# Calculating how many working adults require financial support to self-isolate and quarantine as a result of each confirmed case of Covid-19

This model takes into account the following:

* People receiving positive test results for Covid-19, these are provided via [Gov.uk](https://coronavirus.data.gov.uk/)
* The number of people contacted through NHS Test and Trace informing them to self-isolate, from [Health Foundation](https://www.health.org.uk/news-and-comment/charts-and-infographics/nhs-test-and-trace-performance-tracker) NHS Test and Trace performance tracker.
* The proportion of jobs which cannot be done from home which on average pay hourly wages below the national median. This is taken from the ONS [Which jobs can be done from home?](https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/whichjobscanbedonefromhome/2020-07-21) Published July 2020.
* Employment rates taken from Annual Population Survey via Nomis. Data is for 2019/20.

### Inputs

#### Direct cases

These are the number of confirmed cases of Covid-19 in working-age adults in England. Due to the age bands provided, ‘working-age’ is defined as those aged 20-64. The number of cases for the whole of the UK is also used to scale the model up to a UK-wide policy.

#### Working-age adults required to self-isolate due to a track and trace

The Health Foundation’s numbers suggest that for each confirmed case of Covid-19, a further 1.5 people are contacted to self-isolate. The number of cases from Gov.uk is taken for Children (0-19 years old), Adults (20-64) and Pensioners (65+) individually and multiplied by **1.5** to produce the number of people would be contacted by track and trace.

These three numbers are then treated differently for how many of their contacts would result in a working-age adult needing to self-isolate.

* For children, it is assumed all contacts would mean a working adult would need to self-isolate. NHS Test and Trace no longer contacts children under 18 in each household and so contacts the parent/guardian.
* For Adults and Pensioners, it is assumed that 76% of these contacts will be of working-age since that is the share of adults aged 20-64 out of all aged 20 or more.

The extra demands placed on the tracing service by higher number of positive cases from mid-December onwards is likely to mean a lower number of contacts per positive case. We have not adjusted for this, both because we prefer a cautious cost estimate and because we don’t believe that estimates should assume worse performance by other parts of the system.

#### Employment rates

For the period 2019/20 the employment rate for adults aged 20-64 in England was **79%**. Since the start of the pandemic the ILO employment rates has not seen significant reductions in employment rates.

#### Working from home

The ONS provided estimated scores for how able occupations could be done from home. NPI analysis placed all occupations with a score more than 1.3 could not be done from home. There were also some exceptions made for occupations in Education and Health Care with scores below 1.3.

The resulting estimate is that wo-thirds of occupations could not be done from home.

Further to this **43%** of occupations cannot be done at home and also pay on average less than the median wage.[[1]](#footnote-1) This estimates the proportion of people in work who would be likely to be eligible for Universal Credit if they lost income from work.

### Outputs

#### Support per case

The number of people eligible for support per positive case is the sum of:

* Working age cases,
* Working age adults contacted through the Test and Trace system,

This then multiplied by the employment rate (79%) and then the proportion of jobs which pay below median wage and cannot be done from home (43%).

This is divided by the total number of cases from that day for all ages.

This is produces an estimate of **65 people requiring support per every 100 cases**.

$$People requiring support= \frac{\left(working age cases+working age adults contacted through test and trace\right)\*0.79\*0.43}{Total cases for all age groups} $$

#### Deadweight of universal scheme

Of those only employed in occupations which cannot be done at home, the number paid above the median wage is divided by the number who paid less than the median wage. This is the proportional deadweight loss of a scheme that is universal for all who cannot work from home. If the scheme were to be made universal for all who cannot work from home, the deadweight cost is an additional **58%**.

1. This refers to the median of the average wages for all 365 occupations included in the ONS working from home analysis [↑](#footnote-ref-1)