33% of qualified respondents had to be in the office 2 days a week and 26% had to go in twice. Only 17% didn't have to go in at all, and only 2% of the respondents have to go in a full 5 days. The gender split across the market was 69% male, 25% female, 0.1% non-binary, and 4.9% preferred not to say (PNTS).





Qualified by Sector.

In this next section, we look more in-depth at the different sectors. As stated on the previous page we decided to present data into 4 main groups newly qualified (2019-2022), qualified (2014-2018), senior qualified (2009-2013) and those who qualified pre-2009.

Also as we saw on the previous pages it's clear that salary rise with years of experience/PQE and this is shown in all sectors of this section. The same can also generally be said for bonuses.

The highest median salaries are seen in Reinsurance whereas a newly qualified actuary a median salary was £96,000 and the highest salary was recorded at £415,000 for a CRO. This was followed by Lloyd's and then London Market.

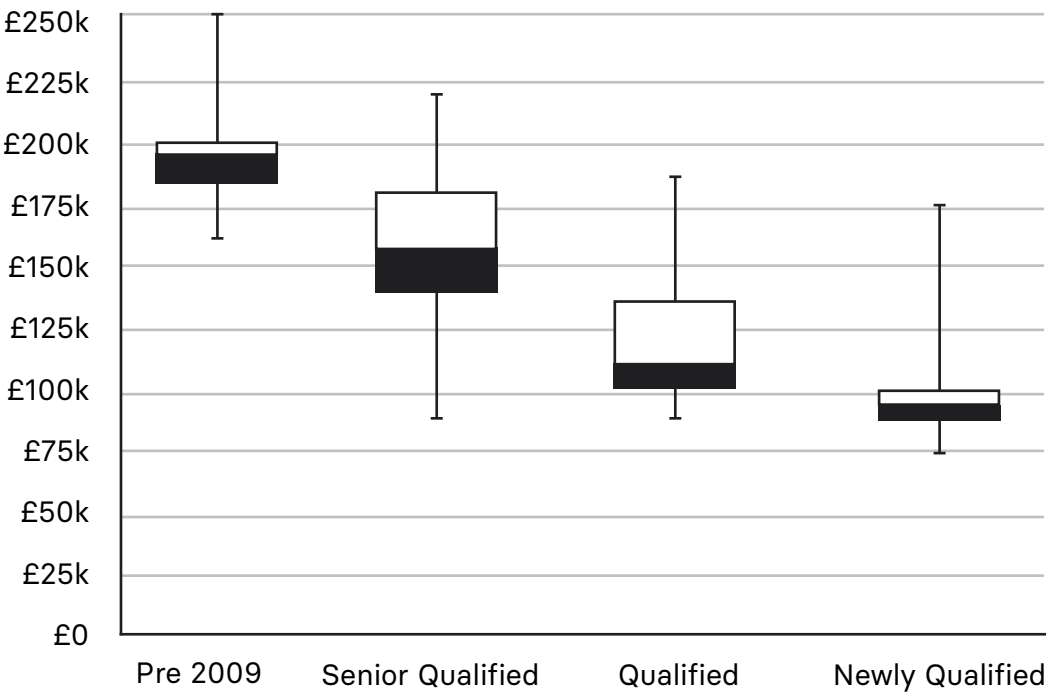
The average bonus was 30% for those at 'Qualified' level in Reinsurance, the highest by some margin at this level. However, it peaked at 36% average for 'pre-2009'. The highest bonuses were in Lloyd's where qualifying in pre-2009 showed an average bonus of over 50%.

The lowest salaries were seen in Personal Lines however this could be somewhat influenced by the fact that PL had the highest % of responders from outside London and the South East. Personal Lines also offered the highest amount of flexibility with over 90% expected in the office <3 days per week. For Commercial Lines and Consultancy, there was a similar amount of flexibility (88% and 87% < 3 days per week respectively).

Consultancy came out as having the smallest ER pension contribution with <25% of responders receiving more than 8%.

The gender split across the market was heavily weighted towards men. The biggest difference was in the London Market and Reinsurance where only 22% and 21% of respondents were females respectively. Personal Lines had 35% of respondents who were female which was the highest.

Lloyds.

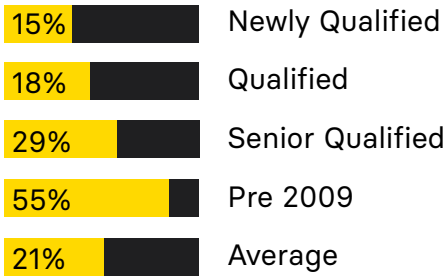


Summary

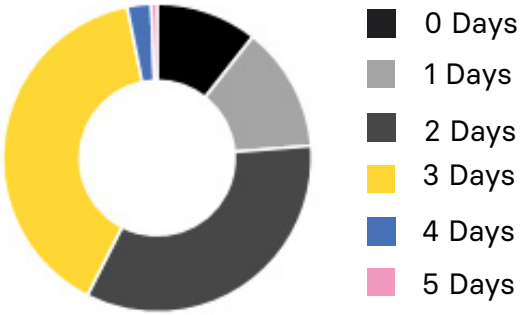
As we saw in the last salary survey, in this area you can expect some of the highest salaries with median salaries in the survey. The highest salary topped out at £250,000, lower than London Market and Reinsurance, however the average bonus potential was over 50% suggesting that fixed salaries were kept lower but higher bonuses could be reached.

74% of respondents received ER pension of over 8% again, one of the highest in the survey and 75% were expected in the office 2 or 3 days per week. The gender split was 61% male, 28.4% female, 0.6% non-binary and 10% PNTS.

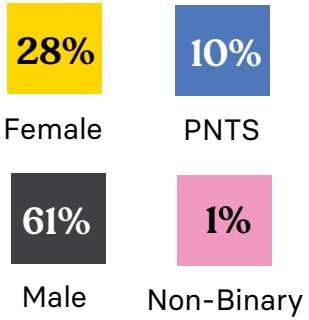
Average Bonus



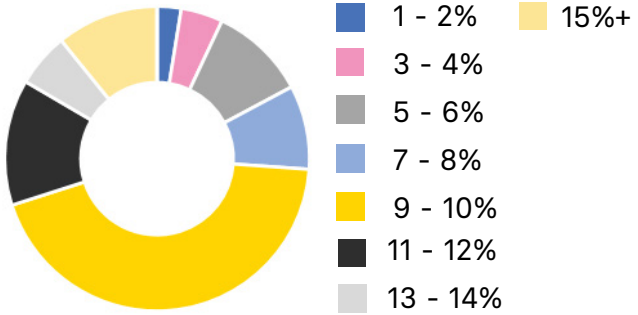
Office Days



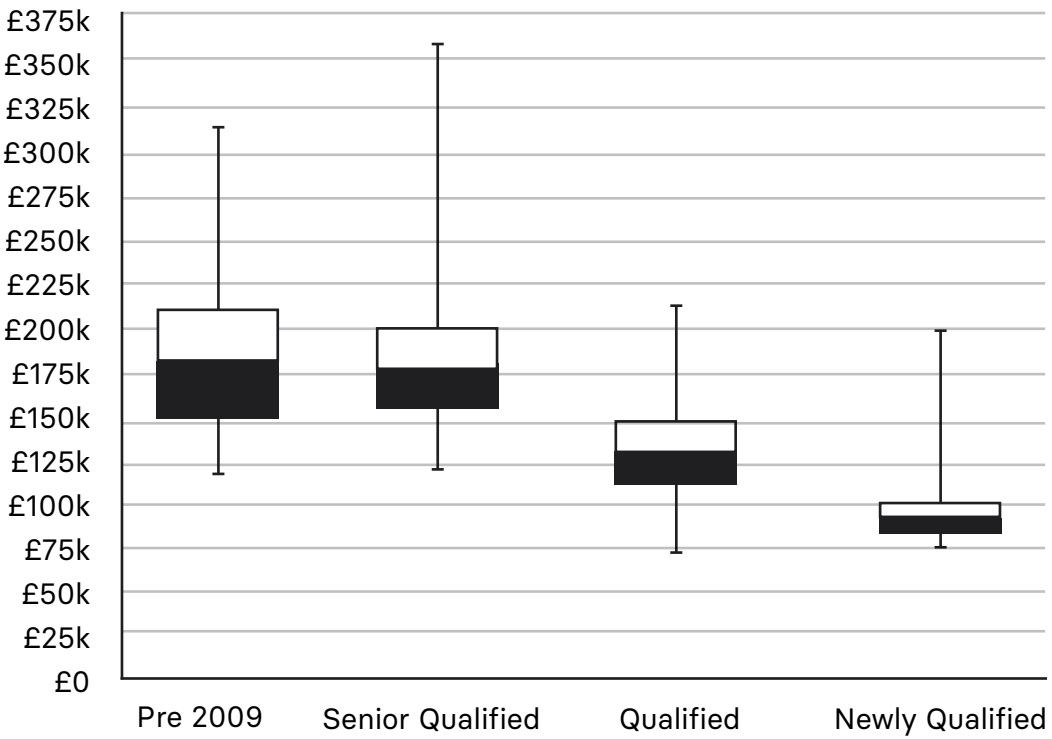
Gender Split



Pension



London Market.

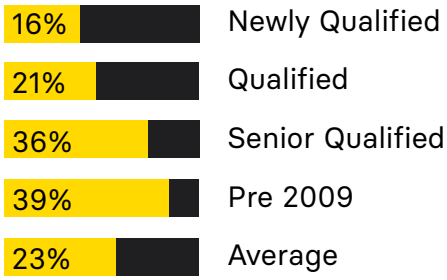


Summary

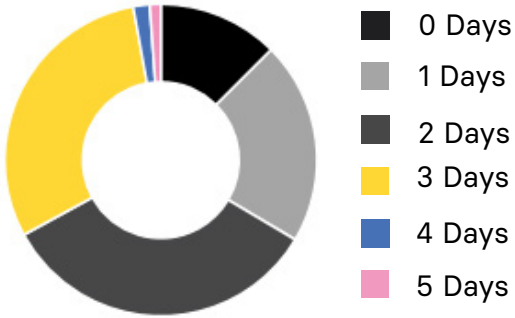
Median salaries were equal to or higher than Lloyd's for all but 'pre-2009' qualifiers. The max salary in the London Market was also higher or equal to Reinsurance for 'Newly-Qualified' to 'Senior-Qualified'. Salary level does level off quite sharply between 'Senior Qualified' and 'Pre 2009'.

76% of respondents received ER pension of over 8% which was the highest of the survey. 64% in the London Market were expected in the office 2/3 days per week and 33% 0 or 1 day per week. The gender split was 22% female, 70% male and 8% PNTS.

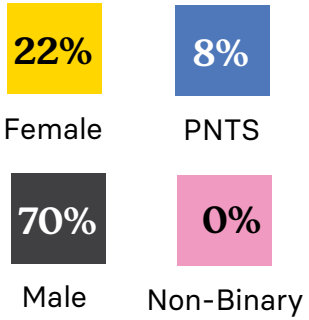
Average Bonus



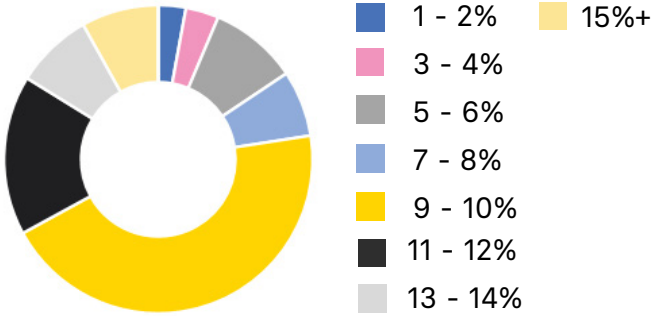
Office Days



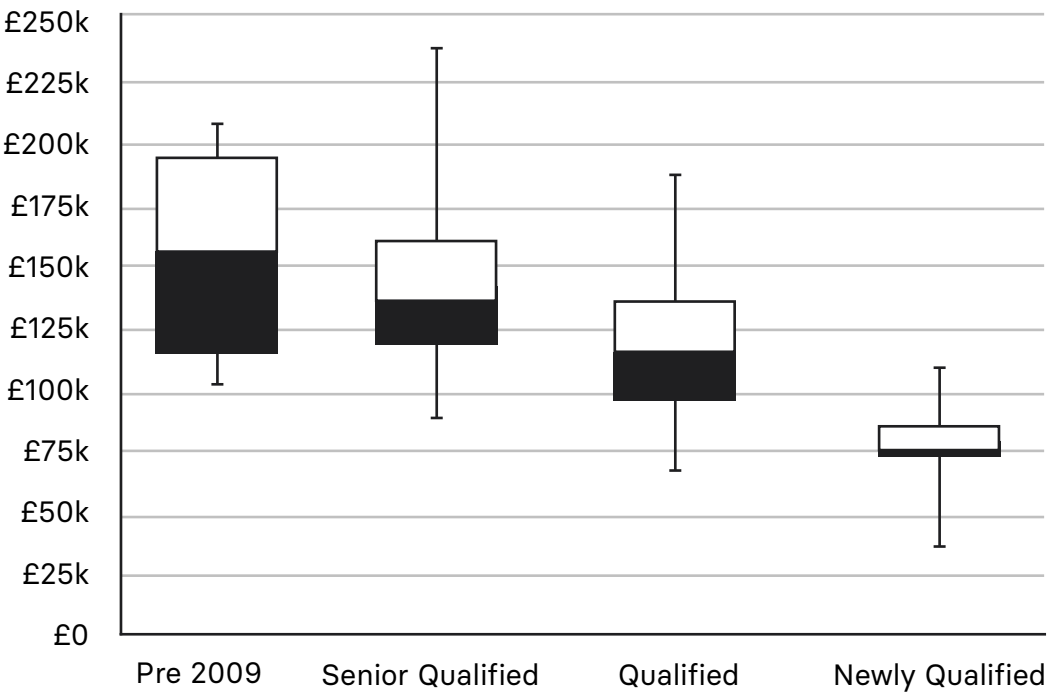
Gender Split



Pension



Consultancy.

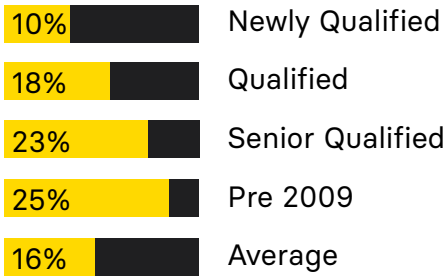


Summary

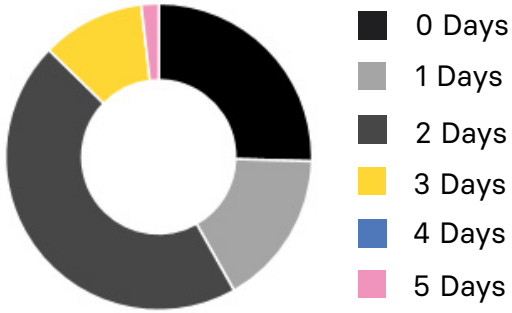
For a newly qualified actuary Consultancy gave the second lowest median salary of £80,000. However, this jumps significantly to a median salary of £115,000 at 'Qualified' level. The highest salary for any Consultant was £230,000 which was a Partner and only two other respondents earned over £200,000, both Directors.

Consultancy seemed to offer greater flexibility than Lloyd's or London Market with 46% of respondents only expected in the office 1 or 2 days per week. However, Consultancy offered some of the lowest pension contributions with 72% receiving <9% of ER pension. The gender split was 29.7% female, 54.4% male, 1.7% non-binary and 14.2% PNTS.

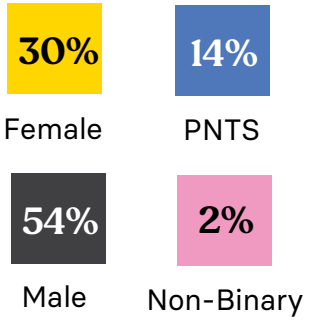
Average Bonus



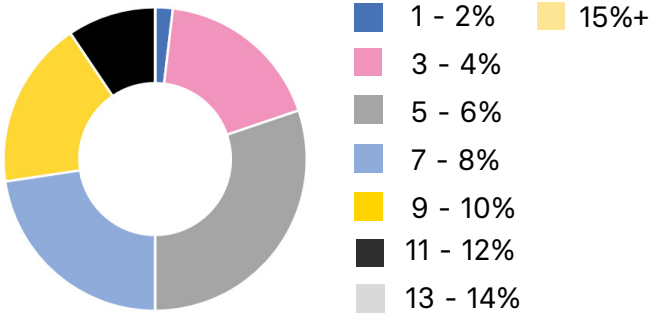
Office Days



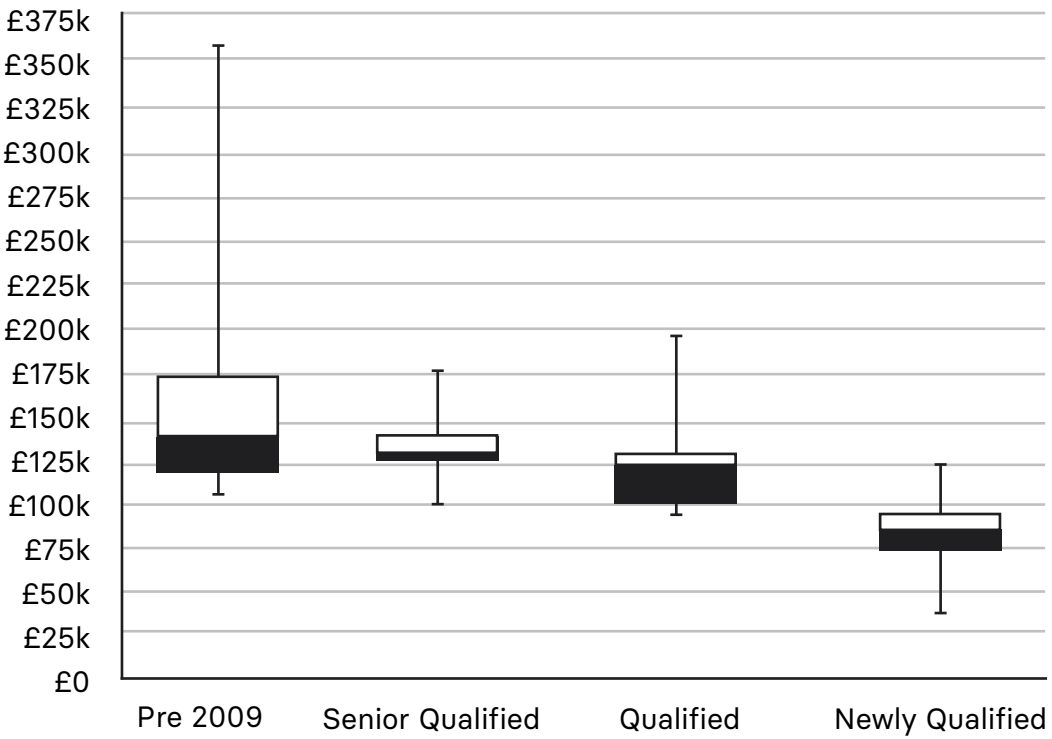
Gender Split



Pension



Commercial Lines.

