

# Comparison of mean contacts for Tier 4 and non-Tier 4 areas in England from CoMix social contact survey Report for survey week 38

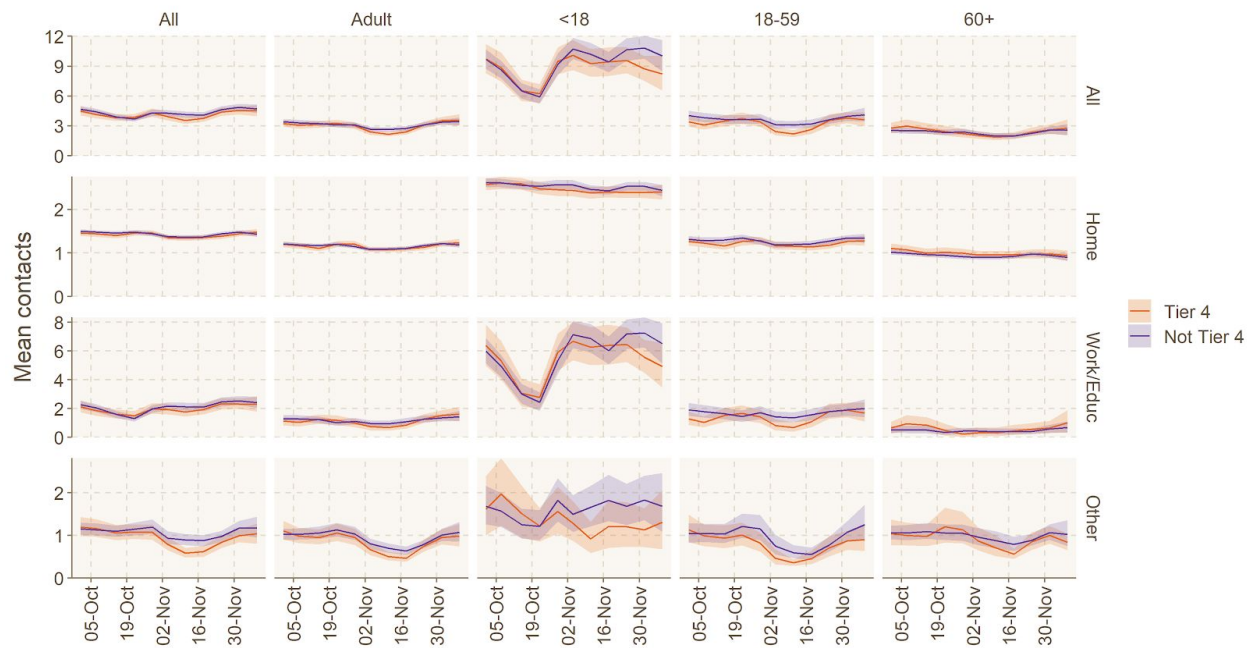
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*Report for SPI-M-O and SAGE, 21st December 2020  
Data up to 15th of December*

## **Summary**

- We analysed whether those areas that entered Tier 4 on 20th December, had had higher rates of contact in the preceding weeks than other areas.
- There was no indication that mean contacts within and outside of Tier 4 areas were different to non Tier 4 areas in the preceding weeks.
- The similarity between the contact patterns was consistent across settings and when stratified by age groups <18, 18-59, and 60+ suggesting at most minimal differences between the contact patterns within and outside of Tier 4.
- The rapid increase in cases seen in London and parts of the South East and East of England do not appear to be related to differences in contact patterns in these areas.

We categorised participants as in Tier 4 if they resided in a Tier 4 area as reporting on Gov.uk [1]. The mean contacts by setting and overall have been similar within and outside of the Tier 4 areas since the beginning of October 2020 (Figure 1). The means contacts and confidence bands follow similar trends with no consistent diverges or differences (Figure 1). Furthermore, there is no indication that mean contacts differ between areas within and outside of Tier 4 when stratified by age. The age group <18 years old have much higher and variable contacts overall, driven by educational contacts (Figure 1), and, if anything, reported slightly fewer contacts than other children over the autumn (though the overlapping confidence intervals suggest that these are not clear differences). Mean contacts for each setting by Country, English region, and age are presented in the appendix.



