

Loneliness monetisation report

**Analysis for the Department for Digital, Culture, Media
& Sport**

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Executive Summary

- We estimate the **costs associated with loneliness** stemming from impacts on subjective wellbeing, health and productivity. These are estimated using best-practice techniques endorsed by the HM Treasury Green Book.
- For impacts on **subjective wellbeing**, estimates are derived using regression analysis of cross-sectional data from the Community Life Survey and Understanding Society obtained through the UK Data Service.
- Using the **Wellbeing Valuation** method, we convert our estimates into their monetary equivalents – that is, values which represent the negative impact that loneliness has, each year and in monetary terms, on an individual’s wellbeing.
- We find the wellbeing value of severe loneliness¹ to be relatively large: a conservative estimate is of at least £9,537 per person per year. The main caveats of our model are discussed, and we make a strong case for carrying out additional analysis upon release of longitudinal data.
- Lastly, we look at the existing literature on the relationship between loneliness and **health** and loneliness and **productivity** in the workplace to provide additional cost estimates.
- Collectively, the wellbeing, health and work productivity cost associated with **severe loneliness** is approximately **£9,900 per person year**.
- The figures provided here can be applied to a general lonely cohort aged 16+ and can be used to measure the impact of mild, moderate or severe loneliness.

Table 1: The impacts of loneliness per person per year in monetary terms among a general lonely cohort (age 16+)

Impacts:	Lack of, to mild loneliness	Mild to moderate loneliness	Moderate to severe loneliness
Health	Evidence NA	Evidence NA	£109
Productivity	Evidence NA	Evidence NA	£330
Wellbeing	£6,429	£8,157 to £9,537	(at least) £9,537
Total	£6,429²	£8,157 to £9,537²	(at least) £9,976

¹ Mild loneliness refers to ‘hardly ever’, moderate to ‘occasionally’ or ‘some of the time’ and severe to ‘often’ or ‘always’ lonely.

² This excludes health and productivity impacts, for which there is not sufficient evidence for impacts of less than moderate loneliness..

1 Current evidence on the cost of loneliness

- In 2018, the government announced a **strategy for tackling loneliness**, laying the groundwork for further evidence collection and leading to a comprehensive action plan.
- There is scarce **up-to-date evidence** on the impact of loneliness on **wellbeing** in the UK, including on life satisfaction. Loneliness cannot be manipulated experimentally, hindering efforts to fully grasp the magnitude of its adverse impacts on society. However, this area is gaining increasing attention by researchers as well as by policy makers.
- The contribution this study wishes to make to the field is to introduce non-market monetisation methods, enabling monetary values to be attached to the negative impact of loneliness. This will facilitate the assessment of interventions aimed at alleviating loneliness.
- It is clear that the effects of loneliness are pervasive and that few areas of daily life are not affected by it. In an effort to improve understanding of the phenomenon, we have broadened the research scope to monetise the impacts of loneliness on wellbeing, health and work productivity.

2 Measuring loneliness

- In accordance with the government's Loneliness Strategy, loneliness is defined here as *"a subjective, unwelcome feeling of lack or loss of companionship. It happens when we have a mismatch between the quantity and quality of social relationships that we have, and those that we want"*.³
- In 2018, the Office for National Statistics (ONS) released guidance on the **measurement of loneliness**. Their recommendations are summarised in Table 1 and rely on **indirect** and **direct** measures. Indirect questions are based on the UCLA Loneliness scale, assessing how often a person feels disconnected from others.
- Table 3 summarises the main UK surveys currently measuring loneliness. These use direct and indirect measures, often using different response scales. Accessing these datasets allows, among other uses, to produce nationally representative **summary statistics** and assess the impact of loneliness on wellbeing.

Table 2. ONS recommended measures of loneliness for adults.

Measures	Items	Response categories
Indirect The three-item UCLA Loneliness scale	1. How often do you feel that you lack companionship?	Three-level
	2. How often do you feel left out?	Three-level
	3. How often do you feel isolated from others?	Three-level
Direct	How often to you feel lonely?	Five-level (Recommended) OR Three-level

Response scales: three-level and five-level.



³ *Towards a social psychology of loneliness*. Personal relationships – personal relationships in disorder. Perlman and Peplau (1981).