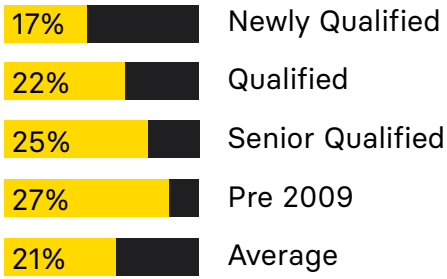


Summary

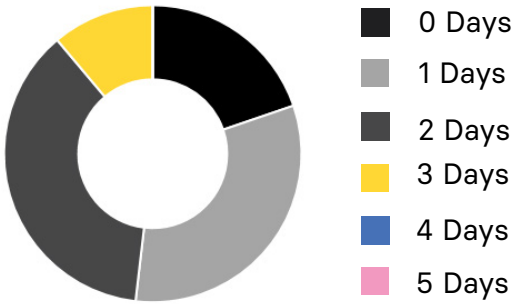
Median salaries in this area were comparable to consultancies other than for Pre-2009 which was £17,000 lower. That said, one of the highest earners was in Commercial Lines, £360,000.

It's also worth noting that 16% of respondents were based outside London or the South East, which was one of the highest levels other than Personal Lines. Unlike consultancies, 67% received ER pension of at least 9%. 88% of those who responded were expected in the office no more than 2 days and none were expected in 4 or 5 days per week. The gender split was 23% female, 65% male and 12% PNTS.

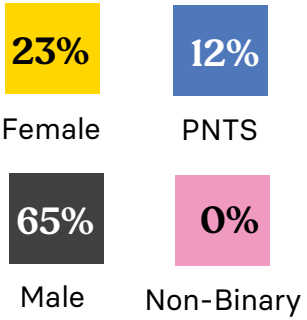
Average Bonus



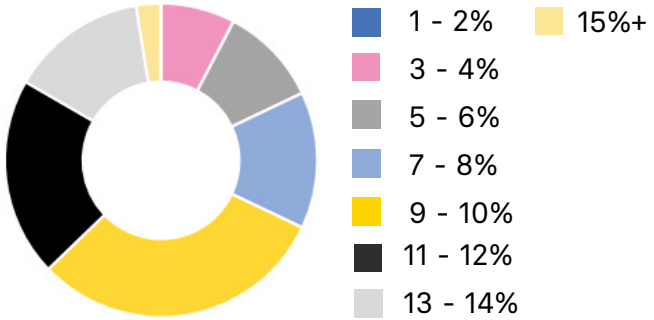
Office Days



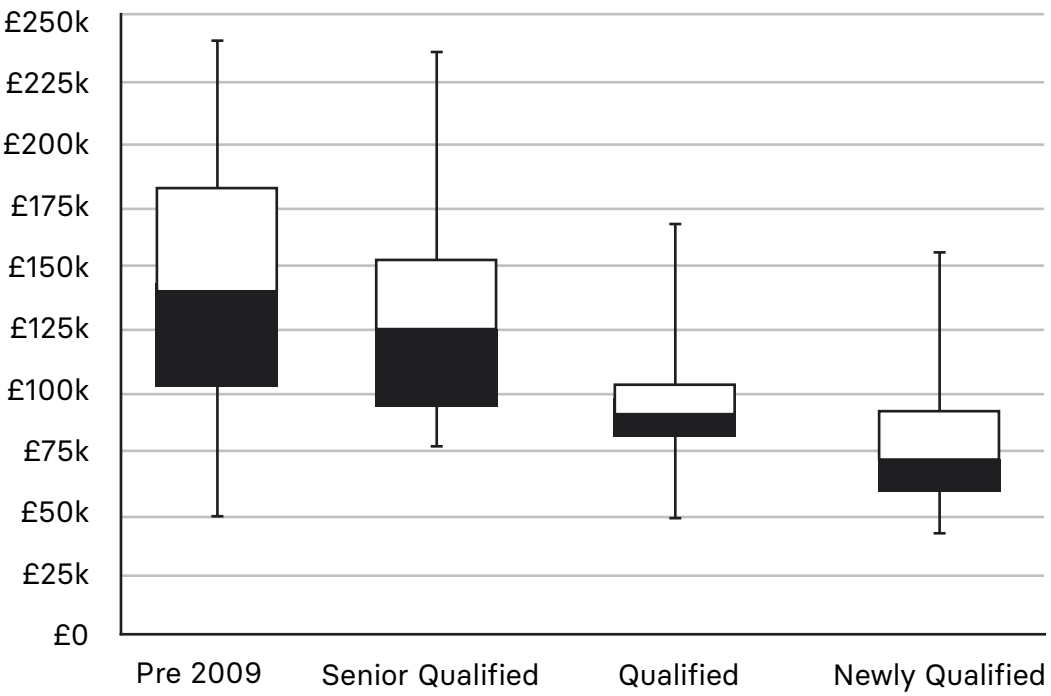
Gender Split



Pension



Personal Lines.

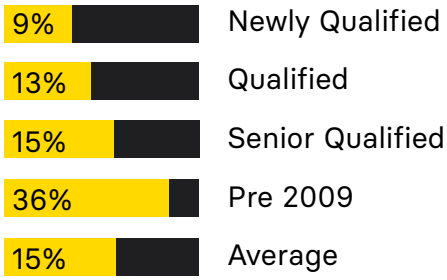


Summary

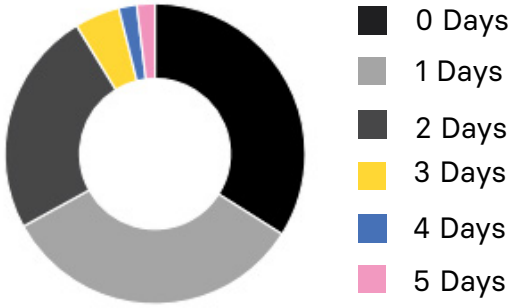
The salaries in Personal Lines showed the lowest median across all the sectors and the lowest average bonus potential for actuaries aside from at the highest level where a 'pre 2009' qualified actuary had an average bonus of 36%. A part of this must be attributed to the fact that PL had the highest % of respondents outside of London or the South East. Only 40% of respondents were based in London or the South East. 33% were based in other locations and 27% were based at Home.

Personal Lines also offered the highest degree of flexibility with 34% of respondents not expected in the office at all and 33% only expected in 1 day per week. The gender split 35% female, 55% male and 10% PNTS.

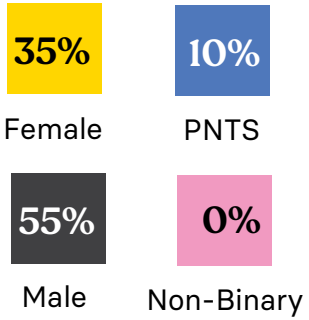
Average Bonus



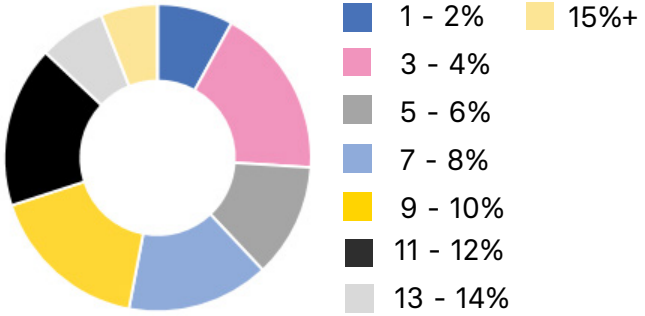
Office Days



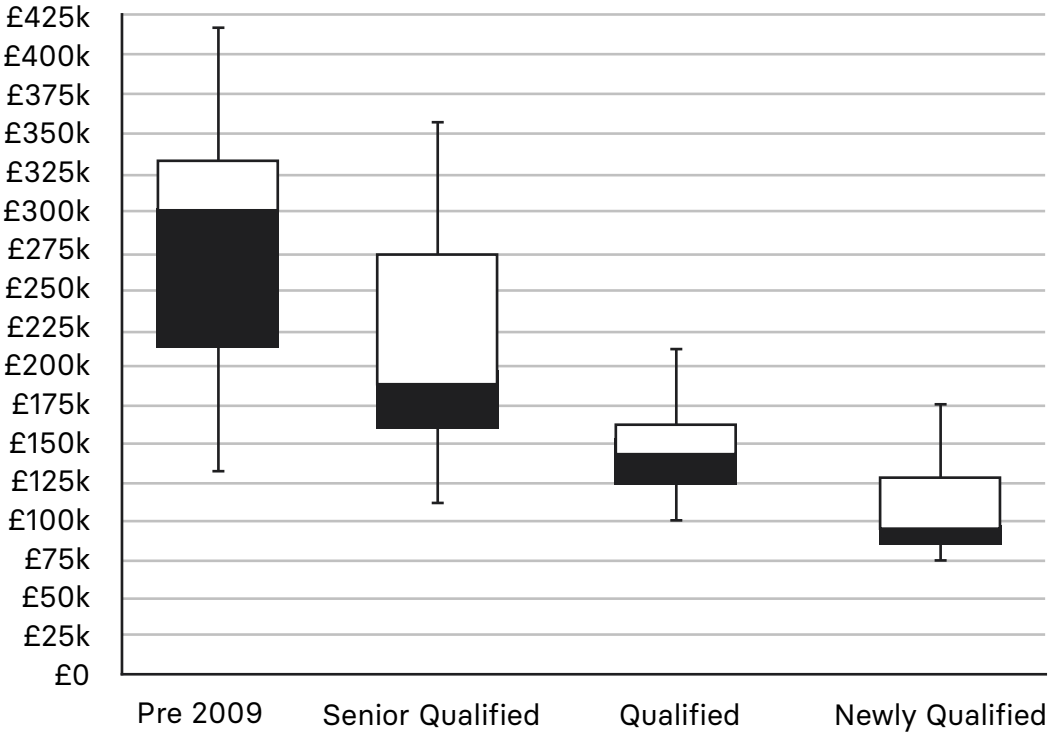
Gender Split



Pension



Reinsurance.

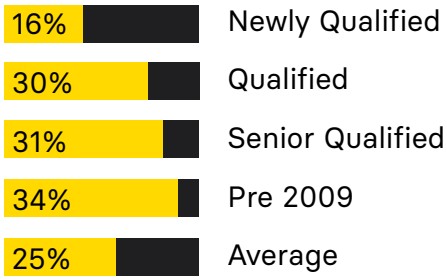


Summary

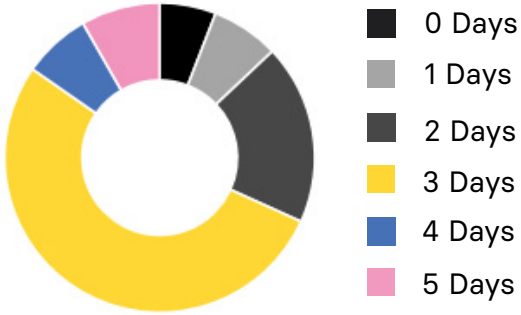
We decided to merge Reinsurance and Reinsurance Broker to give a more informed analysis of this area of the market. Reinsurance provided the highest median salaries across all areas and the highest max salary of £415,000. Bonuses were also consistently high for 'Qualified' and above of 30% or higher.

Reduced flexibility seems to be the trade-off for high remuneration with only 31% expected in between 0-2 days. 52% of respondents were expected in the office 3 days and 17% expected in either 4 or 5 days per week. Pensions were also strong in Reinsurance with 68% receiving more than 8% and 32% receiving 10% or more. The gender split was 21% female, 64% male and 5% PNTS.

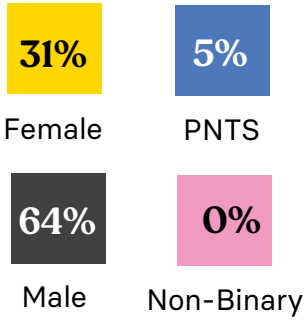
Average Bonus



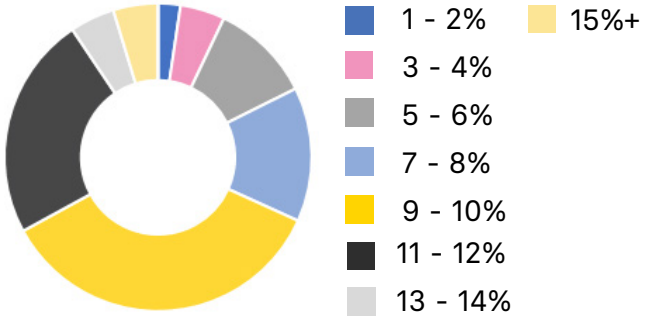
Office Days



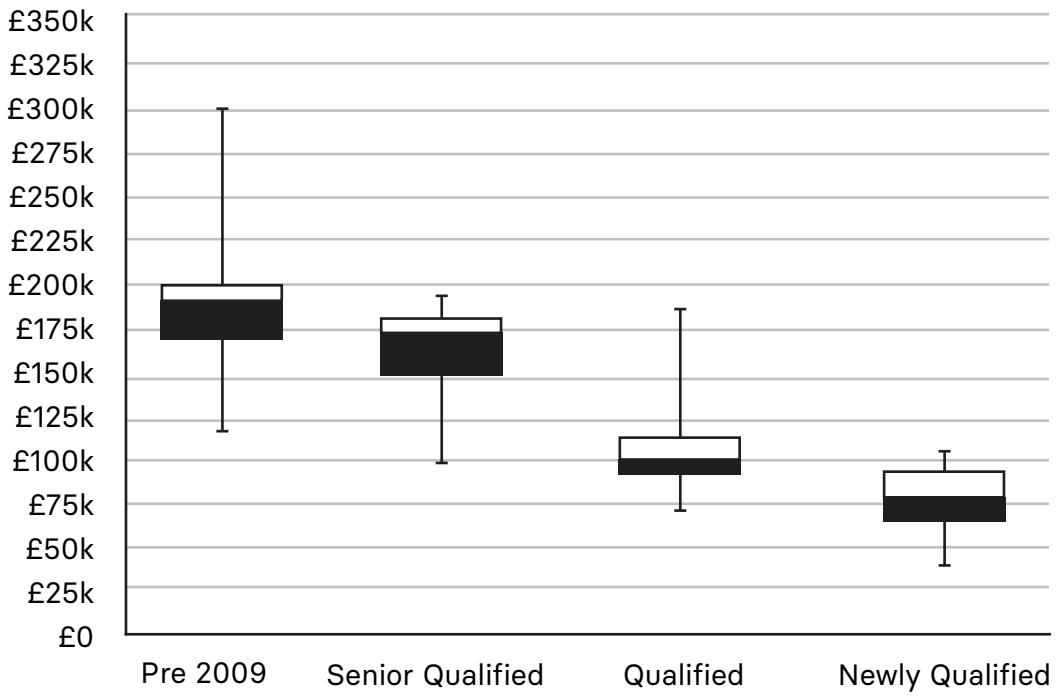
Gender Split



Pension



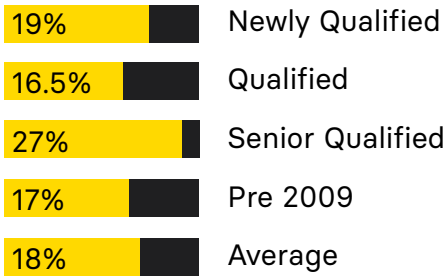
Other.



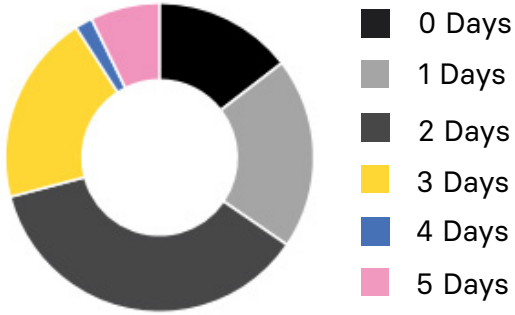
Summary

Other consisted of respondents from a wide variety of areas including, Regulators, Insurtechs, Captives and ILS Funds. Thus it's hard to draw many conclusions. What can be seen is that salaries increase with years of experience. The gender split was 31% female, 63% male and 6% PNTS.

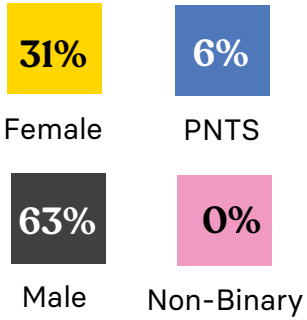
Average Bonus



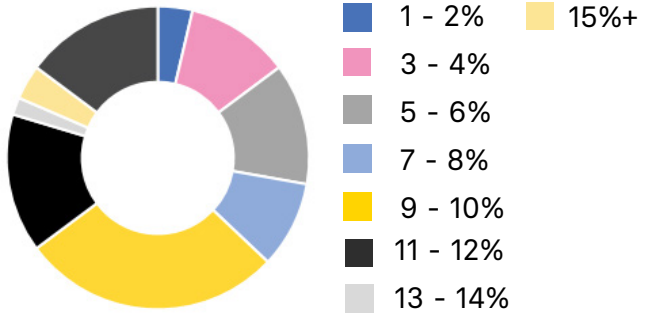
Office Days



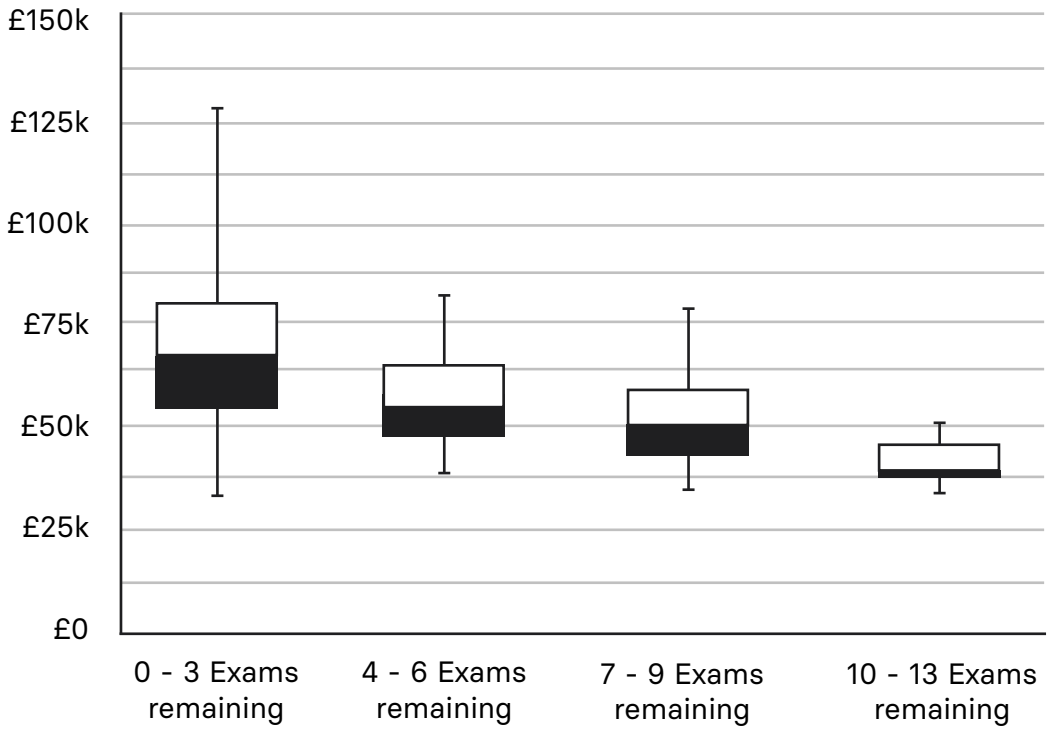
Gender Split



Pension



Student.



