Improving Public Confidence in Gender Pay Gap Reporting
- The RSS' 10 Recommendations -

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Royal Statistical Society Conference, Belfast, September 2019

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Timeline - April 2018 to August 2018

April 2018 – Publication of first round gender pay gap data for all 10,500 employers with 250+ employees based on April 2017 payroll. You can search and download this data from **www.gender-pay-gap.service.gov.uk**

May 2018 – I decide to start blogging about GPG data as I am always on the lookout for publicly available data of topical interest to be used in my training courses **www.marriott-stats.com/nigels-blog/category/diversity**

June 2018 – I realise GPG data contains numerous errors and estimate **1 in 10 employers have made errors in their submitted GPG data**. In addition to blogging, some specialist magazines in the HR field publish some of my articles about these issues.

August 2018 – I publish a blog post "***12 ways to improve public confidence in gender pay gap data***" and approach the RSS about how to bring these concerns to the attention to government bodies responsible for GPG regulation. We begin a collaboration to produce a report in the RSS' name.

Timeline - April 2019 to August 2019

April 2019 – RSS publishes its report "***10 Proposed Reforms to Gender Pay Gap Reporting***" to coincide with the 2nd round of GPG data published by 10,500+ employers in the UK based on April 2018 payroll data. RSS Policy Team led by Iain Wilton approach 30+ parliamentarians with their report.

June 2019 – The RSS nominates me to testify to the **Treasury Select Committee** in Parliament about the "***Effectiveness of Gender Pay Gap Reporting***".

July 2019 – It is now clear there political will for ethnicity pay gap reporting. For statistical, data & ethical reasons, **I am opposed to replicating the GPG process for ethnicity** and will seek RSS support to push for an alternative EPG process.

August 2019 – **Significance** publishes my article "***Gender Pay Gaps – A Median Sized Problem***" which explores RSS recommendations #2 & #6 in more depth.

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Recommendations 1 to 3
- A Clearer, More Consistent System -

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1. Gender pay data should be presented in a clearer and unambiguous format, always in pounds and pence, not percentages

- Already implemented in part on **www.gender-pay-gap.service.gov.uk**

- **Employers still have to submit %s though.** So if median man earns £18ph & median women £16ph, they could calculate -
  - ☐ **(18-16) / 18 = +11%**
  - ☐ *(18-16) / 16 = +12.5%*
  - ☐ *(16-18) / 18 = -11%*
  - ☐ *(16-18) / 16 = -12.5%*
  - ☐ *OR 16/18*

Hourly wages pay gap

In this organisation, **women earn 89p** for every **£1** that men earn when comparing median hourly wages. Their median hourly wage is **11.2% lower** than men's.

UK Statistics Authority

Women | Men

11p less
⌄

89p | £1

My experience of training non-statisticians is that most HR professionals lack basic stat skills

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2. Improve government guidance to employers, especially over the calculation of the median gender pay gap

- *"The median hourly rate is calculated by ranking all employees from the highest paid to the lowest paid and taking **the hourly wage of the person in the middle**".* (**Gender-Pay-Gap.Service .GOV**)

- *"A **median averag**e involves listing all of the numbers in numerical order. If there is an odd number of results, **the median average is the middle number**. If there is an even number of results, the median will be the mean of the two central numbers".* (**ACAS Guidance P11**)

- *"Median is the **middle hourly pay rate**, when you arrange your **pay rates** in order from lowest to highest".* (**Equalities & Human Rights Commission**)

- I have found out that the source of the issue is the parliamentary legislation i.e. **Equality Act 2010** uses this terminology.

3. Similarly, improve the government guidance to employers over the use of Income Quartiles

UK Statistics Authority
Hourly Earnings by Gender in 2018

🕴 For every £1.00 the median man earned in 2018, the median woman earned £0.89

🕴 55% of employees in 2018 were women

Upper Income Quartile 55% 45%

Upper Middle Income Quartile 49% 51%

Lower Middle Income Quartile 39% 61%

Lower Income Quartile 38% 62%

- If you think the guidance for Medians is bad, it gets worse for **Income Quartiles** which are in fact **Income Quarters**!
  - ❑ Personally I don't think it is worth trying to get this renamed.
  - ❑ It's more important that the concept is understood.