Table 3. Large UK surveys measuring loneliness.⁴

Survey	Author	Loneliness measure	Frequency	Structure	No. of waves	Target population	Sample size	Interview mode
Community Life Survey (CLS)	DCMS	Direct (five level)	Annual	Cross-sectional	7 (since 2013)	16+ adults in England	~10,000 responses per wave	Mix of face-to-face, online or pen and paper
Understanding Society (USoc)	ESRC	Direct (three level) and indirect	Annual	Longitudinal	9 (since 2010, loneliness since 2019)	16+ adults in the U.K. (not incl. youth survey)	~39,000 households per wave (all household members)	Face-to-face (with self-completion module)
English Longitudinal Study of Ageing (ELSA)	NIA and ESRC	Direct (three level) and indirect	Annual	Longitudinal	8 (since 2002)	50+ adults in England	~11,000 respondents per wave	Face-to-face (with self-completion module)



⁴ Additional surveys committed to measuring loneliness are the *National Travel Survey*, the *English Housing Survey*, the *Active Lives Survey*, the *Health Survey for England*, *Taking Part* and the *Tri-services families continuous attitudes survey*.

3 Who is most affected by loneliness?

The proportion of individuals who report being 'often or always lonely' is highest among:

- **People aged 30 or under,**
- **Women,** across most age groups,
- People living in **urban** areas,
- People who are **separated** from their husband, wife or civil partner,
- People with **poor health,** and
- **unemployed** people.

Findings mentioned above make use of weighted Community Life Survey data from 2018-2019 and have been corroborated with Understanding Society data from Wave 9 (2018-2019).

Figure. 1. Reported loneliness over the life course for men and women

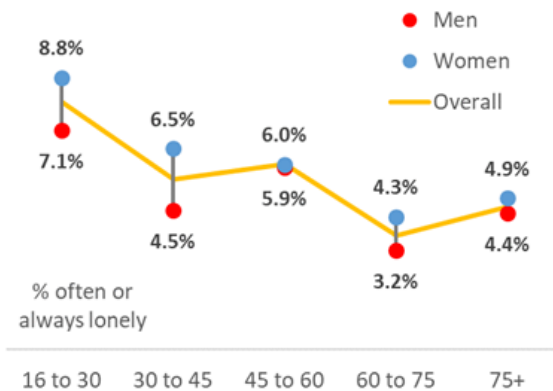


Figure. 2. Reported loneliness by general health.

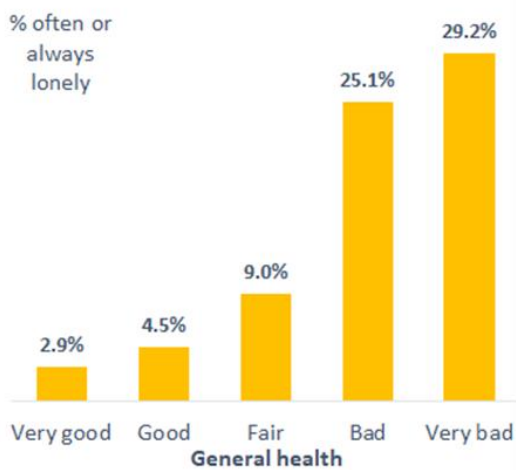
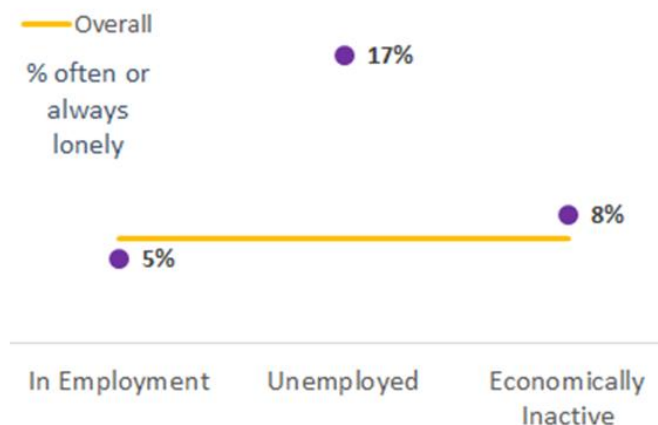


Figure 3. Reported loneliness by economic status.



4 The Wellbeing Valuation Method

Alleviating loneliness has undeniable effects on individual wellbeing⁵, and interventions to tackle loneliness are often required to report the benefits they have brought about. Our analysis aims to quantify the wellbeing impacts of alleviating loneliness and convert these into monetary terms using the Wellbeing Valuation approach.

How does Wellbeing Valuation work?

The three steps to conducting Wellbeing Valuation are detailed below at a high level, with a more detailed methodology also made available⁶.