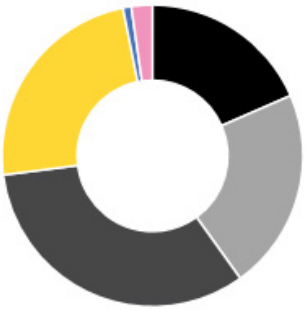
Summary

Exams are important and the survey shows just that. More exam passes mean higher salaries. For those with <4 exams remaining there were 6 respondents who had salaries of £100,000 or more however all of them had at least 6 years of working experience. There was no material difference in the bonus when comparing respondents with different numbers of remaining exams and the average bonus across all students was 11%.

A few years ago it may have been a rarity for an actuarial student to be able to work fully remotely however our survey showed that over 18% of students could work fully remotely and 22% were only expected in the office once a week. 57% had to go into the office between 2-3 days per week.

A third of respondents received a pension between 9-10%, and 39% received less than this, 28% received more. The gender split was 31% female, 66% male and 3% PNTS.

Office Days

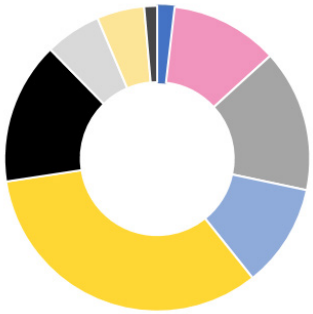


0 Days
1 Days
2 Days
3 Days
4 Days
5 Days

Gender Split

31% Female
3% PNTS
66% Male
0% Non-Binary

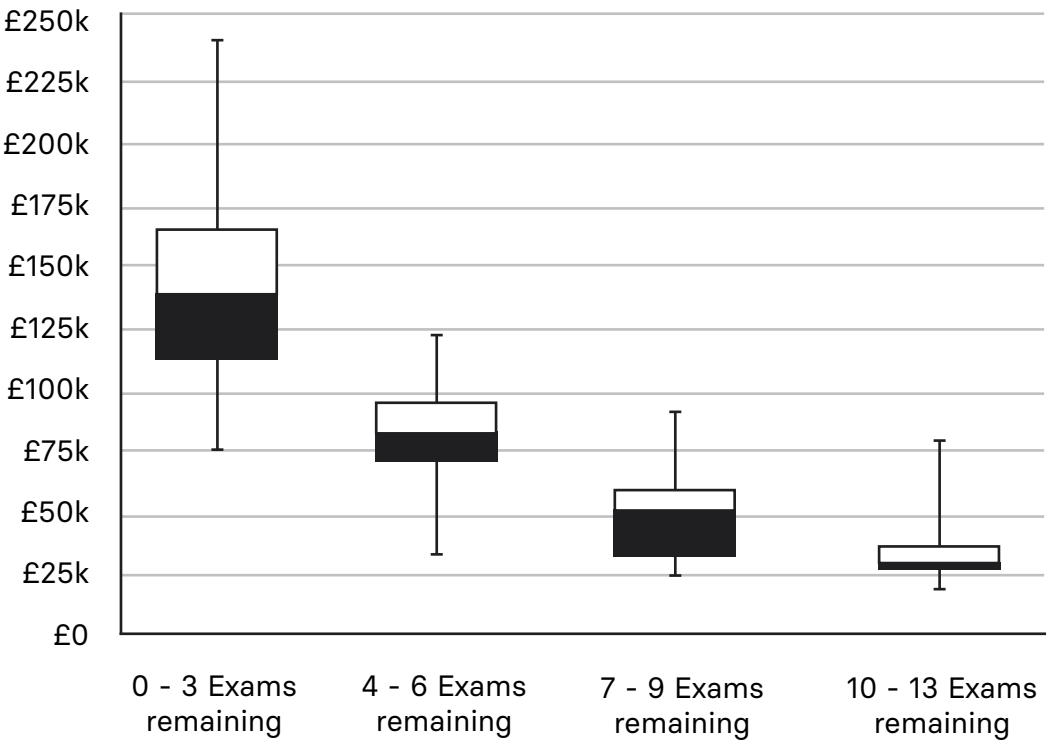
Pension



1 - 2%
3 - 4%
5 - 6%
7 - 8%
9 - 10%
11 - 12%
13 - 14%
15%+

Average Bonus

PSEs.



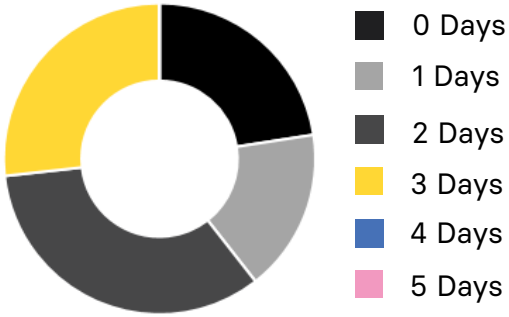
Summary

After the previous salary survey many were asking for a more in depth analysis for those who had either 'paused or stopped exams' (PSE). The chart compares when respondents started their careers and shows that an FIA qualification is not essential to achieving a high salary. Indeed the highest earner here was an Executive Director who had 1 exam remaining.

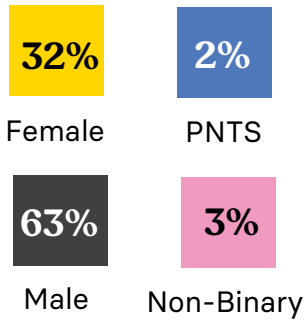
When taking a closer look at the data we found that 55% of PSEs managed a team and 22% had either 'Head of', 'Director' or 'Chief' in their job title and 50% earned more than £100,000. None of our PSE respondents had to be in the office more than 3 days a week. The average bonus for PSUEs was 17%.

The gender split was 32% female, 63% male, 3% non-binary and 2% PNTS.

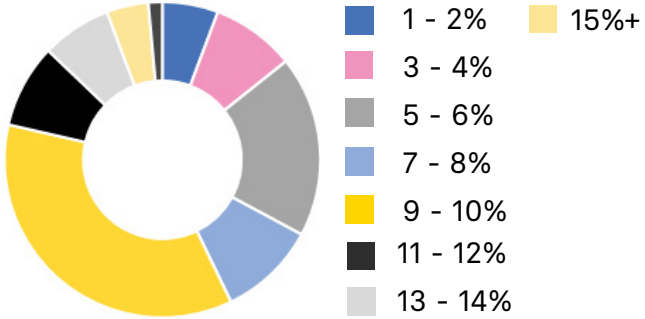
Office Days



Gender Split

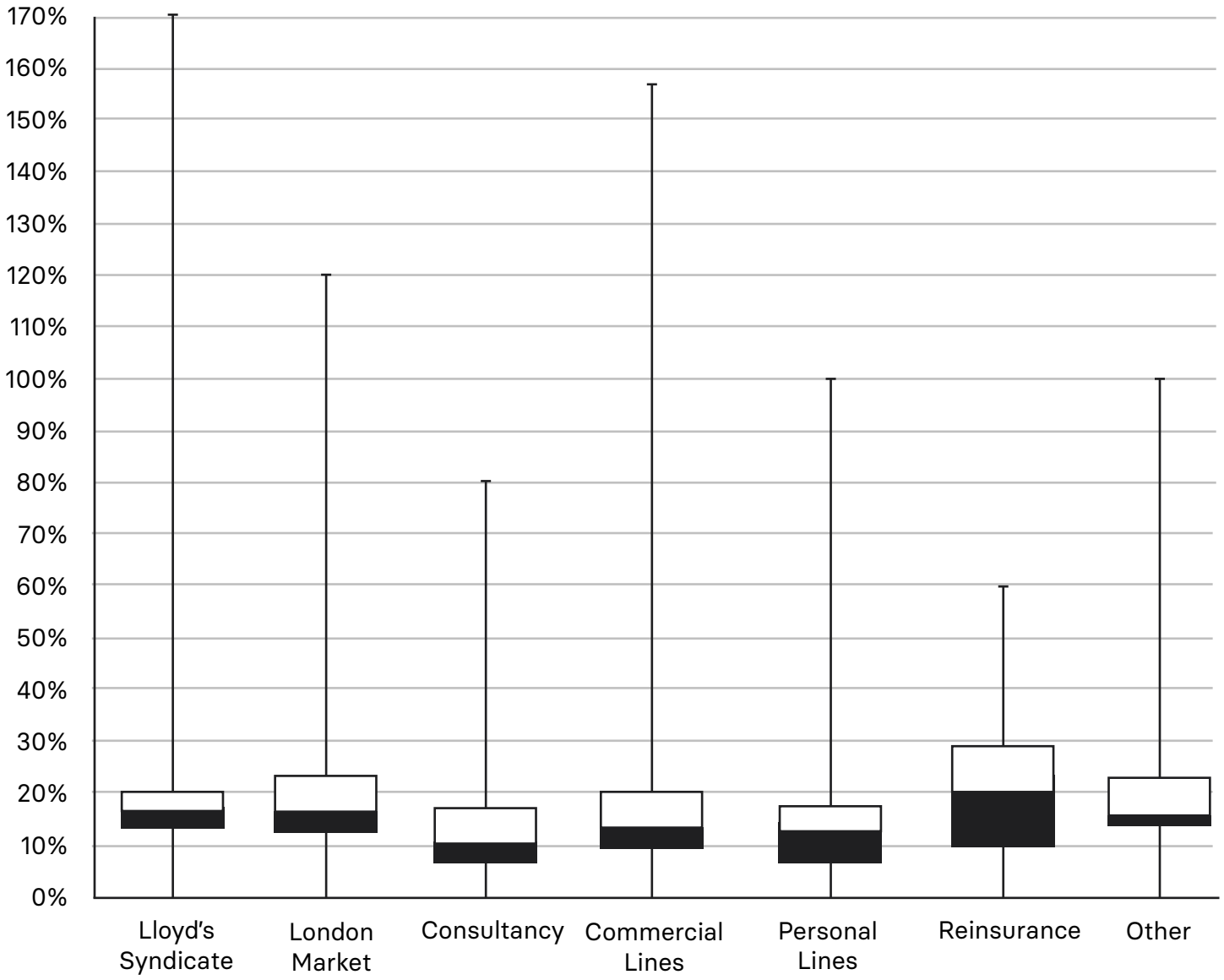


Pension



Average Bonus

Bonus.



Summary

The highest median bonuses were in Reinsurance. There were strong bonus levels were offered in London Market and Lloyd's, whereas Consultancy seems to offer the lowest bonus potential followed by Personal Lines.

Across the market 1.5% of respondents received over 50% bonus and of those to received that level of bonus, 80% had a job title as either 'Head of', 'Director' or 'Chief'. Just 5 respondents in the whole survey received a bonus of 100% or more.

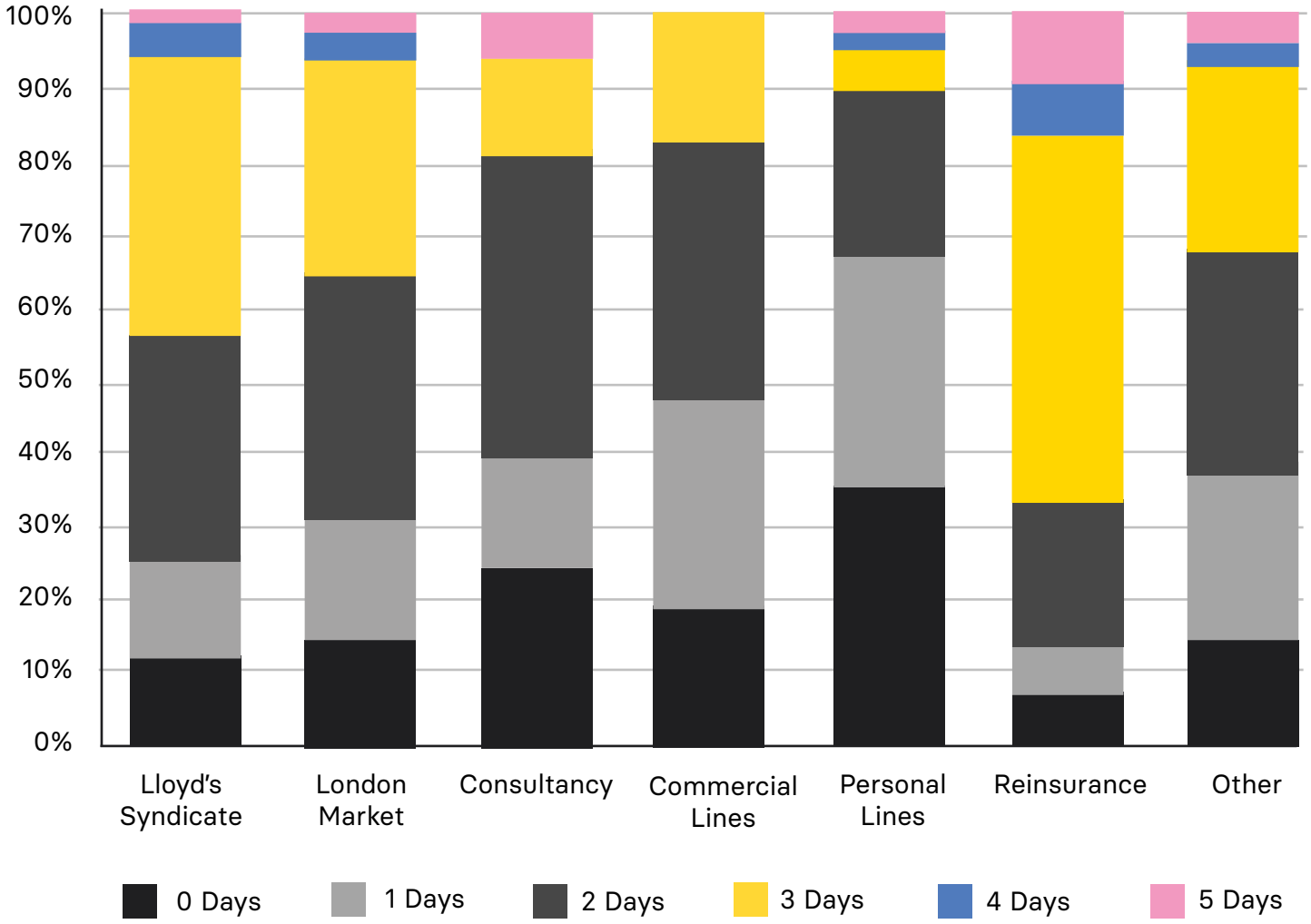
Pensions.

Summary

Here you can take a closer look at ER pension contribution across the market. Consultancy offers the lowest contribution with over 70% receiving less than 8% or less in their pension pot.

	Lloyd's Syndicate	London Market	Consultancy	Commercial Lines	Personal Lines	Reinsurance	Other
1 - 2%	2.5%	2.9%	1.8%	0%	8%	2.5%	3.7%
3 - 4%	4.5%	3.5%	17.9%	7.7%	18%	4.7%	11.1%
5 - 6%	10%	9.2%	30.2%	10.3%	12%	10.6%	13%
7 - 8%	9%	6.9%	22.6%	14.1%	15%	14.1%	9.3%
9 - 10%	43.9%	44.5%	18%	30.7%	17%	35.2%	27.8%
11 - 12%	13.4%	16.8%	9.5%	20.5%	17%	23.5%	14.8%
13 - 14%	5.8%	8.1%	0%	14.1%	7%	4.7%	1.9%
15%+	10.9%	8.1%	0%	2.6%	6%	4.7%	3.7%
DB / Public Sector Scheme	0%	0%	0%	0%	0%	0%	14.7%

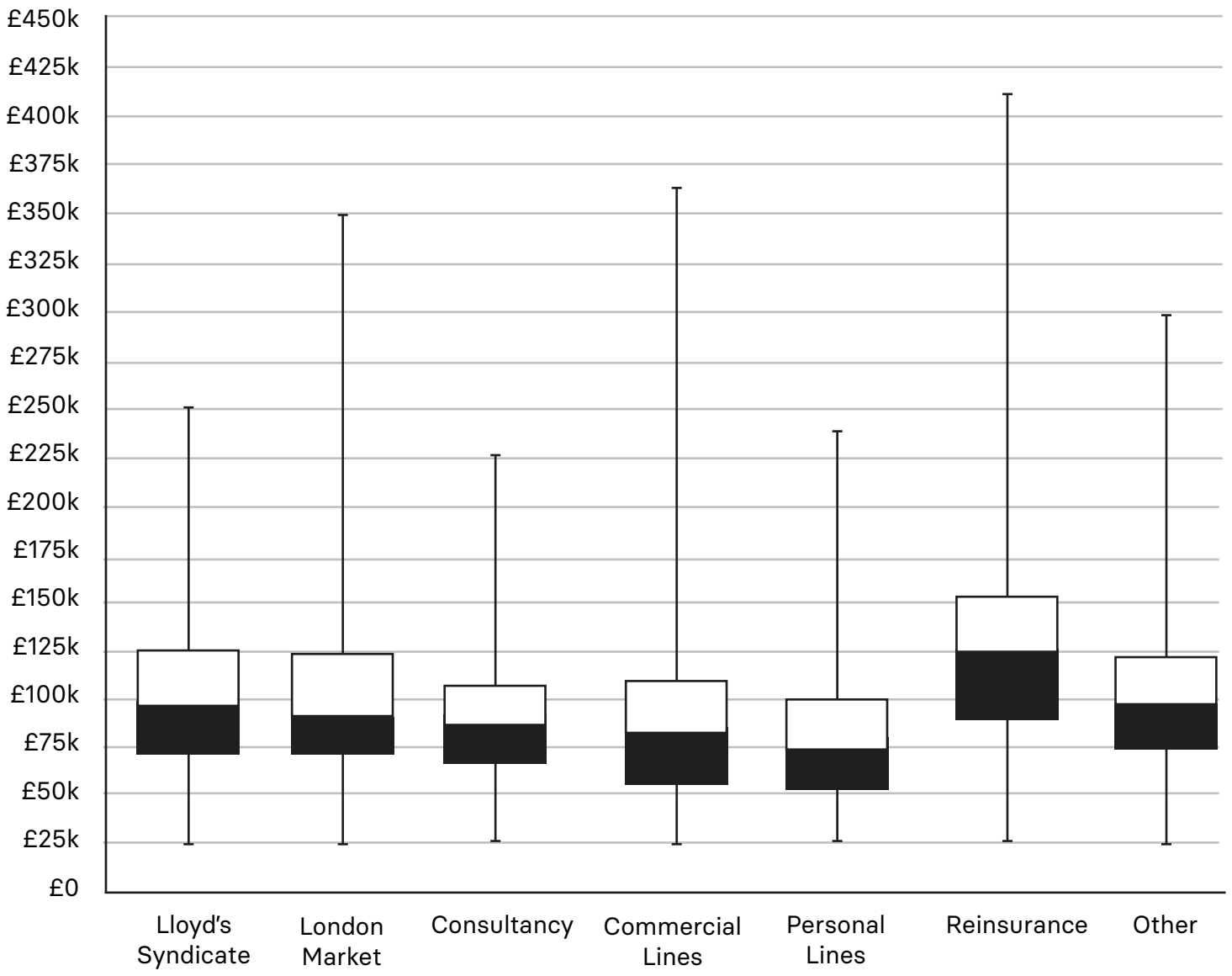
Office Days.