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Recommendations 4 to 5
- Increased Accuracy Via Free Online Tools -

4. Provide free online calculators to help increase the accuracy of gender pay gap reporting.

- This would eliminate a lot of issues covered by recommendations 1 to 3.

5. Ensure that .GOV reporting portal have built-in 'sanity checks', to ensure accurate reporting and prevent statistically implausible entries.
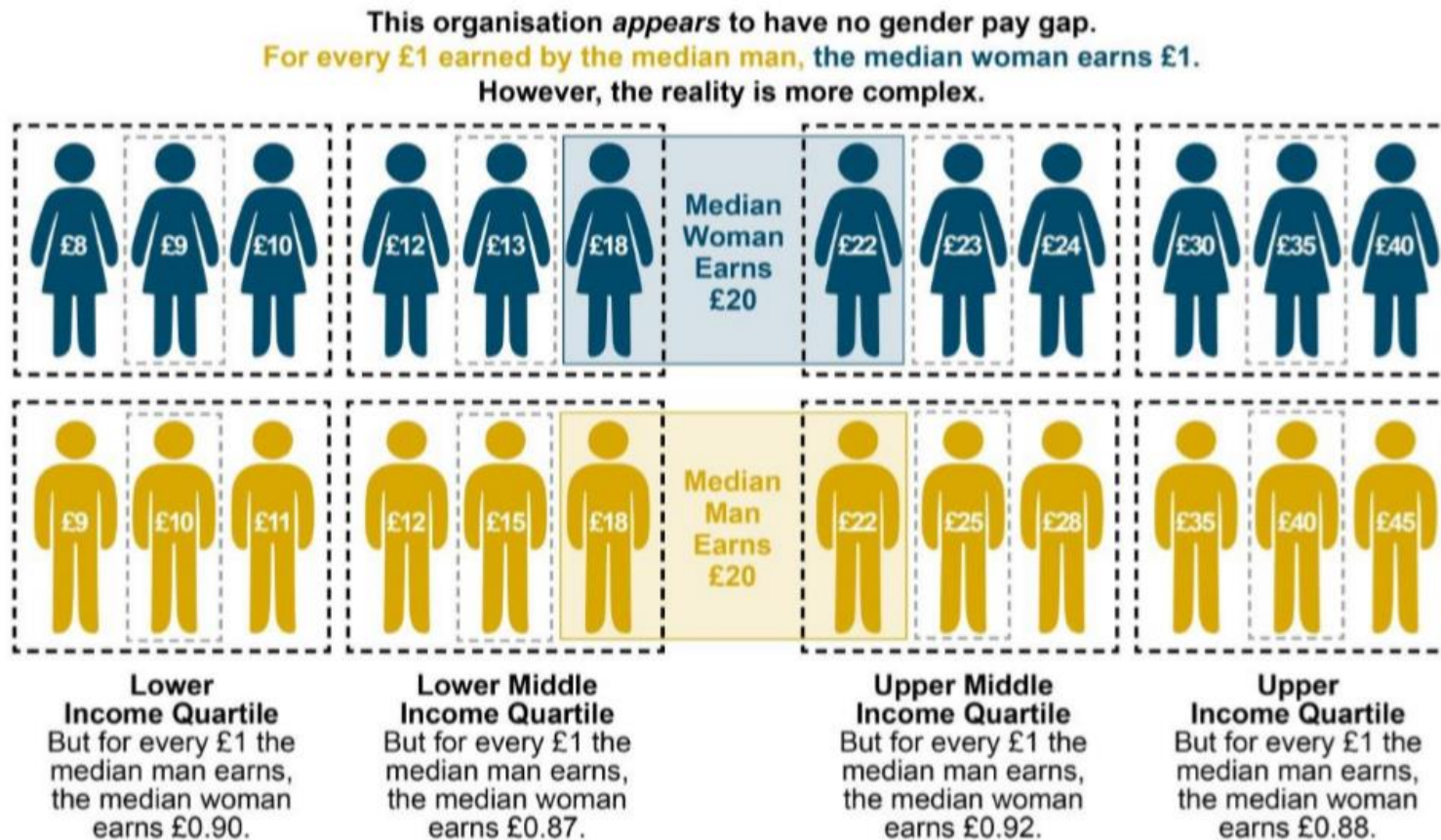
- The site where employers have to submit their data is not user friendly and lacks statistical sanity checks.
- Have since discovered that the process for submitting for submitting bonus gaps is back to front.