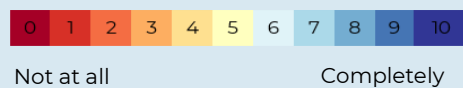
- Access datasets.
- Quantify the wellbeing impact associated with feeling lonely using econometric models – that is, *the marginal impact on life satisfaction*.
- Identify the change in income that would be needed to achieve the same wellbeing impact.

By doing so, this approach expresses the wellbeing impact of feeling lonely in monetary terms. This value enables comparison between interventions in a way that is consistent with the principles of cost-benefit analysis.

Measuring wellbeing

Applying this method requires assessing the impact of an outcome on wellbeing. Life satisfaction, a key national indicator, enables its application and is an appropriate measure of subjective wellbeing:

“Overall, how satisfied are you with your life nowadays?”



How to interpret the values?

These values represent the wellbeing uplift to an individual from alleviating loneliness – using money as a common metric. They are neither an actual financial return nor money in a participant’s pocket nor a saving to the state.

Figure 4. The three stages of Wellbeing Valuation.



⁵ *Longitudinal associations between social connections and subjective wellbeing in the English Longitudinal Study of Ageing*. Psychology and Health. Shankar (2015).

⁶ *A general method for valuing non-market goods using wellbeing data: three-stage wellbeing valuation*. Centre for Economic Performance, London School of Economics and Political Science. Fujiwara (2013).

How does Wellbeing Valuation compare to other methods?

Wellbeing Valuation improves on methods that ask people how much they would be willing to pay for an outcome by using data reflecting people's *actual experiences* as they live them. It is one of the fastest-growing areas in social impact measurement and is consistent with OECD recommendations and HM Treasury Green Book guidelines.

Among its many applications, it is widely used to appraise the social benefits of interventions in housing, transport, heritage and utilities.

5 The Wellbeing impact of loneliness

Identifying the impact of loneliness

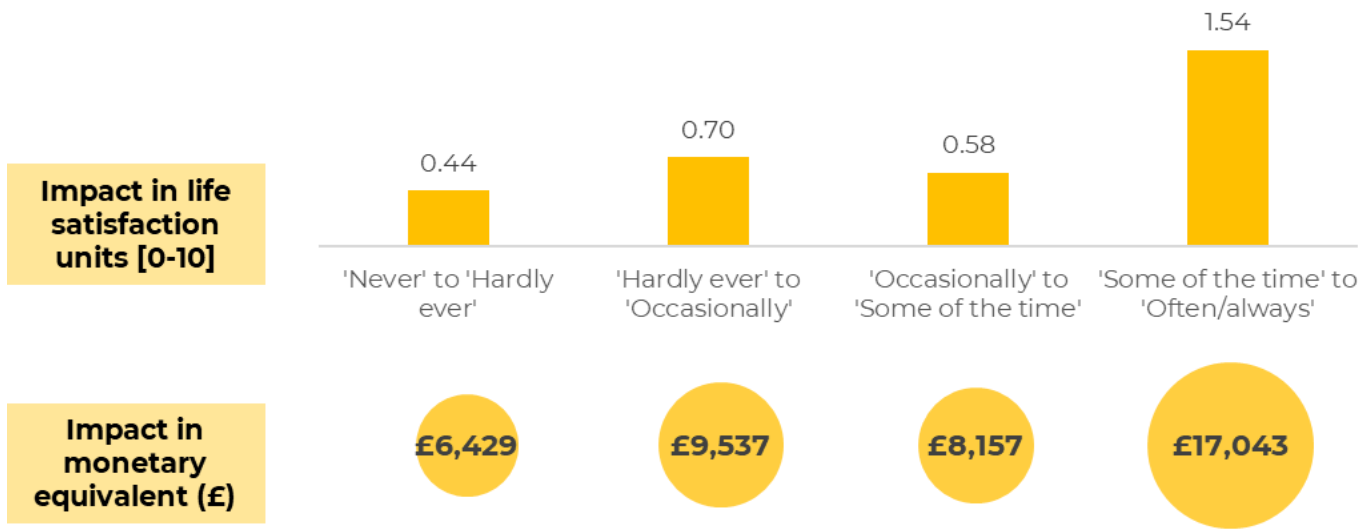
- We use multivariate linear regression to assess the impact of loneliness on life satisfaction, with weights to ensure results are representative of the UK population.
- Our models use controls for person-specific confounding factors that also affect life satisfaction. These also allow combining wellbeing impacts with wider impacts. The list of controls is derived from a review of the key drivers of subjective wellbeing.
- For robustness, we compare cross-sectional findings from two datasets: Community Life Survey and Understanding Society. A full econometric specification of our models is available in a technical annex.