Summary

Here you can see that the greatest flexibility in the market comes from Personal Lines insurers with over 90% of employees only asked to come to the office twice a week or less. The least flexibility is offered in Reinsurance.

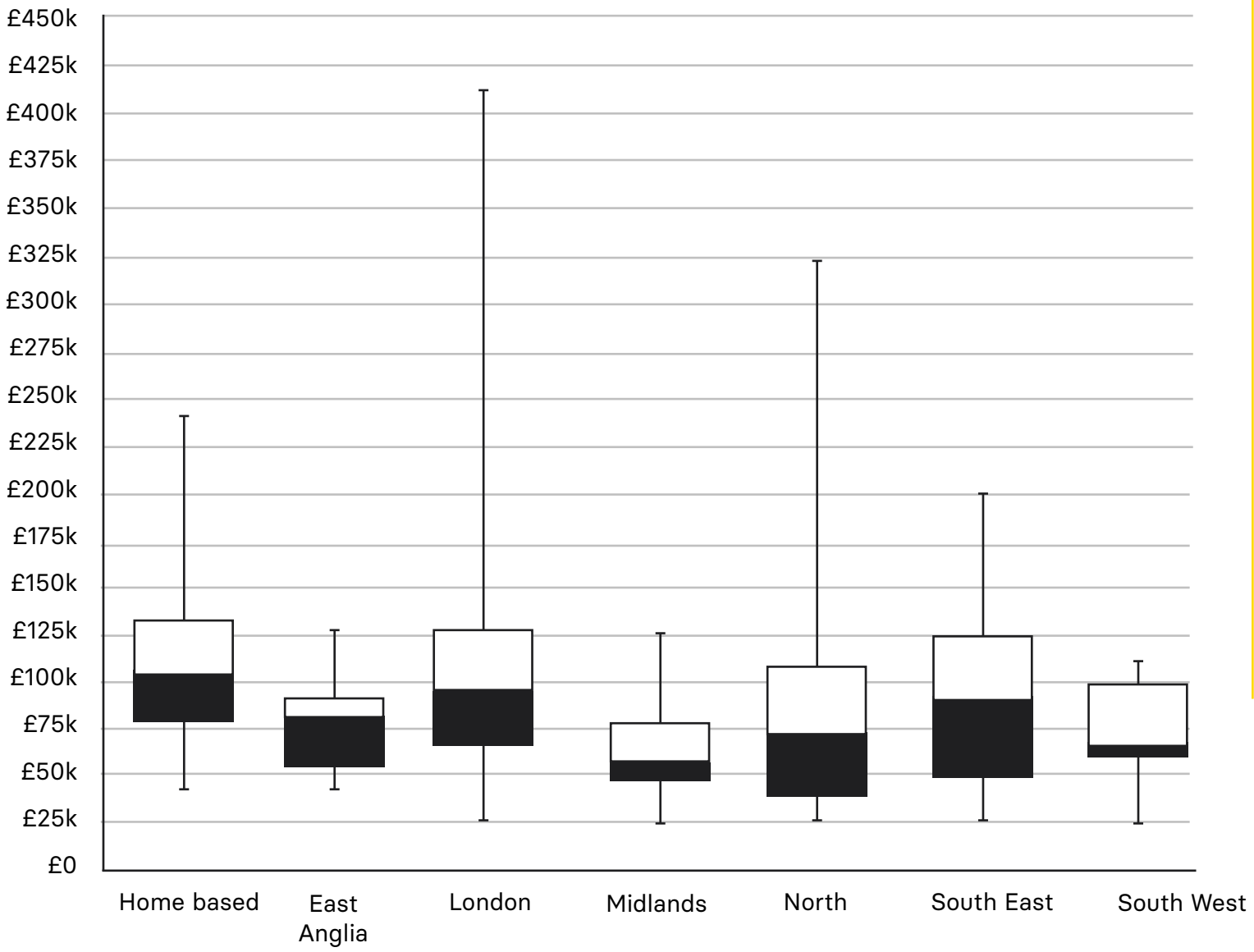
Salary by Area of Work.



Summary

Here is a snapshot of salaries for all levels across the market and how they compare to other areas.

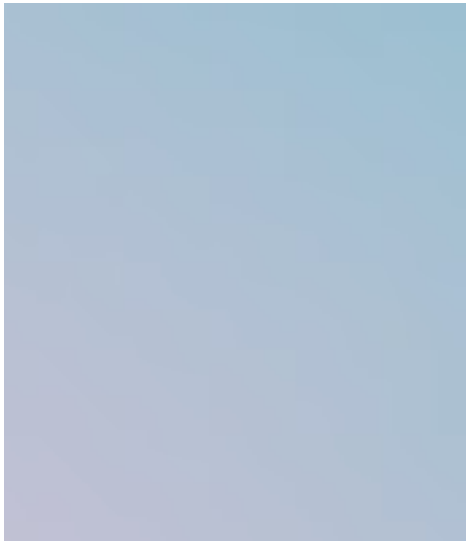
Salary by Location.

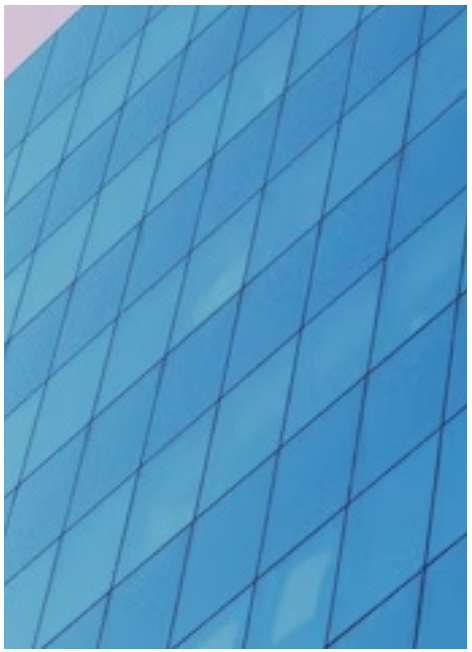


Summary

The survey was heavily London dominated circa 75%, combined with the South East which made up over 85% of the respondents. Being home-based does not seem to affect earning potential and is comparable to London salaries, the higher median reflects that those that were home-based had a number of years of experience, indeed only 2 respondents who were home-based started their careers later than in 2018.

Other areas outside of London and the South East has a lower median salary and upper quartiles however due to a lack of data for the regions, it's hard to draw too many conclusions.





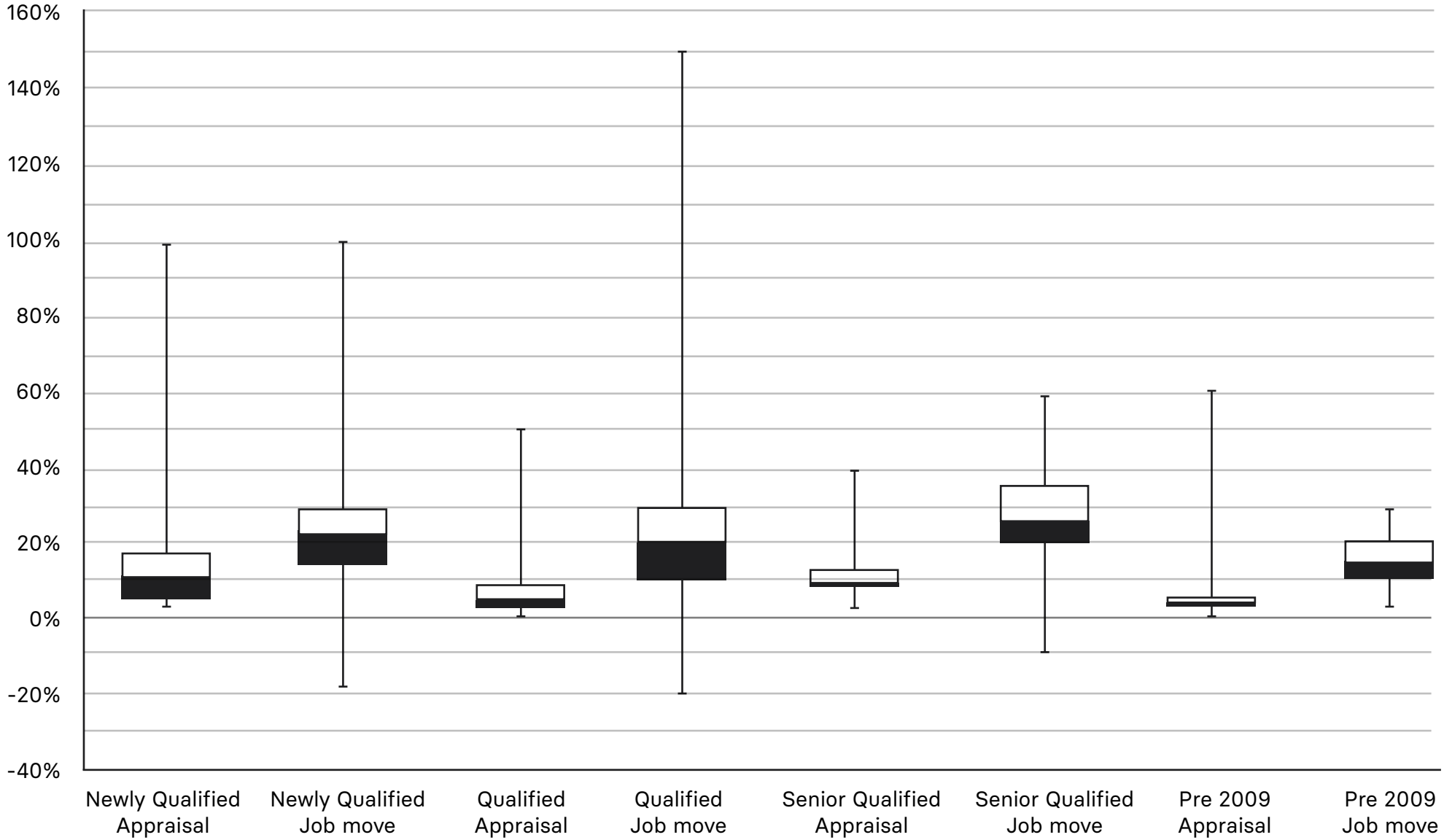
Salary Increase.

One of the main reasons we wanted to do the salary survey again was because anecdotally across the market we had seen big pay increases. In this section, we compared the salary increases of those who had moved jobs (since beginning of 2021) against those who had stayed put and received a pay rise in their last appraisal (so this could have been in 2021 or 2022 depending on their pay cycle.

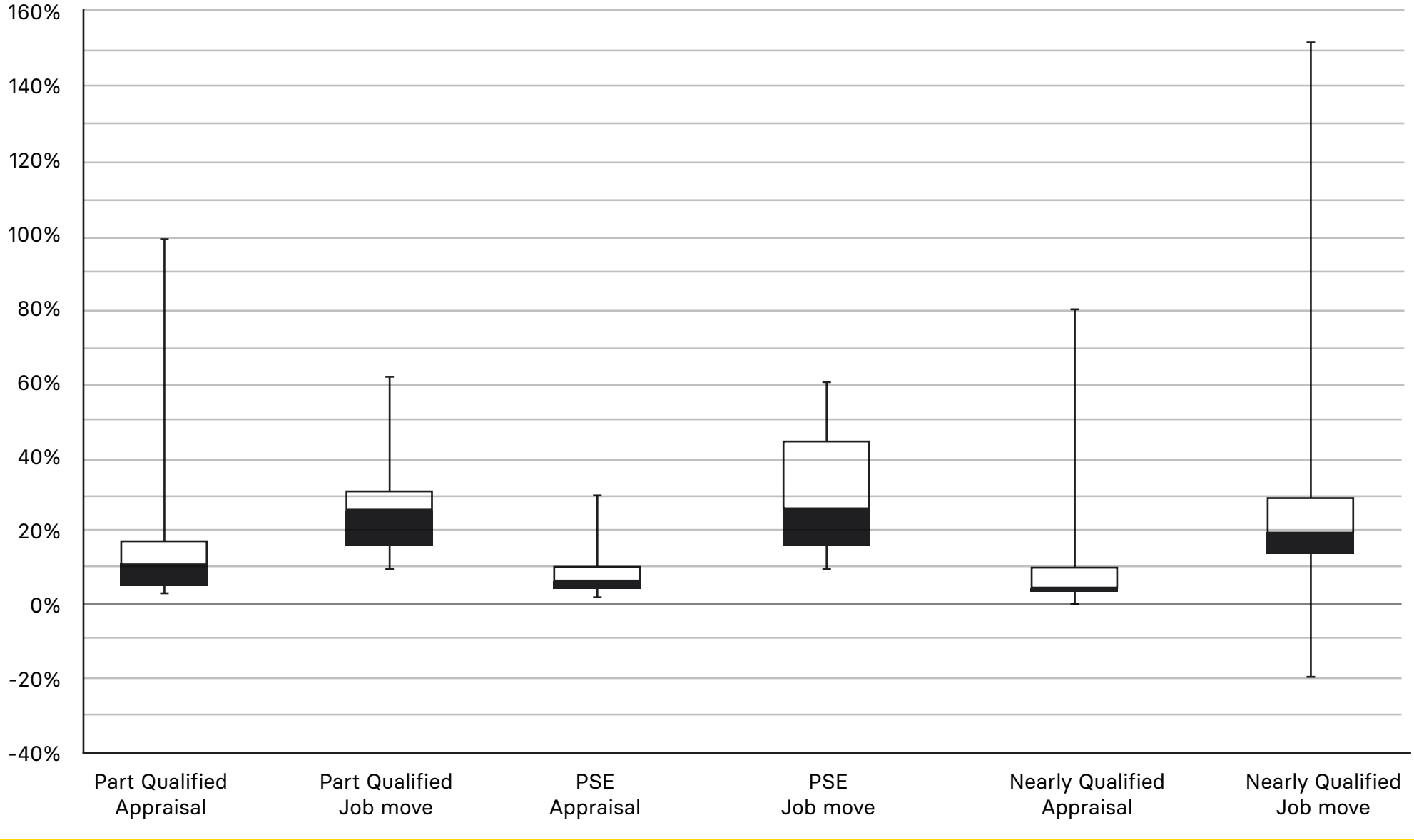
We divided it up and explored pay rises for qualified actuaries, and part-qualified/PSEs and we also compared for different job areas. What can clearly be seen in all these charts is that by moving jobs you were more likely to receive a higher pay rise. In most cases, an appraisal would secure you a single-digit pay increase in any way we split it (part qualified, qualified or sector) apart from in consulting where appraisal had a median pay increase of 10%. We also asked those in the appraisal section what contributing factors there were for their pay increase. By far the most common answer was inflation and the second most common was a promotion related pay increase.

For job movers, the median pay increase was at least 20% for all job movers except those who qualified pre-2009, who received a more modest 15% pay increase.

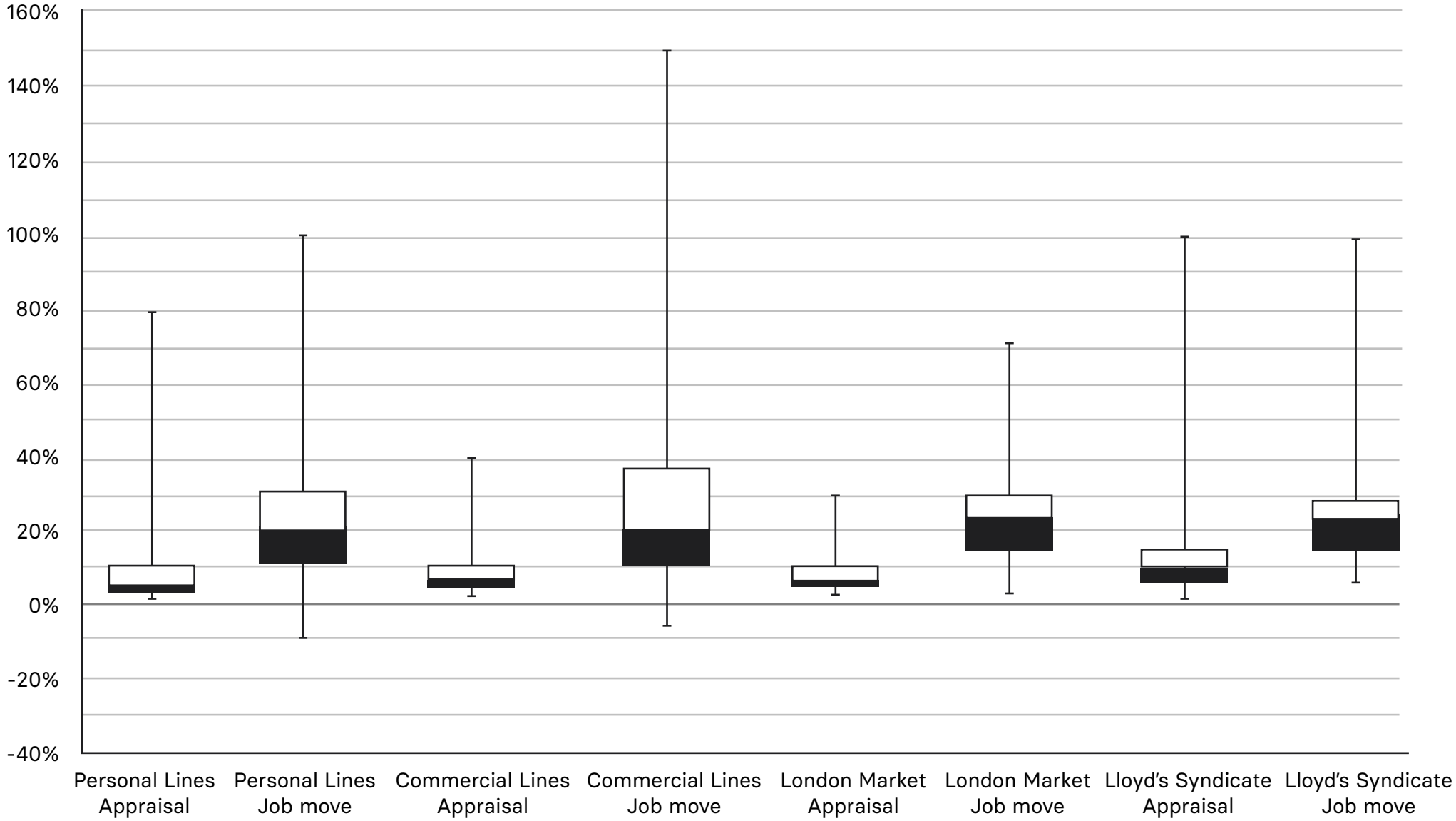
Qualified salary increase | Appraisal vs job move.