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Recommendations 6 to 7
- Protecting the Systems Integrity -

6. The gender pay gap should be calculated by quartile as well, to make it harder for the system to be 'gamed'.

This organisation *appears* to have no gender pay gap.
For every £1 earned by the median man, the median woman earns £1.
However, the reality is more complex.

Median Woman Earns £20

Median Man Earns £20

Lower Income Quartile	Lower Middle Income Quartile	Upper Middle Income Quartile	Upper Income Quartile
But for every £1 the median man earns, the median woman earns £0.90.	But for every £1 the median man earns, the median woman earns £0.87.	But for every £1 the median man earns, the median woman earns £0.92.	But for every £1 the median man earns, the median woman earns £0.88.

- Once a statistic becomes mandatory, there is an incentive to game.

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7. Publish each employer's annual results, side-by-side, to make it easy for trends and progress to be assessed.

UNILEVER U.K. CENTRAL RESOURCES LIMITED
Changes Between 2017 and 2018

Pay Gaps	2017	2018	YoY	Unusual?	Max
Median Woman's Earnings	£0.85	£1.03	£0.18	Definite	£0.15

FemIncQuarGap = %F UppIncQ + %F UMidIncQ - %F LMidIncQ - %F LowIncQ

	2017	2018	YoY	Unusual?	Max
Female Income Quartile Gap	-28%	8%	36%	Possible	39%
Diff betw Median GPG & FIQG	14%	5%		No	54%

Why is the FIQG useful? Read this post (point #4)

%Employees who are Women	2017	2018	YoY	Unusual?	Max
All Employees	55%	48%	-8%	Possible	9%
Upper Income Quartile	44%	51%	6%	No	18%
Upper Middle Income Quartile	52%	48%	-4%	No	18%
Lower Middle Income Quartile	62%	50%	-12%	No	18%
Lower Income Quartile	63%	41%	-22%	Definite	18%
Quartile Slope (change per Q)	-7%	3%	9%		

Have Silly Numbers Been Entered in 2018 for …?

Median Gender Pay Gap	No
Median Gender Bonus Gap	No

- Screenshot is from **my own spreadsheet of GPG data which you can download**.
- I have built a model to estimate thresholds for unusual year on year changes that require explanation.
- Here, Unilever had moved a number of employees from this business unit to Unilever UK Ltd.

Recommendations 8 to 10
- Safeguarding Smaller Employers -

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8. Organisations which employ fewer than 100 women (or men) should be flagged

- A pay gap is a 2-Sample Comparison and it not difficult to show as I did in my blog post *"Life on Mars"* that the confidence intervals for the pay gap becomes unacceptably large once the sample size of one sample becomes small.

- We statisticians are of course trained to draw inference from small samples but HR Professionals who are on the front line of gender pay gap analysis are not.

- By putting an automatic flag in the **www.gender-pay-gap.service.gov.uk** portal for when sample size of one group is less than 100, I believe this will give small employers some protection from unfair accusations.

Perfectly Equal Simulation Ltd - For Every £1 a man earns, a woman earns

# Employees	Prop Women	95% Conf Int	
		LCI	UCI
300	1 in 2	£0.87	£1.15
300	3 in 8	£0.81	£1.17
300	1 in 5	£0.70	£1.25
300	1 in 10	£0.65	£1.45
2700	1 in 2	£0.96	£1.04
2700	3 in 8	£0.96	£1.04
2700	1 in 5	£0.96	£1.06
2700	1 in 10	£0.95	£1.06

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9. Keep the current reporting threshold at 250 employees

- The Business, Energy & Industry Select Committee called for the threshold for reporting to be lowered to 50+.
- Obviously from the confidence intervals shown on the previous slide, this is a complete non-starter in terms of statistically reliable data and **I so testified to Treasury Select Committee in June**.
- This issue will be magnified if Ethnicity Pay Gap reporting becomes a reality.

10. Improve statistical skills among human resources professionals.

- ## HR needs you!!!!