Causation in loneliness research

- Research on loneliness is often hampered by its link to depression – this is particularly true for those who are 'often/always lonely'.
- It can be difficult to disentangle whether loneliness causes low wellbeing, or whether low wellbeing causes people to feel lonely. The inability to address this two-way relationship is a limitation of this study.
- Access to multiple waves of UK longitudinal data will enable a more thorough accounting of these issues. In the meantime, we reflect these considerations in our interpretation of the results.

Longitudinal analysis will be possible when Wave 10 of Understanding Society is released, which is estimated to be released in November 2020.

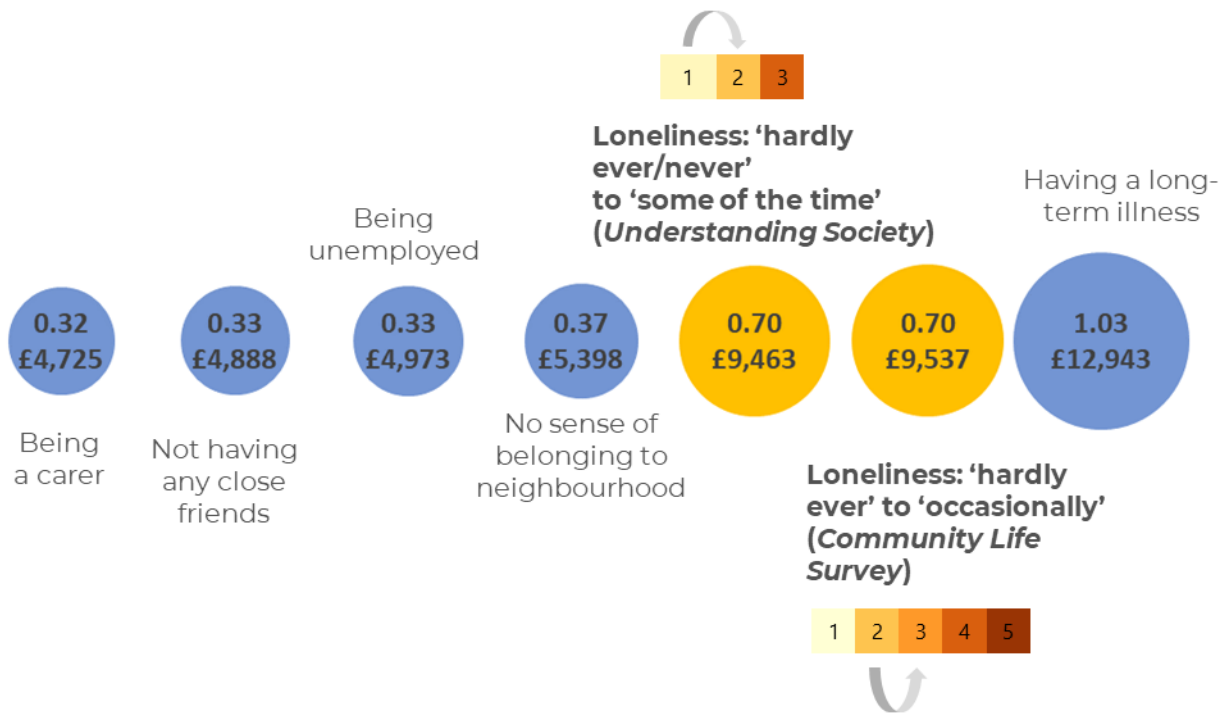
Figure 5. The wellbeing impact of loneliness



- We find that loneliness, whether infrequent or persistent, has large and significant negative impacts on wellbeing.
- As the frequency of loneliness increases, its detrimental effect tends to be greater and greater.
- The impact of severe loneliness (often/always) is disproportionately large and may reflect well-known issues in causation discussed above. To be conservative, we can state that the impact of severe loneliness is equivalent to at least £9,537 per person per year (although it may be as high as £17,043).

6 Comparison across outcomes and surveys

Figure 6. Comparison with other wellbeing impacts in £ and life satisfaction units [0-10].