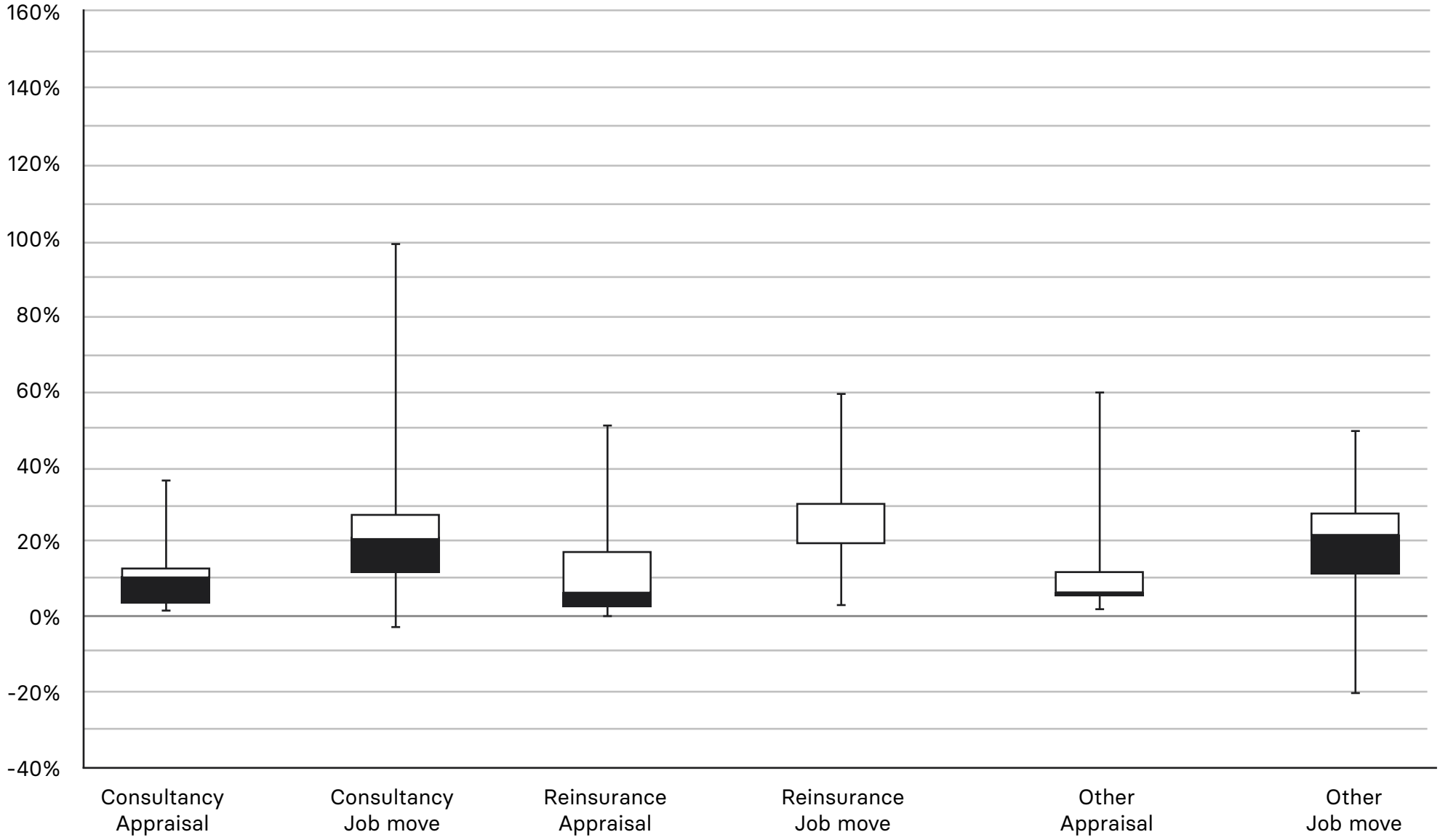
Student / PSE salary increase | Appraisal vs job move.



Salary increase by area | Appraisal vs job move.



Salary increase by area | Appraisal vs job move.



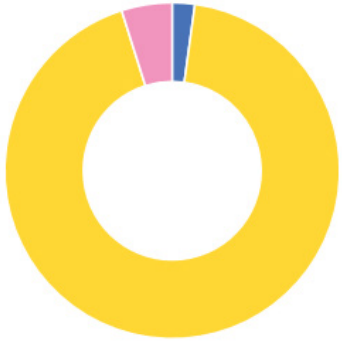
Diversity & Inclusion | Market.

Ethnicity

Asian Black Arab White

Mixed Other PNTS

Disability



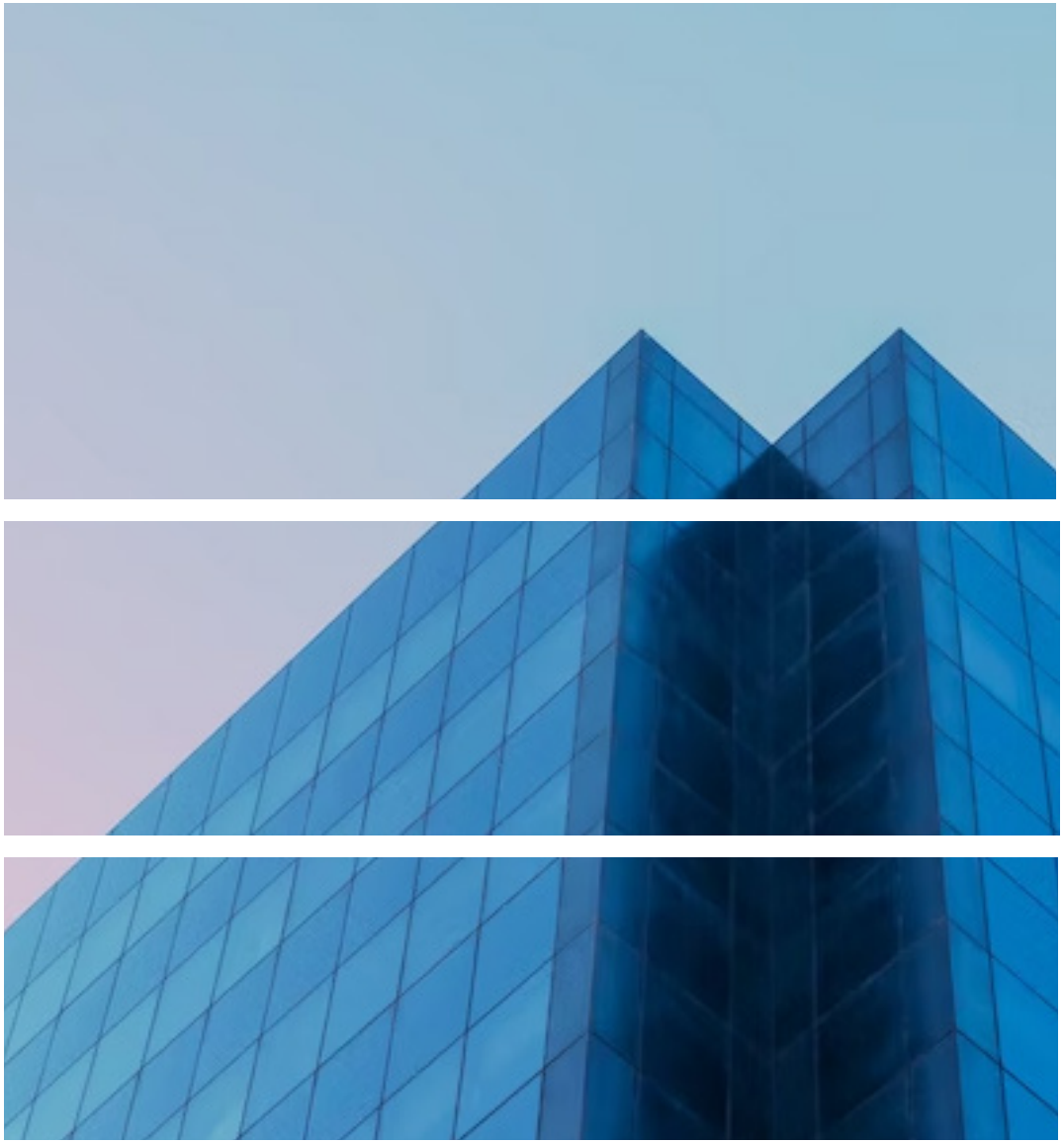
No

Yes

PNTS

Gender

29%	67%	0%	4%
Female	Male	Non-Binary	PNTS

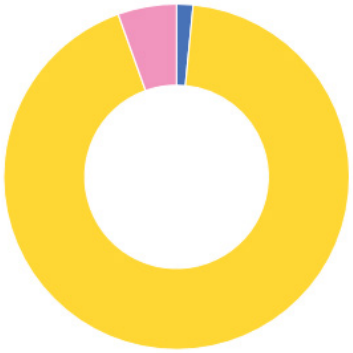


Diversity & Inclusion | FIA

Ethnicity

Asian
Black
Arab
White
Mixed
Other
PNTS

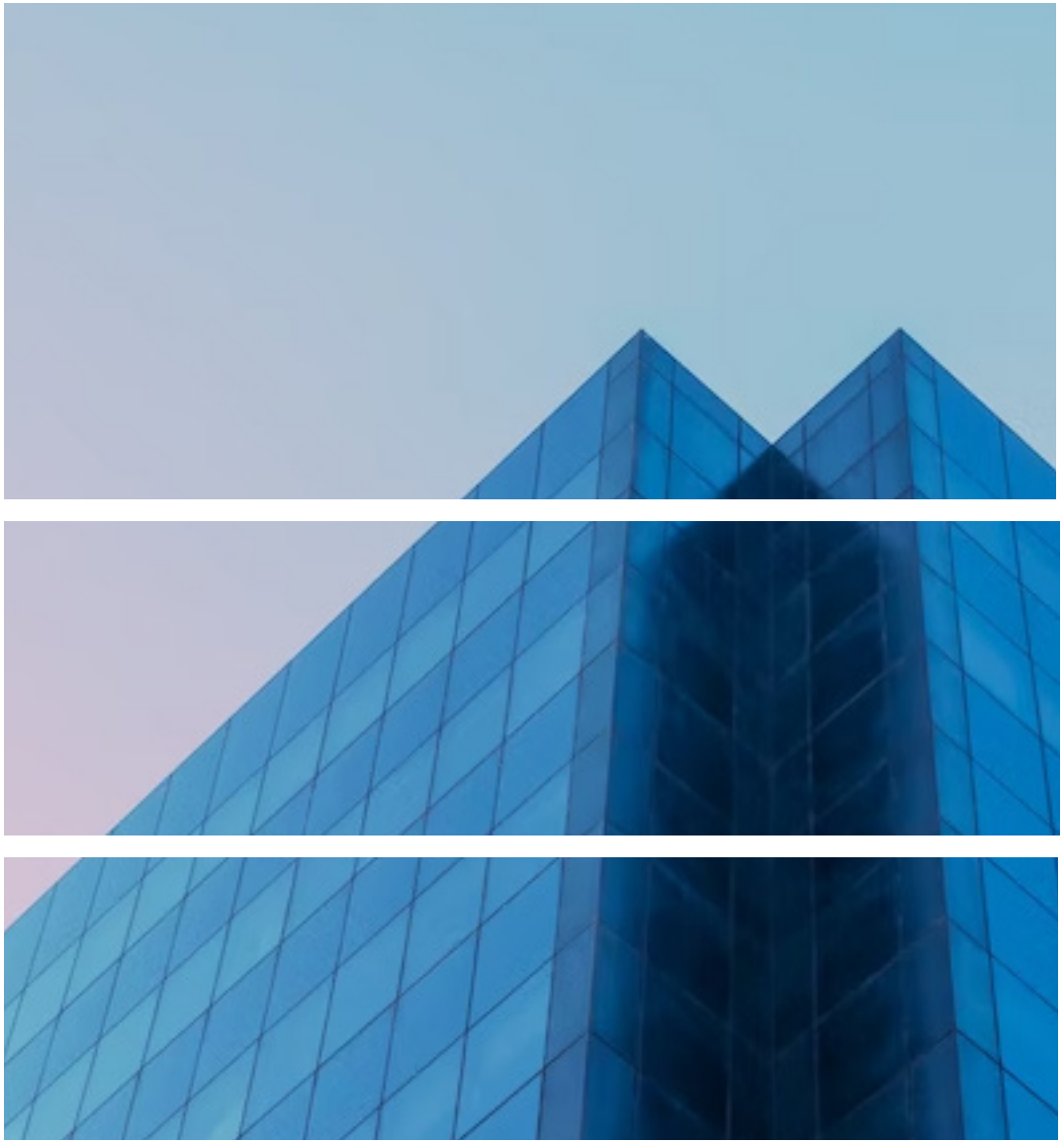
Disability



No
Yes
PNTS

Gender

26%	69%	0%	5%
Female	Male	Non-Binary	PNTS

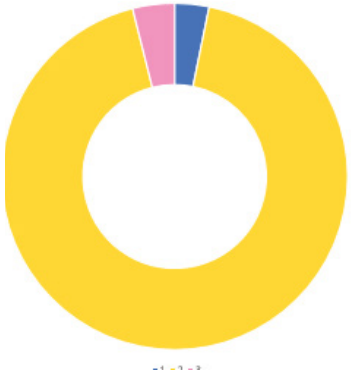


Diversity & Inclusion | Student.

Ethnicity

Asian
Black
Arab
White
Mixed
Other
PNTS

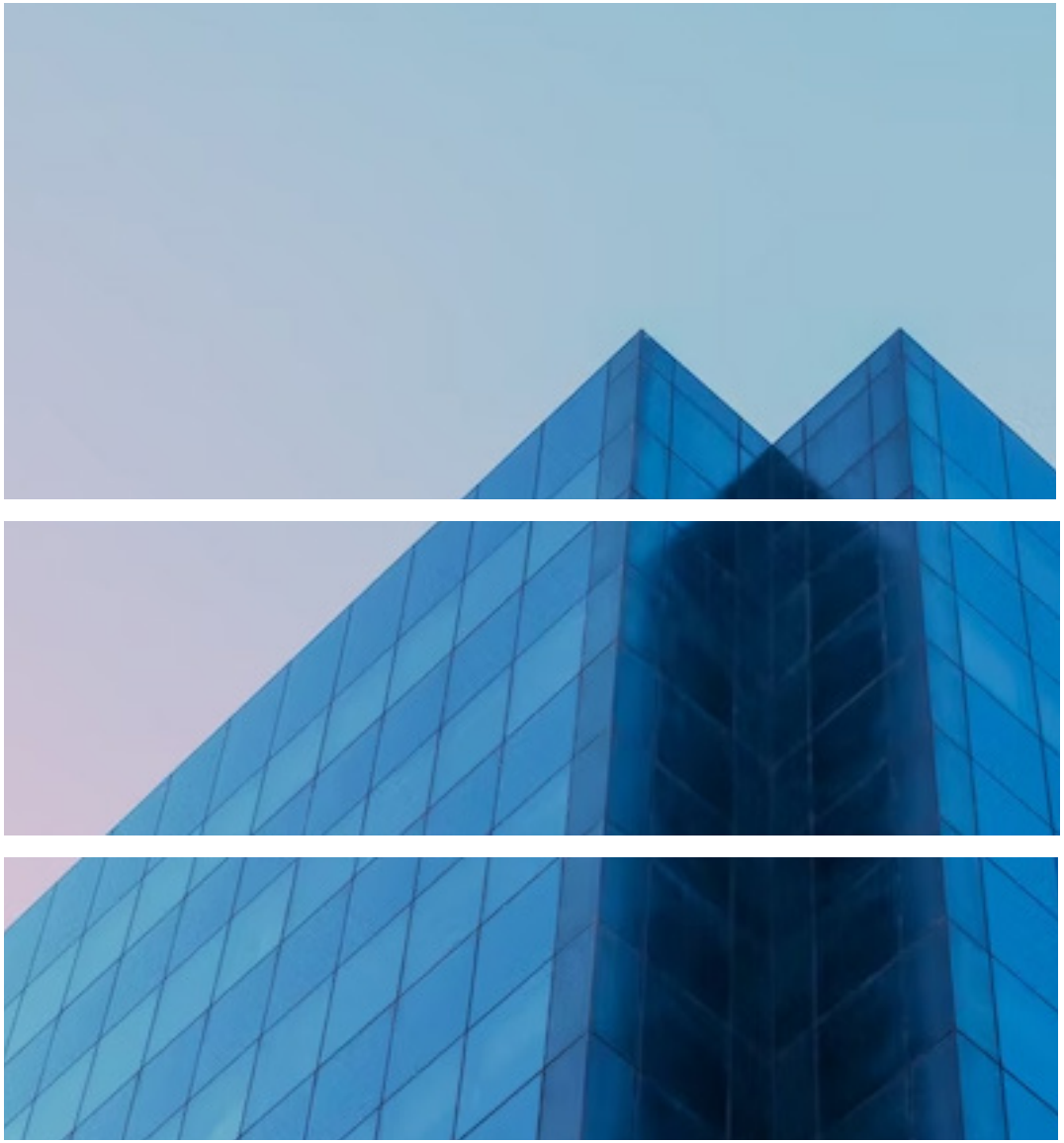
Disability

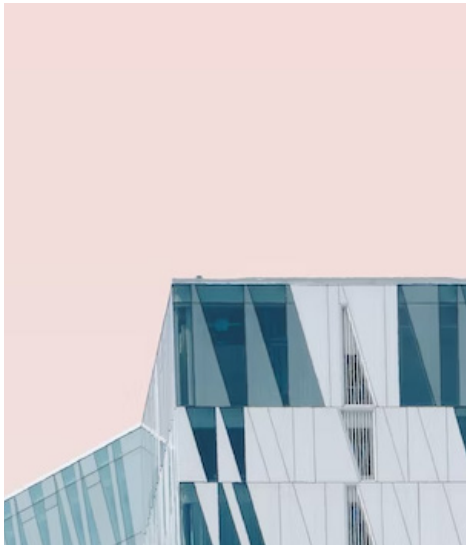


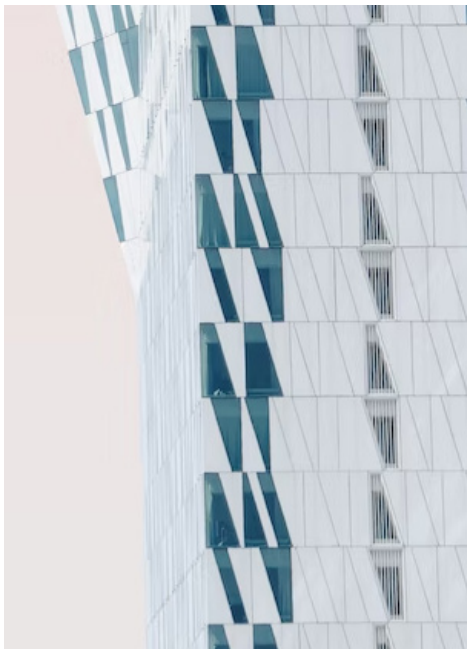
No
Yes
PNTS

Gender

31%	65%	1%	3%
Female	Male	Non-Binary	PNTS







De-correlated Analysis.

