

# Navigating numbers: Gender pay gap

## Student toolkit

Explore the concept of gender pay gaps using real-world data from the Annual Survey of Hours and Earnings (ASHE) dataset.



# Contents

## Overview

## Project briefs

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### Maths: Data analysis and visualisation

- Summary and learning objectives
- Getting started on the brief
- Using the tools
- Things to think about

### Sociology: Attitudes and beliefs

- Summary and learning objectives
- Getting started on the brief
- Design your survey
- Using the tools
- Things to think about

### Geography: Geographical disparities

- Summary and learning objectives
- Getting started on the brief
- Using the tools
- Things to think about

# Overview

The gender pay gap is the difference in median pay between men and women. This measure does not take into account equal pay for equal work, and it is not a measure of pay discrimination.

Explore the concept of gender pay gaps, considering how and why they are measured. Use the Gender Pay Gap explorer tool and real-world data from the Annual Survey of Hours and Earnings (ASHE) dataset to examine data about earnings. You will be able to see trends, outliers and patterns in the data, and ultimately gain an understanding of disparities in pay between genders in the UK.



# Overview

## Featured tools and datasets

[Gender Pay Gap explorer](#): An interactive tool to find out the gender pay gap for different jobs, and the proportion of men and women who work in different fields.

[Annual Survey of Hours and Earnings \(ASHE\)](#): Conducted in April each year to obtain information about the levels, distribution and make-up of earnings and hours worked for employees. ASHE is based on a sample of employee jobs taken from HM Revenue & Customs PAYE records. ASHE does not cover the self-employed nor does it cover employees not paid during the reference period.



# Overview

## Additional resources

- [Gender pay gap in the UK: 2023](#)
- [IEA Article: Gender pay gap reporting produces another round of misleading statistics](#)
- [British Social Attitudes \(BSA\) paper: Women and work - Do attitudes reflect policy shifts?](#)
- [ONS: Understanding the gender pay gap in the UK](#)
- [ONS data: Income and wealth](#)
- [ONS data: Employment and labour market](#)
- [Nuffield Trust article: The gender pay gap in the English NHS: how does it vary by ethnicity?](#)
- [ONS data: Ethnicity pay gaps, UK: 2012 to 2022](#)





# Maths: Data analysis and visualisation

Your goal is to examine data about earnings to see trends, outliers and patterns in the data, and gain an understanding of disparities in pay between genders in the UK.

## Learning objectives

- Understand the concept of gender pay gaps and its implications.
- Gain proficiency in using statistical tools to analyse data.
- Develop skills in data visualisation techniques.
- Practice interpretation of data.



# Maths: Data analysis and visualisation

## Get started

Examples of questions to answer or hypotheses to test

- Gender pay gaps vary across different occupations, with some types of occupation exhibiting larger disparities than others.
- There is a regional variation in gender pay gaps, with certain regions showing higher levels of disparity compared to others.
- The gender pay gap is wider at higher levels of seniority within organisations.
- Female-dominated occupations tend to have lower average earnings compared to male-dominated occupations.

## Using the tools

Use the ONS tools and dataset to help answer your question or test your hypothesis. You might like to:

- compare earnings between genders within different occupations or regions
- calculate measures of central tendency and dispersion
- create visual representations of the data, for example using histograms or box plots



# Maths: Data analysis and visualisation

## Things to think about



- How will you define and measure gender pay gaps statistically?
- Which specific occupations or regions are you interested in exploring for this project and how will you compare earnings between genders within the selected occupations or regions?
- Which visual representations will you create and how will they help to interrogate and understand the data?
- What statistical tools will you use to analyse the data and why?
- How accurate and reliable are your findings and can you measure the uncertainty?



# Sociology: Attitudes and beliefs

Your goal is to assess the impact of social perceptions on the gender pay gap, by designing and conducting your own survey about attitudes and beliefs on gender and work. You can analyse the data you collect to identify patterns and correlations between perceptions and attitudes toward gender and work and pay gap data.