- Although the response scales for loneliness differ between surveys, our findings are robust and results using the Community Life Survey (£9,537) closely match those found using Understanding Society (£9,463).
- Moreover we find that, on average, feeling lonely is associated with worse wellbeing impacts than being unemployed or friendless, but is not as detrimental as having a long-term debilitating illness. *The estimates of other impacts above are only provided to facilitate like-for-like comparisons and are not to be applied for wellbeing valuation. A guide on applying these values in practice is provided further down in this report.*

7 The health impacts of loneliness

- Severe loneliness has a major adverse effect on health. It is considered a risk factor for depression, heart disease, stroke and dementia – among other conditions.⁷
- In fact, the effect of loneliness and isolation on mortality is comparable to the impact of obesity and smoking cigarettes.⁸
- We summarise the health costs associated with severe loneliness from two sources: those accrued through an increased use of medical resources (a cost to the NHS, local authorities and relatives) and those accrued to employers through a higher number of work days lost.

The impact of loneliness on healthcare costs

- We base our estimates on the meta-analysis and modelling carried out by McDaid, Bauer and Park at the Personal Social Services Research Unit of LSE.¹ Results are applicable to individuals in the general population aged 65 or over.
- In their model, the authors assess the *additional* healthcare costs specifically attributable to severe loneliness from various sources: GP

Aggregating health and wellbeing costs

- When aggregating impacts, we take steps to ensure we are not double-counting the same effects.
- By adjusting the wellbeing model for long-term conditions as well as a subjective health rating, we strip out the impact that loneliness has on wellbeing *via* health. This allows the impacts to be added.
- The costs described in this section are direct economic costs as opposed to monetised wellbeing impacts which allows adding them.

visits, hospital admissions, emergency services and other types of outpatient care.

- Those who are afflicted by loneliness most of the time require £6,000 in additional healthcare costs over 10 years, averaging at £600 per year (2015 prices). This amounts to £672 in 2019 prices.
- Based on wave 9 of Understanding Society, we estimate that 15% of people who are often lonely are 65+.
- Assuming no additional costs before the age of 65, this results in a conservative average cost of **£100 per year per lonely person.**

⁷ *Making the case for investing in actions to prevent and/or tackle loneliness: a systematic review.* Briefing paper. McDaid, Bauer and Park (2017).

⁸ *Social relationships and mortality risk: a meta-analytical review.* PLoS Med. Holt-Lunstad, Smith and Layton (2010).

The impact of loneliness on days of work lost

- Estimates are based on research by the New Economics Foundation (NEF) on the costs of loneliness to UK employers.⁹
- The authors estimate the proportion of days' work lost due to depression, heart disease and stroke attributable to severe loneliness. This is equivalent to £21 per person per year in economic output (2019 prices).
- Based on Understanding Society data, only 45% of those who are often lonely are in the workforce. Therefore the average cost per lonely person is of **£9 per year**.



Health costs are £109 per person per year

⁹ *The cost of loneliness to UK employers*. The New Economics Foundation (2017).

8 The productivity impacts of loneliness

- Loneliness affects individuals at all stages of life and impacts how people are able to perform at work. Even in crowded work environments, individuals may feel disconnected from their co-workers.
- It has been shown that employees who feel lonely in the workplace tend to have lower job performance, are less committed to their company and appear less approachable to their colleagues.¹⁰
- We can attribute a monetary value to the decrease in productivity by measuring the associated reduction in economic output.

The impact of loneliness on work productivity

- Estimates are based on research by the New Economics Foundation (NEF) on the costs of loneliness to UK employers.²
- In a first stage, the authors estimate the impact of experiencing severe loneliness ('most or all of the time') on job satisfaction.
- In a second stage, they estimate the relative impact that job satisfaction

Aggregating productivity with wellbeing and health impacts

- Productivity impacts are derived from assessing the impact of loneliness on job satisfaction, which in turn has an impact on productivity.
- We verified that our wellbeing models are robust to controlling for job satisfaction. In other words, we strip out the impact loneliness has on wellbeing *via* job satisfaction.
- To aggregate health and productivity impacts, we make the assumption that the loneliness impacts described here do not merely reflect worse health.

has on productivity. This impact is then associated with a meta-analysis of studies to produce a range of likely productivity impacts.

- NEF estimate that an employee experiencing loneliness is 1.3% less productive than those who do not feel lonely.
- In 2019 prices, this is equivalent to £730 of gross value added per year on average for all sectors.

¹⁰ *No employee is an island: workplace loneliness and job performance.* Academy of Management Journal. Oczelik and Barsade (2018).

- Based on wave 9 of Understanding Society, only 45% of those who are often lonely are in the workforce. Therefore the average cost is of approximately **£330 per year** per lonely person.



9 Applying these values in practice

Who can these values be applied to?