The following pages are de-correlated analysis of the salary data from Jeremy Keating of errars.com

Jeremy Keating FIA is a programming and data expert. His company errars.com does bespoke programming for pricing, underwriting, actuarial, and insurance in all common languages and systems.

Including SAS, SQL, R, Python, Radar, Akur8, Emblem, and more... Recent projects include:

- Cloud migration of the entire underwriting and pricing process for reserving, MI, burning cost and demand data, and scoring including conversion from SAS to SQL
- Creating FCA reporting during and after a new cloud migration
- Automation of processes that produce underwriting data and MI across delegated authority commercial and personal lines
- Read in, processing and actionable MI from unstructured conduct risk data
- SQL to SAS conversion and automation of undocumented underwriting processes
- Production of value measures, reporting remedy and product governance requirements

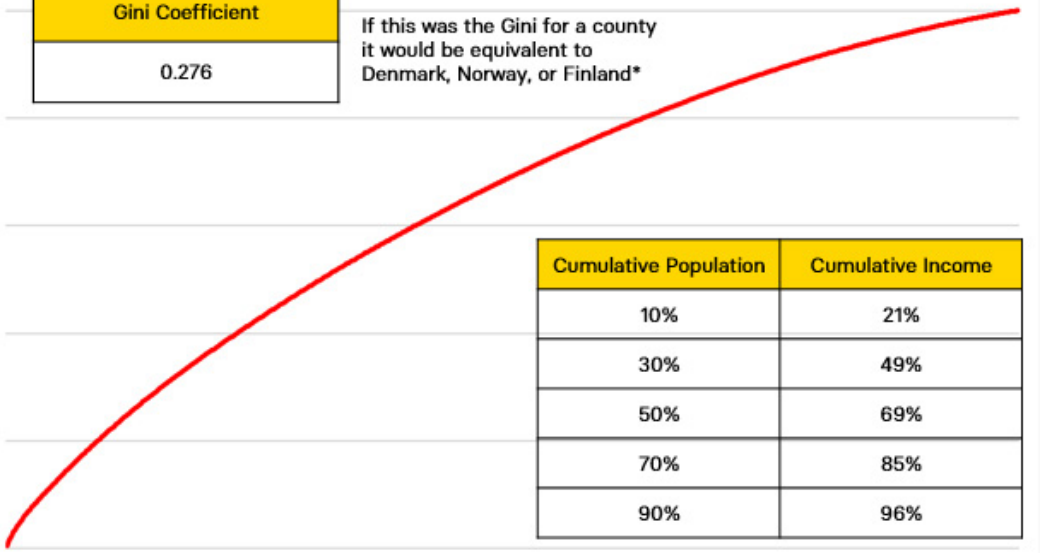
Errars can correctly convert processes between languages and environments (for example SAS to anything else) with little direction and specifications. Jeremy is passionate about problem solving and has for many years been researching the problems encountered by actuaries, underwriters, and others working in all forms of insurance. Do get in contact jeremy@errars.com

Descriptive Statistics and Gini.

Gini Curve of Actuarial Salaries

Gini Coefficient
0.276

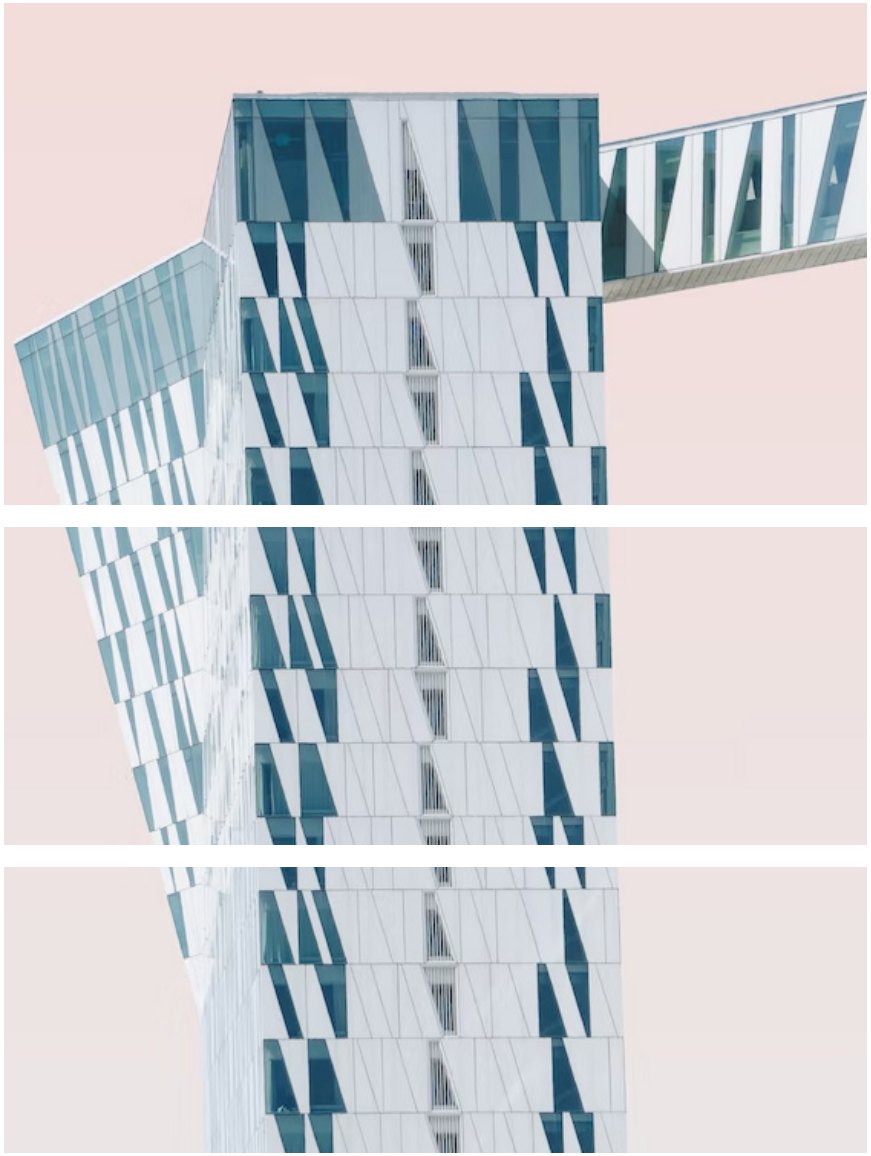
If this was the Gini for a county it would be equivalent to Denmark, Norway, or Finland*

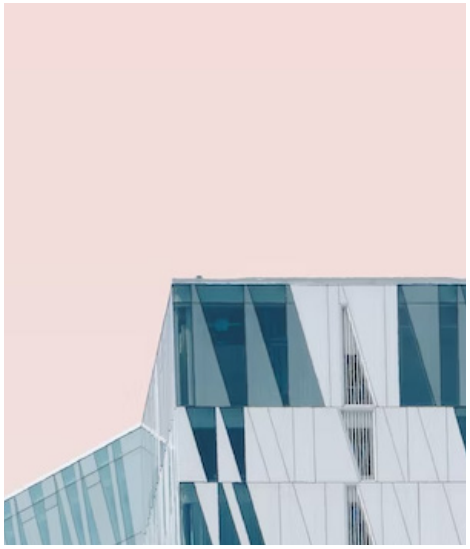


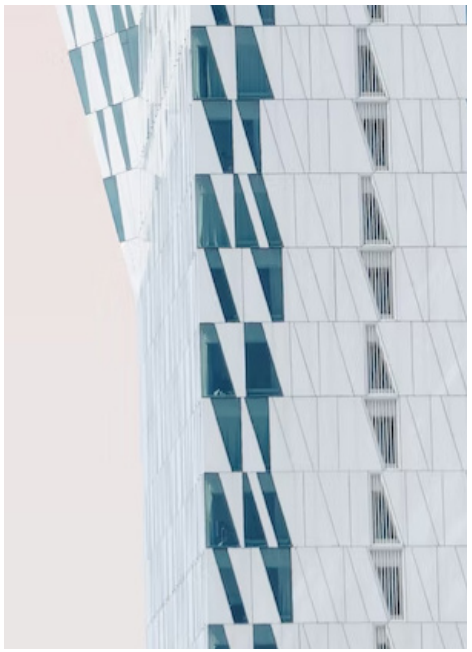
Cumulative Population	Cumulative Income
10%	21%
30%	49%
50%	69%
70%	85%
90%	96%

Location	Salary
1%	£33,000
25%	£63,000
Median	£90,000
Mean	£101,214
75%	£125,000
99%	£300,000

*https://data.worldbank.org/indicator/SI.POV.GINI







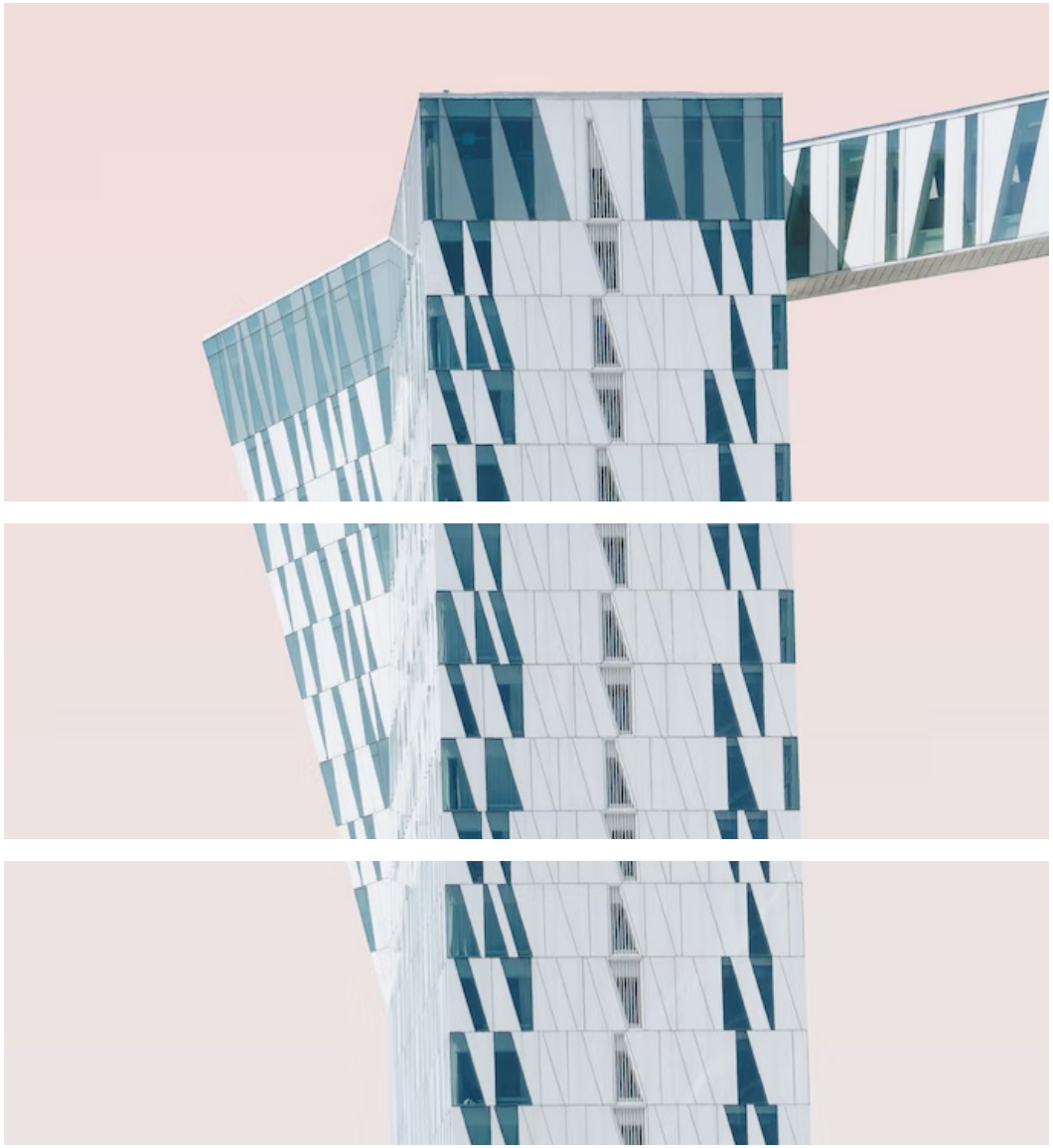
Overview.

In order to understand the salary data, I analysed it with a GLM. As the purpose was understanding and not prediction, I did not split out samples. These results are on the next few pages.

I have also fitted predictive GLM, GBM, and neural network models using in and out samples. These results are at the end.

Initial Analysis.

Factor	Chi-Square	Pr > ChiSq
Year Stared Career	287.4	<.0001
Year Qualified	71.2	<.0001
Work Area	62.9	<.0001
Location	55.9	<.0001
People Managed	47.8	<.0001
Moved Job	12.5	0.0019
Starting Salary	70.2	0.0022
Gender	14.5	0.0060
Specialism	8.4	0.1342
Ethnicity	25.6	0.1810
In Office	6.8	0.2376
Disabled	2.6	0.4657
Manager	0.4	0.5403
Qualified Actuary	0.0	0.8399

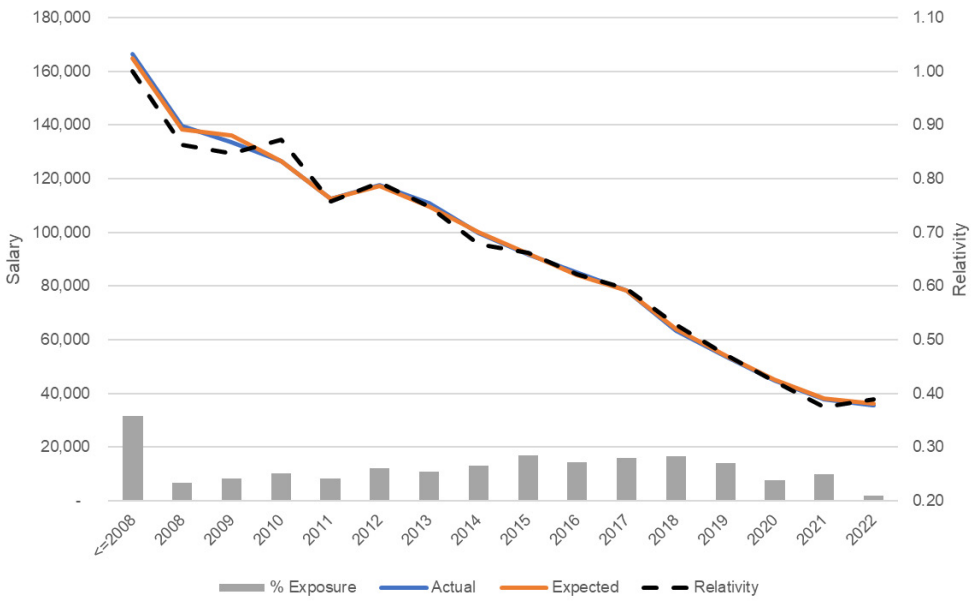


Summary

I fitted and initial GBM using all the factors and then assessed their fit and significance. In the end I choose for my model the five factors which had the most significance on the Chi test.