## Learning objectives

- Design and implement a survey.
- Analyse and identify patterns and correlations between perceptions and attitudes and pay data.
- Apply sociological research methods to interpret findings and draw conclusions.
- Examine societal attitudes and their implications for gender equality in the workplace.



# Sociology: Attitudes and beliefs

## Get started

Examples of questions to answer or hypotheses to test

- What historical and societal factors have contributed to the persistence of the gender pay gap?
- What role do stereotypes and biases play in perpetuating the gender pay gap?
- What policies and legislation are there which look to address the gender pay gap?
- What are some strategies individuals and organisations can implement to help close the gender pay gap?



# Sociology: Attitudes and beliefs

## Design your survey

Use what you know about best practice in sociological research to inform your survey design, considering how the wording of questions can impact comprehension and bias. You might like to research some examples of question-wording and the impact in terms of reliability and validity of survey responses.

You will need to include appropriate questions focusing on:

- perceptions of suitable careers for men and women
- expectations about salary negotiation
- opinions on the fairness of the gender pay gap



# Sociology: Attitudes and beliefs

## Using the tools

Use the ONS tools to analyse the data to answer your question or test your hypothesis. You might like to:

- discuss the role of gender in the workplace with their classmates, exploring common stereotypes, biases, and challenges, for example, career choices, salary negotiations and parental leave
- research examples of question-wording and how it can impact the reliability and validity of survey responses, for example, how questions can influence responses, support bias or help or hinder comprehension
- research sampling techniques in surveys and the impact on survey results
- look at the gender age gap within a particular segment of society



# Sociology: Attitudes and beliefs

## Things to think about



- **Where will you source additional data if you need it?** How will you combine that with ONS data?
- **If you use additional sources of data, how will you assess their validity?** Will you give them equal weight as data from the ONS?
- **Who will you include in your survey?** How will you ensure you get a good cross-section of responses from different segments of society? If your survey includes mostly people from a certain group, how will you account for that?





# Geography: Geographical disparities

Your goal is to gain an insight into the intersection between geographical factors and economic inequalities. You will use the data to create map-based graphics to explore the disparities in gender pay gaps across different regions. You will also conduct independent research to investigate potential contributing factors, such as occupation, education levels and cultural factors.

## Learning objectives

- Understand regional variations in gender pay gaps within the UK.
- Develop proficiency in using maps, charts and graphs to visualise geographical disparities.
- Analyse potential reasons behind regional differences in gender pay gaps.
- Examine the intersection of geographical factors with economic inequalities.



# Geography: Geographical disparities



## Get started

Examples of questions to answer or hypotheses to test

- How do regional variations in gender pay gaps manifest across different geographical areas within the UK?
- What are the underlying factors contributing to regional disparities in gender pay gaps, and how do these factors vary geographically?
- Is the gender pay gap greater in regions with higher average pay?
- How do trends in occupation differ between regions in the UK, and what role does it play in perpetuating gender pay gaps? Are regional differences in the gender pay gap in the UK correlated with the types of occupation prominent in those areas?
- How do geographical factors such as urban-rural divides or proximity to major economic hubs influence gender pay gaps?

# Geography: Geographical disparities

## Using the tools

Use the ONS tools to analyse the data in order to answer your question or test your hypothesis. You might like to:

- examine potential correlations between gender pay gaps and occupation, education levels and cultural factors
- use mapping software to create maps illustrating gender pay gaps across regions in the UK, annotating maps with key findings and observations and identifying patterns and correlations

- research how geographical factors intersect with economic inequalities to perpetuate gender pay gaps
- research the role of geography in shaping economic inequalities and potential strategies for addressing regional disparities in gender pay gaps



# Geography: Geographical disparities

## Things to think about



- Where will you source additional data if you need it and how will you combine that with ONS data?
- Which specific occupations or regions are you interested in exploring for this project and how will you compare earnings between genders within the selected occupations or regions?
- Which visual representations will you create and how will they help to interrogate and understand the data?
- How accurate and reliable are your findings?