- The values set out in this report can be applied to a general lonely cohort aged 16+, regardless of their age or working status (they are ‘one size fits all’ values).
- Although there is only evidence on health impacts for those over 65 and although productivity impacts are only relevant for those in the workforce, the adjustments applied to these values ensure that they are applicable to the *average* person afflicted by loneliness.

And to what intensity of loneliness?

- These values can be applied to measure the value of alleviating mild-to-severe loneliness – as summarised in Table 4 below.
- If moving across several levels (e.g. from severe to mild), then the wellbeing impacts can be added up.
- Aggregation of loneliness impacts is possible only for moderate-to-severe levels of loneliness, as evidence of the health and productivity costs of less-than-severe loneliness is scarce.

Table 4: The health, productivity and wellbeing impacts of loneliness

Impacts:	Lack of, to mild loneliness	Mild to moderate loneliness	Moderate to severe loneliness
Health	Evidence NA	Evidence NA	£109
Productivity	Evidence NA	Evidence NA	£330
Wellbeing	£6,429	£8,157 to £9,537	(at least) £9,537
Total	£6,429¹¹	£8,157 to £9,537¹²	(at least) £9,976

¹¹ This excludes health and productivity impacts, for which there is not sufficient evidence for impacts of less than moderate loneliness.

¹² This excludes health and productivity impacts, for which there is not sufficient evidence for impacts of less than moderate loneliness.

Mild loneliness refers to ‘hardly ever’, **moderate** to ‘occasionally’ or ‘some of the time’ and **severe** to ‘often’ or ‘always’ lonely. Evidence of the productivity and health impacts of less-than-severe loneliness is scarce and therefore not included in the aggregation of loneliness impacts.

A more detailed explanation is available in the technical annex, including guidance on how to tailor these values to more specific groups.

Example: loneliness alleviation programme

- We may use the valuations described in this report to measure in monetary terms the impacts of a large-scale **befriending programme** to alleviate loneliness among a general population cohort of 1,000 adults aged 16+.
- **Surveys** including the 5-response-scale loneliness question (see Table 2, page 3) may be administered **before and after** the intervention to measure the number of participants who have experienced decreases in loneliness.
- We suggest applying the most conservative estimate to each type of change where the suggested monetised value is a band.

Number of participants	Change in loneliness	Value per year before discounting
500	No change in loneliness	£0
250	Went from ‘severe’ to ‘moderate’ loneliness	£2,494,000 (=250*£9,976)
250	Went from ‘severe’ to ‘mild’ loneliness	£4,533,250 (=250*[£9,976+£8,157])
Total: 1,000 participants		£7,027,250

- In the absence of a programme control group, we suggest as per **additionality** guidelines^(a) to use a deadweight factor to discount the total figure. This factors in that a proportion of those who were helped by the scheme may have experienced a loneliness reduction anyway. Based on guidelines for community and social interventions, it is recommended to remove 19% from the total amount.
- This amounts to total benefits of **£5,692,073** (=£7,027,250*[1-0.19]) attributable to the scheme, which may then be compared to the total project costs.

^(a) *Homes and Communities Agency, Additionality Guide, Fourth Edition (see Table 3.3)*

10 Conclusions

- We find that the negative impact of **severe loneliness** on individuals is very large: approximately **£9,900 per year for each afflicted person**.
- For policy and intervention appraisal, these values can be applied to the alleviation of loneliness (severe to mild) for any individual from the general population aged 16+.
- Of this total estimate for severe loneliness:
 - I. £9,537 represents the **negative impact on the wellbeing** of the lonely individual. This estimate was derived using the Wellbeing Valuation method to convert the impact of loneliness on life satisfaction into a monetary equivalent. These estimates are derived from analysis using data collected through the Community Life Survey and validated using Understanding Society.
 - II. £109 represent the cost to healthcare providers and employers because of direct added medical expenditure and days of lost work due to ill **health** brought about by loneliness.
 - III. £330 represent the loss in **productivity** due to loneliness and is a cost borne by employers, reflecting that it also negatively affects performance in the workplace.
- A **caveat** to these findings is that they may be overly conservative. For instance, they use lower bounds of wellbeing impacts and do not consider health impacts on younger people due to the lack of robust evidence. Further analysis using longitudinal data available at the end of 2020 will allow a more robust assessment. Further research and data collection could also improve the estimates of health and productivity impacts.
- We encourage wide-spread **application of these values** in the policy arena, which will facilitate the comparison and assessment of interventions aimed at loneliness alleviation.