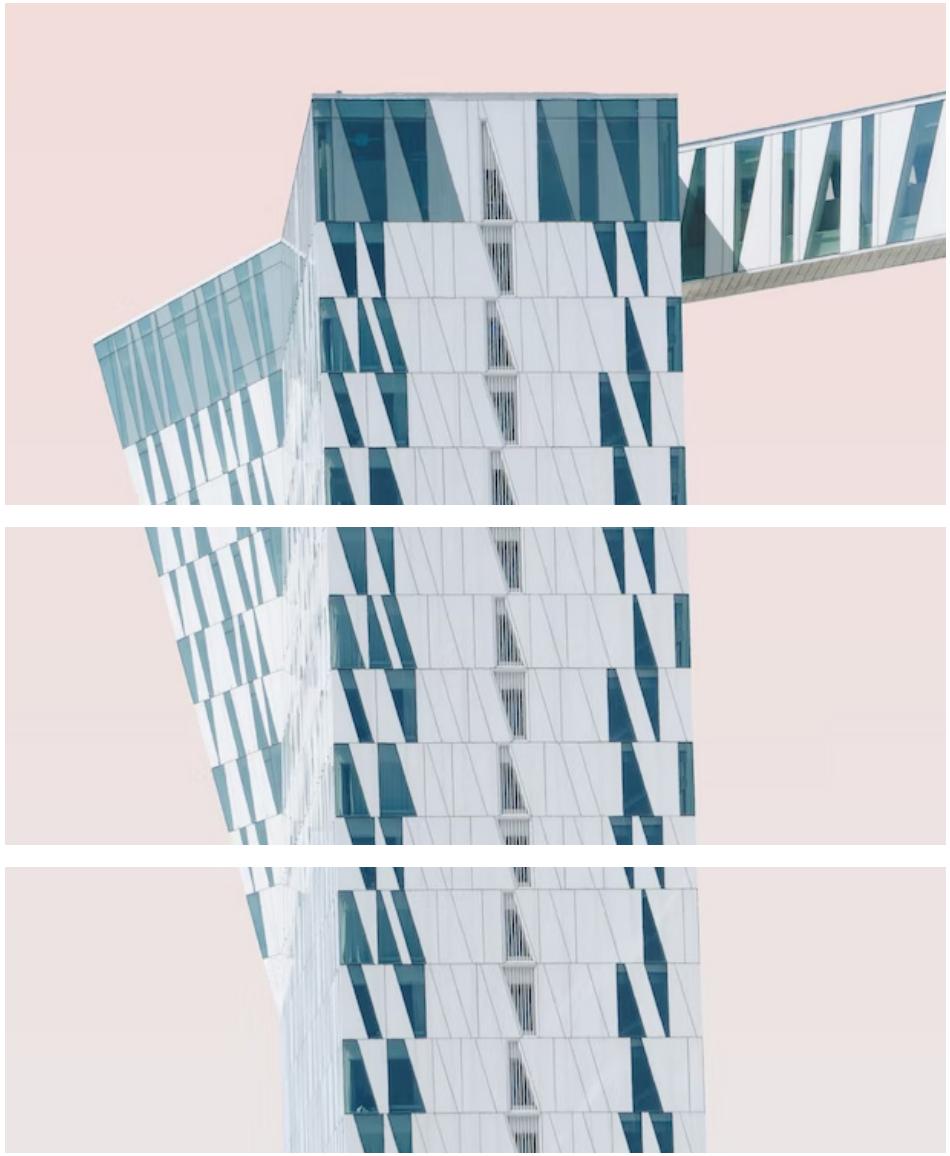
The next pages show the fitted factors and then the excluded factors.

Year Started Career.

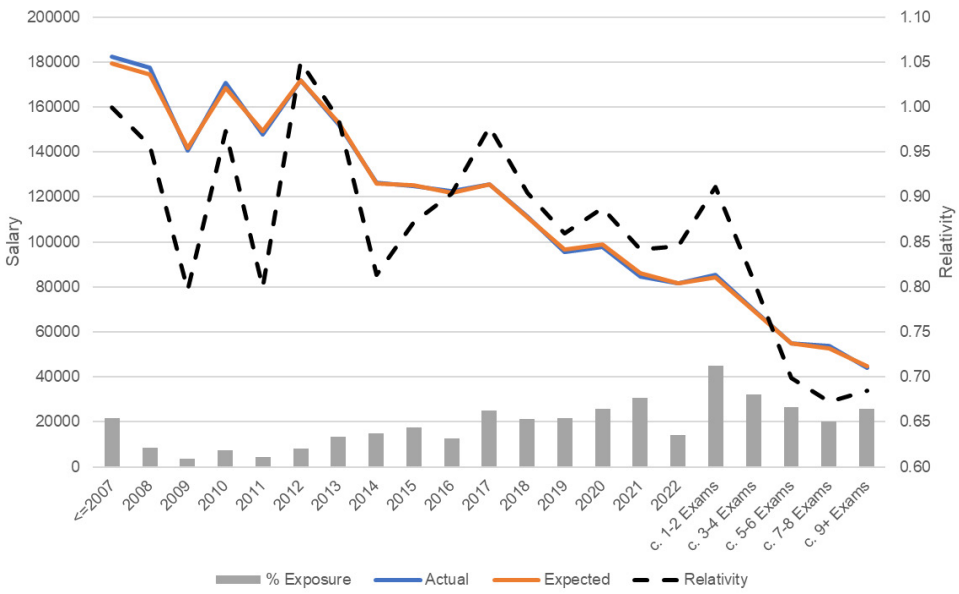


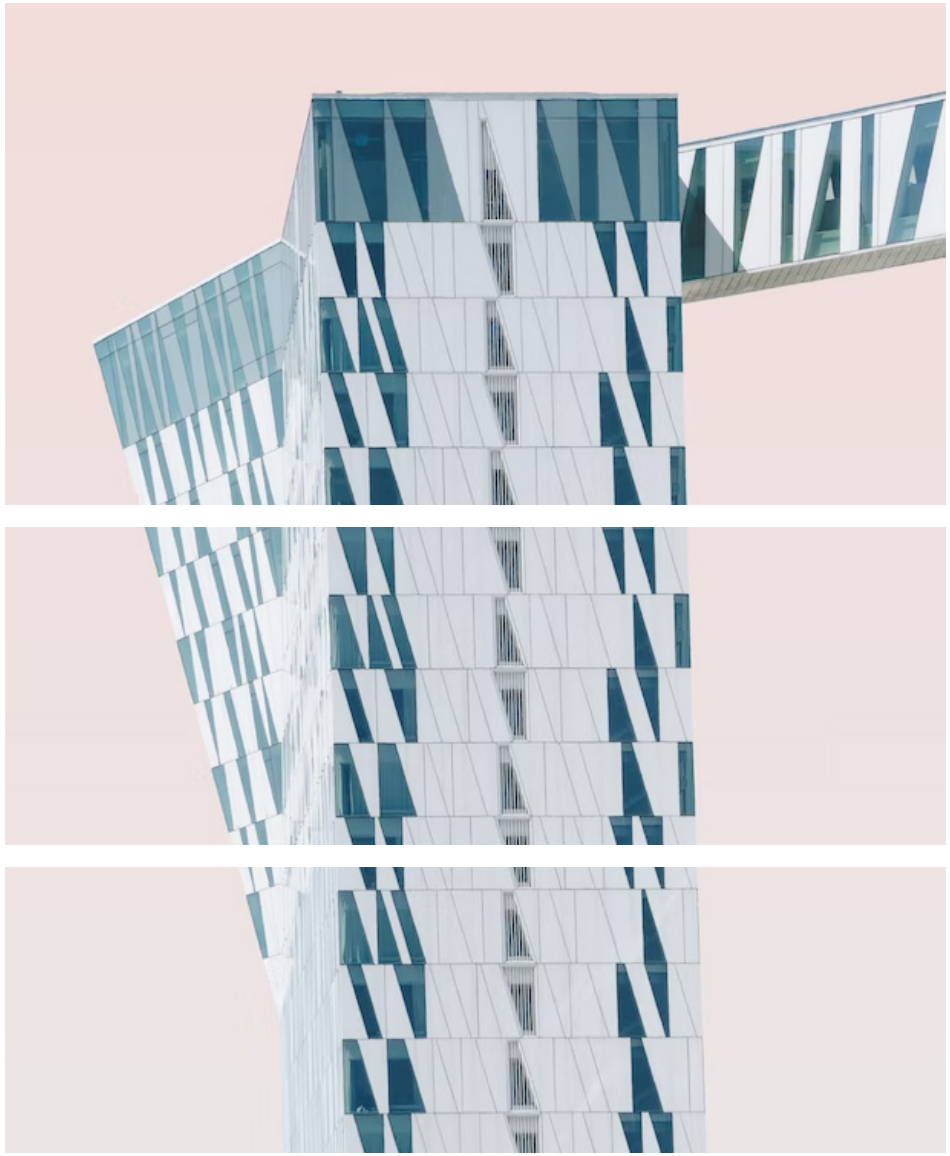
Summary

This is clearly the strongest factor in explaining the salary data.



Year Qualified or Exams Remaining.



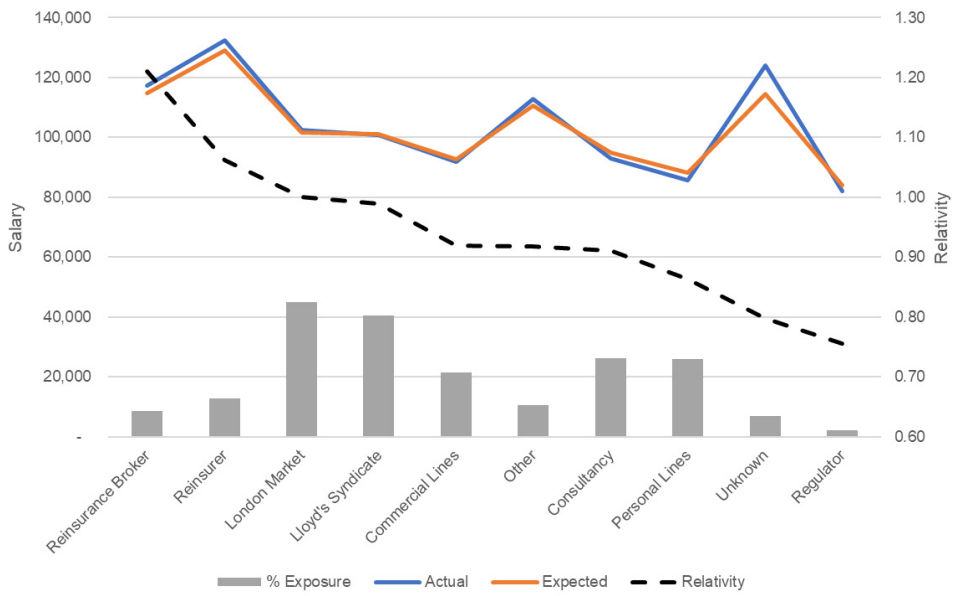


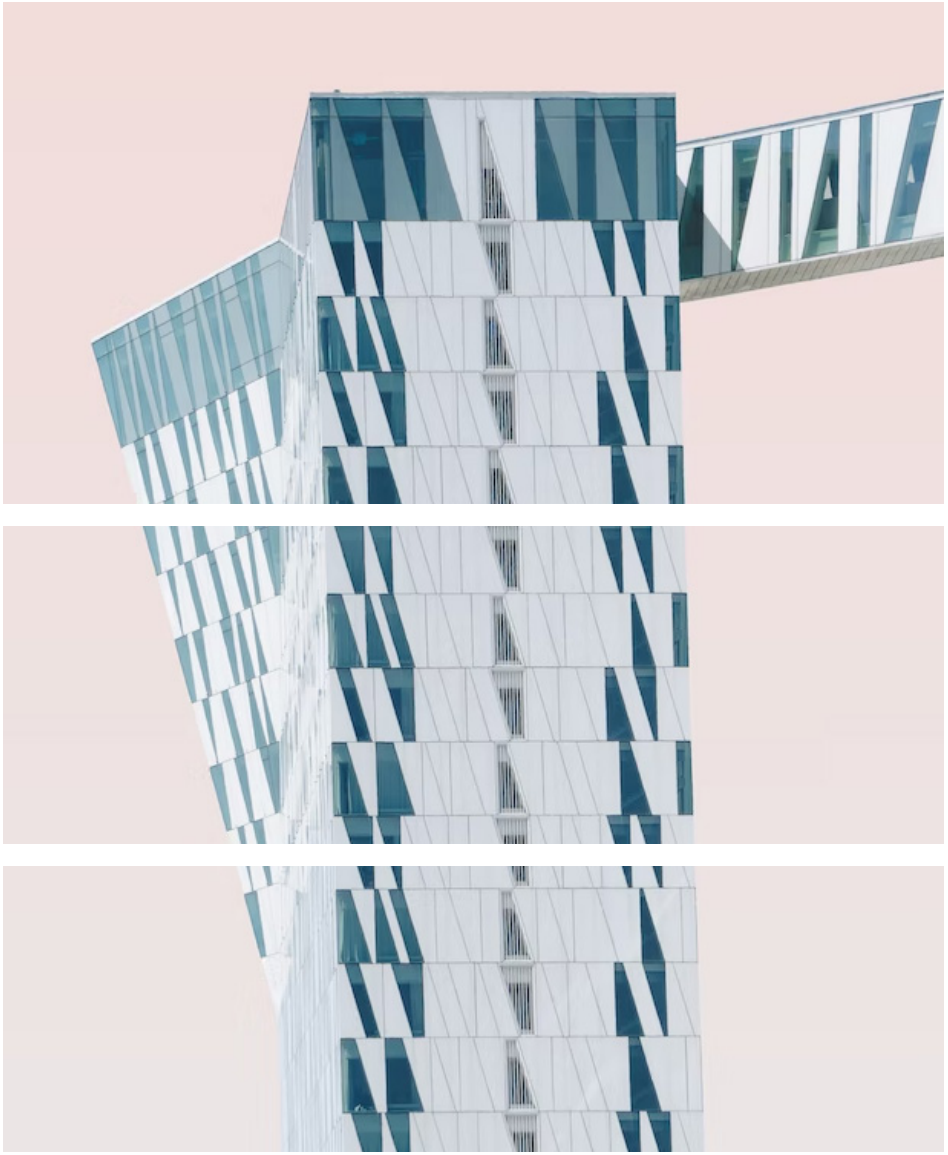
Summary

The actuals shows an impact all the way back through time.

But the decorrelated is only really imported for recent qualifications and those part way through studying.

Work Area.



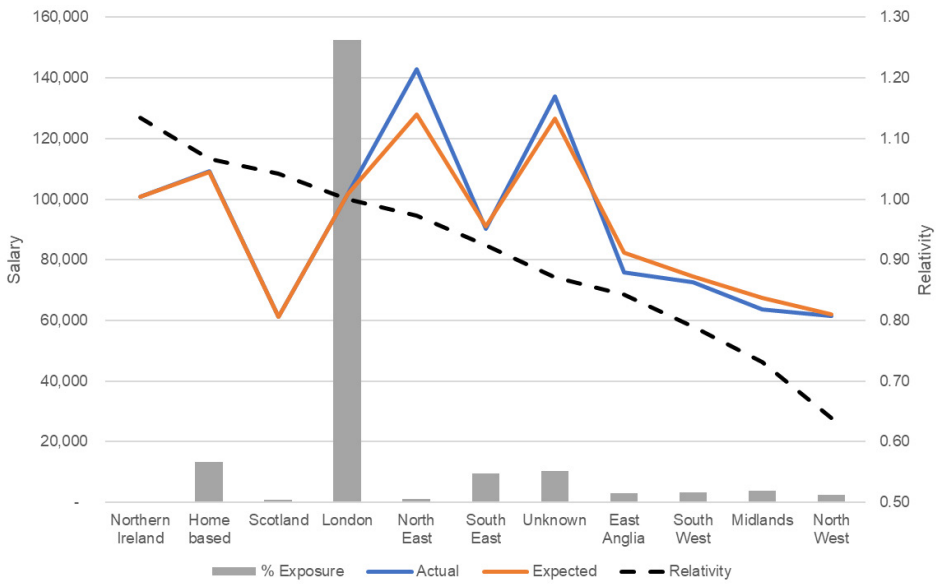


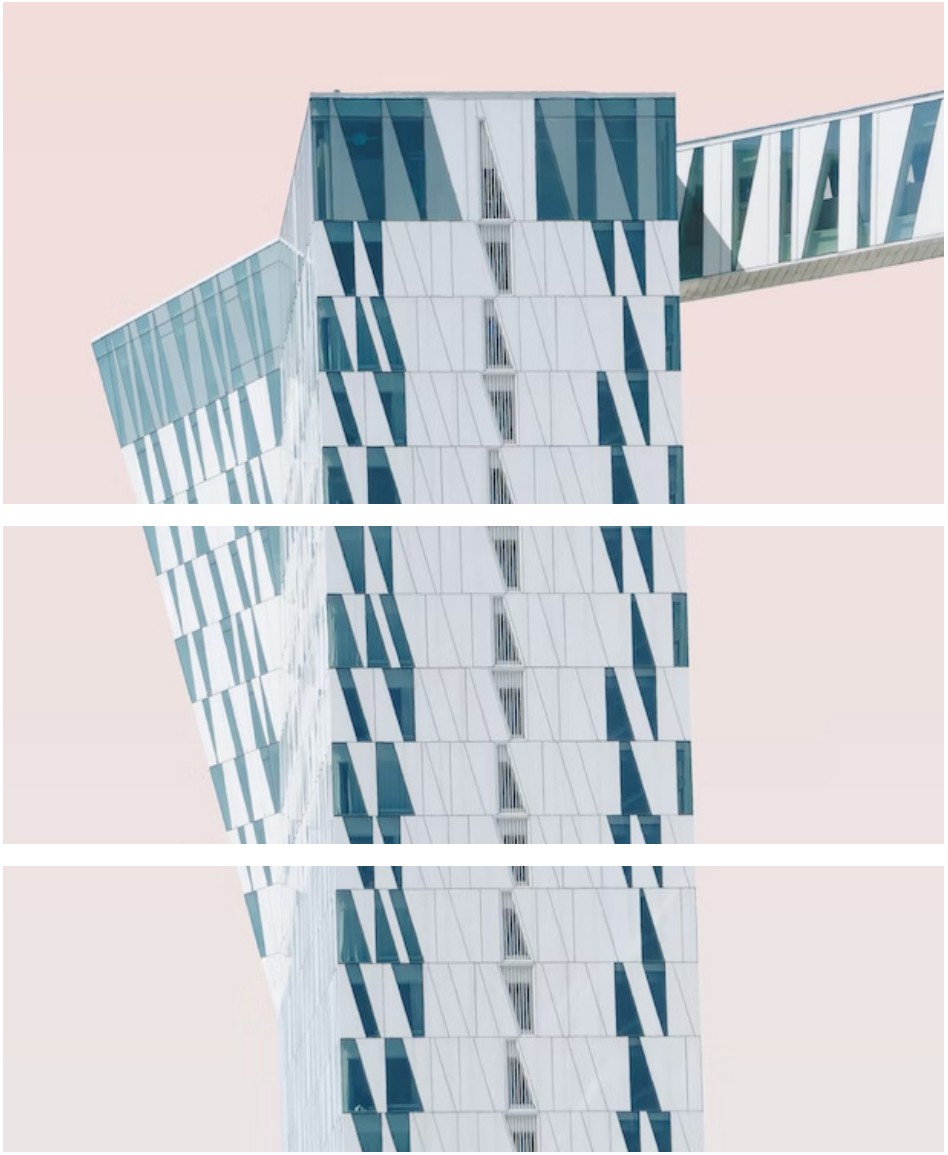
Summary

This shows a strong relationship.

Reinsurance offering the highest salaries, followed by London Markets and Lloyds, with personal lines and the regulator at the lowest end.

Location.





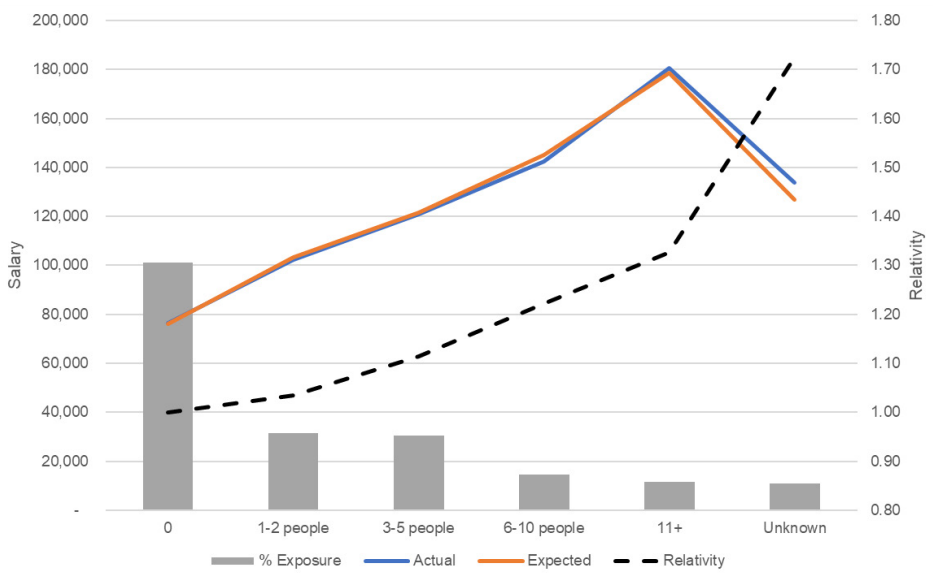
Summary

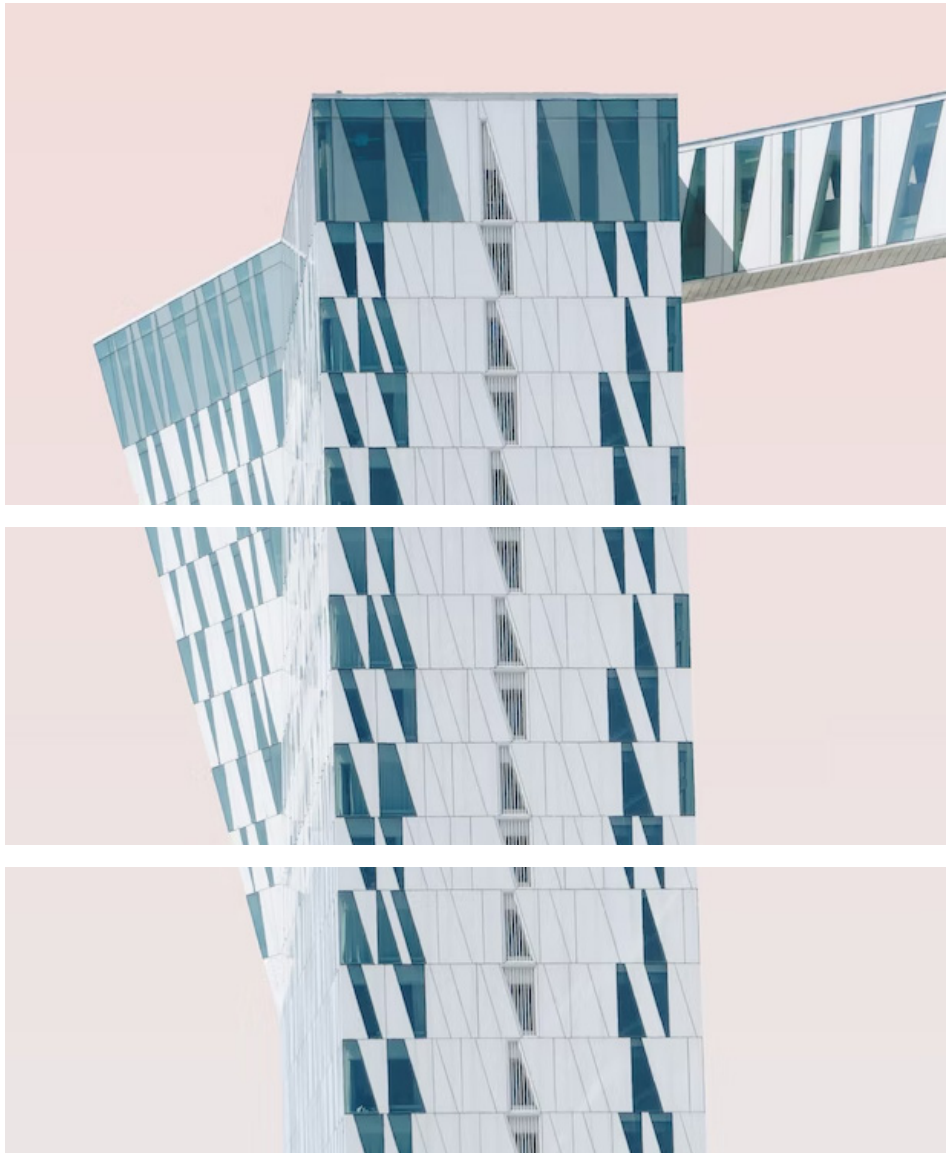
London dominates the sample (c. 75%)

Some levels potentially have too little exposure and in a larger analysis would be grouped.

For the areas with exposure the de-correlated is a expected. With the possible exception of Home based which may be is surprisingly high. This could be related to specialist skills.

People Managed.



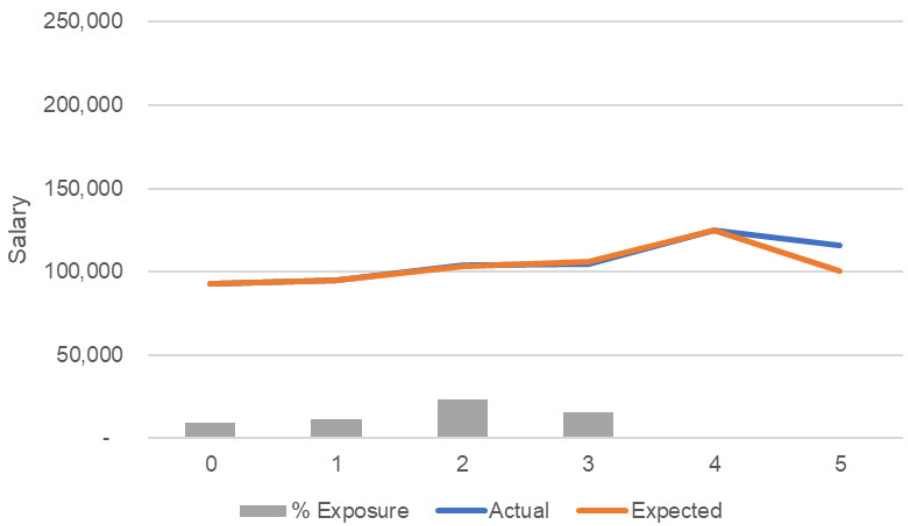


Summary

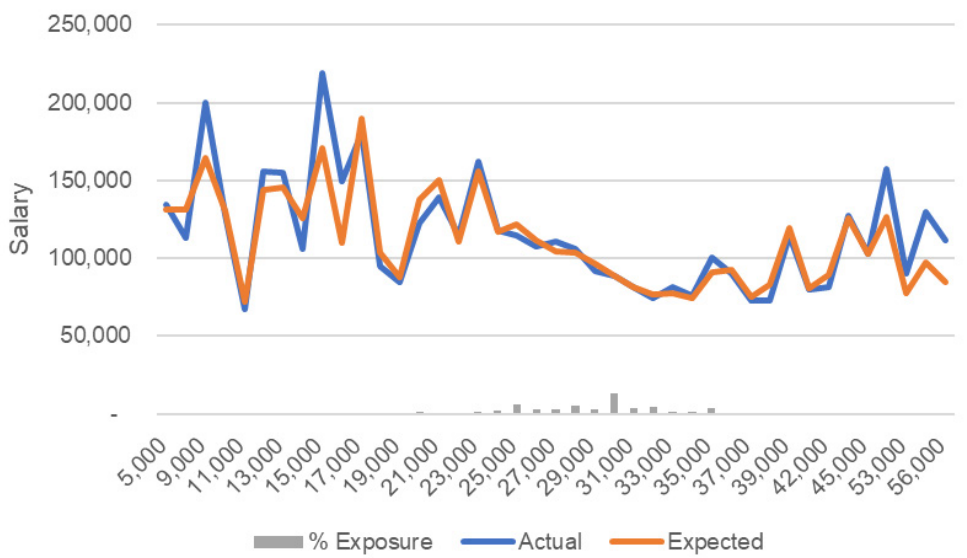
A clear progression upwards based on number of people managed.

Excluded Factors 1.

Days in the office



Starting salary



Summary

The actual versus expected from the model are shown for these two excluded factors.

Generally the model does explain the variation in these dimensions without needing them as a factor.

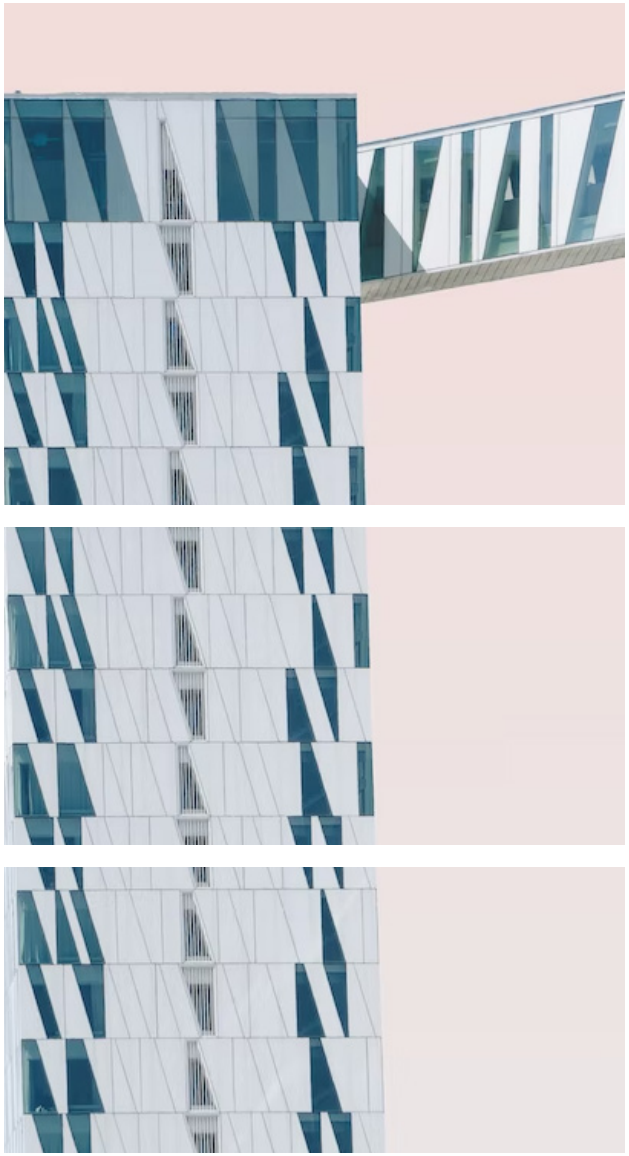
Days in the office does show an upwards trend. But the exposure for 4 and 5 days is fewer than 30 people (<4%)

The overall effect is described by other factors including the inclusion of Home based in the Location factor.

Excluded Factors 2.

Work Area	Actual	Expected	% Error	% Exposure
Risk	£132,000	£122,000	-8%	15%
Capital Modelling	£102,000	£105,000	3%	30%
Reserving	£98,000	£100,000	2%	5%
Pricing	£96,000	£95,000	-1%	1%
Validation	£95,000	£103,000	8%	3%
Other	£111,000	£108,000	-3%	38%
Unknown	£124,000	£114,000	-8%	7%

Disability	Actual	Expected	% Error	% Exposure
No	£99,000	£100,000	1%	85%
Yes	£94,000	£89,000	-6%	2%
Prefer not to say	£115,000	£102,000	-11%	4%
Unknown	£114,000	£110,000	-3%	10%

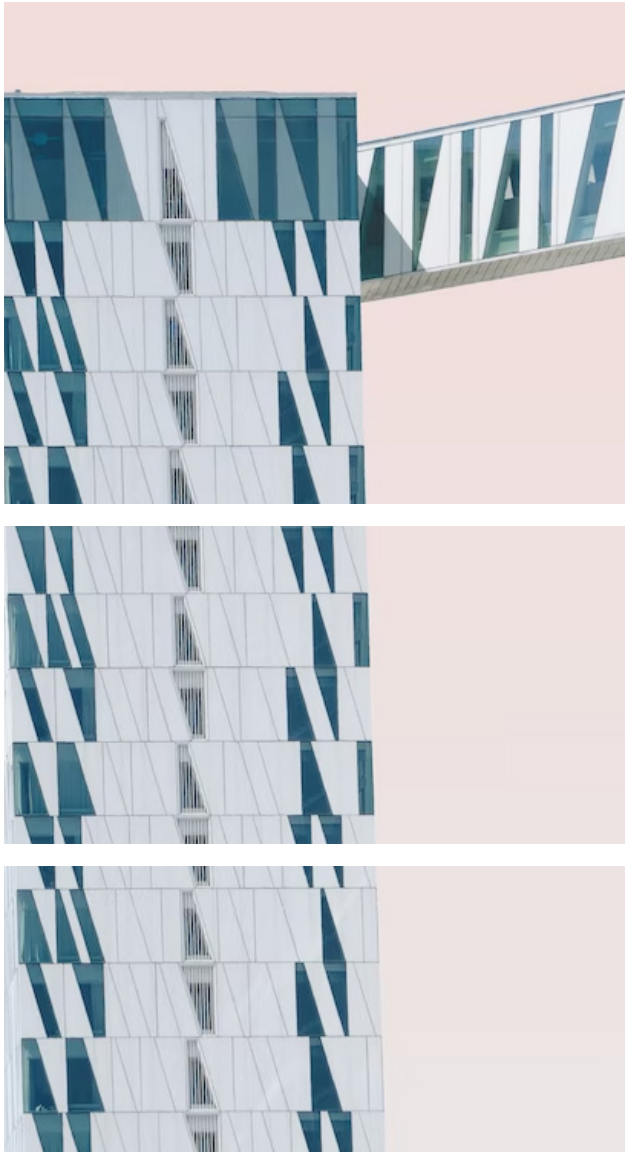


Summary

It maybe somewhat surprising that specialism does not appear to matter. The values are largely as one would expect but the levels are explained by the included factors.

Excluded Factors 3.

Gender	Actual	Expected	% Error	% Exposure
Non-Binary	£120,000	£109,000	-9%	0%
Male	£100,000	£101,000	1%	61%
Female	£94,000	£98,000	4%	25%
Prefer not to say	£125,000	£108,000	-14%	4%



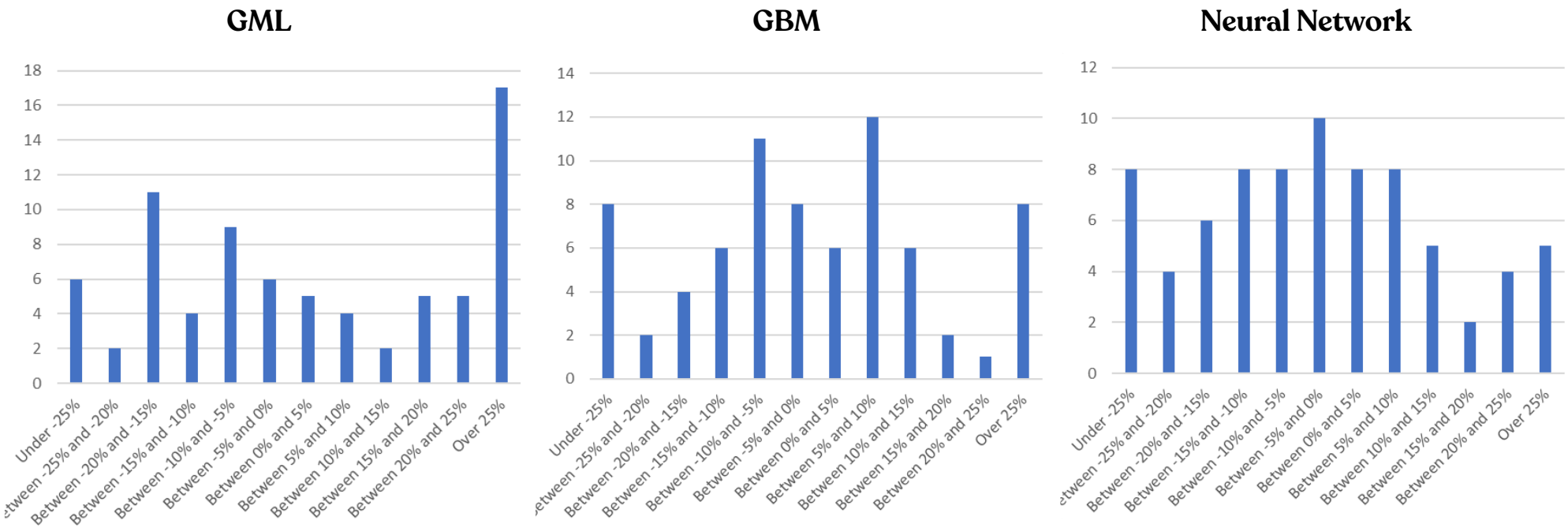
Summary

There is a 6% difference in salary between men and women. After decorrelation this is about 3%

Excluded Factors 4.

Ethnicity	Actual	Expected	% Error	% Exposure
Other Black Background	£230,000	£166,000	-28%	0%
Other Mixed Background	£122,000	£139,000	14%	1%
Asian or Asian British- Indian	£104,000	£99,000	-5%	15%
Chinese	£104,000	£99,000	-5%	2%
White - Irish	£103,000	£104,000	1%	4%
White - English/Welsh/Scottish/Northern Irish/British	£102,000	£103,000	1%	40%
White - Any other White background	£99,000	£105,000	6%	8%
Asian or Asian British- Pakistani	£86,000	£98,000	14%	1%
Asian or Asian British- Bangladeshi	£85,000	£82,000	-4%	0%
Black or Black British- Caribbean	£85,000	£73,000	-14%	1%
Other Asian Background	£84,000	£85,000	1%	2%
Asian or Asian British- Chinese	£83,000	£89,000	7%	4%
Gypsy or Traveller	£75,000	£75,000	0%	0%
Black or Black British- African	£74,000	£75,000	1%	2%
Arab	£73,000	£77,000	5%	1%
Mixed - White and Asian	£71,000	£82,000	15%	2%
Other Ethnic Background (please specify)	£71,000	£74,000	4%	1%
Mixed - White and Black Caribbean	£67,000	£60,000	-10%	1%
Prefer not to say	£119,000	£109,000	-8%	6%
Unknown	£113,000	£109,000	-4%	10%

Predictive GLM, GBM and Neural Network.



Summary

As noted I also fitted predictive models using three common structures. The charts are the distribution of errors from a 10% validation sample.

The absolute error for each model was: 8% GBM, 5% GLM, and 10% NN.

GLM had the most outliers and NN had the fewest.

GBM had the lowest MSE, GLM and NN had nearly the same.

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