**Figure 1 Setting-specific mean contacts by age for Tier 4 and not Tier 4 regions in England over time.** Uncertainty calculated using Bootstrapped accounting. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects excluding the most recent observation which is a single week. Educ = education setting.

## Methods

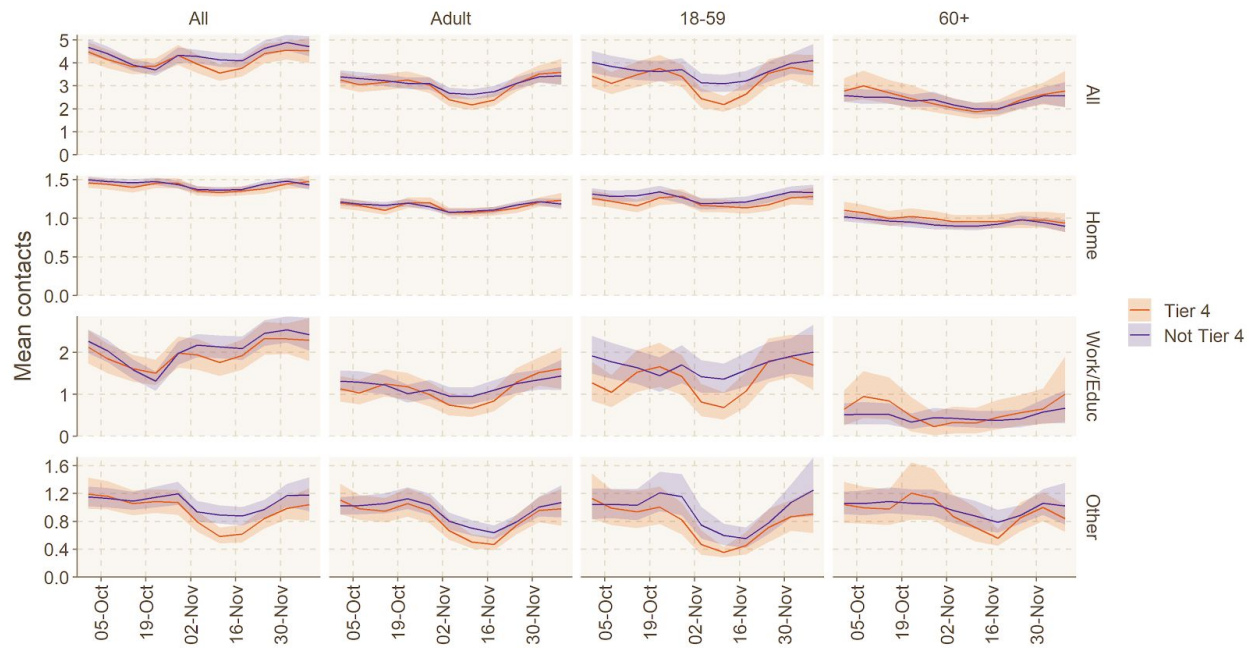
CoMix is a behavioural survey, launched on 24<sup>th</sup> of March 2020. The sample is broadly representative of the UK adult population. Participants are invited to respond to the survey once every two weeks. We collect weekly data by running two alternating panels. Parents complete the survey on behalf of children (17 years old or younger). Participants record direct, face-to-face contacts made on the previous day, specifying certain characteristics for each contact including the age and sex of the contact, whether contact was physical (skin-to-skin contact), and where contact occurred (e.g. at home, work, while undertaking leisure activities, etc). Further details have been published elsewhere[2]. The contact survey is based on the POLYMOD contact survey[3].

We calculated the mean contacts using 1000 bootstrap samples. Bootstrap samples were calculated at the participant level, then all observations for those participants are included in a sample to respect the correlation structure of the data. We collect data in two panels which alternate weekly, therefore we calculated the mean smoothed over the 2 week intervals to give a larger number of participants per estimate and account for panel effects. We calculated the mean number of contacts in the settings home, work and school (including all educational establishments, including childcare, nurseries and universities and colleges), and other. We look at the mean contacts by age, country, and region of England. The mean number of contacts is influenced by a few individuals who report very high numbers of contacts (often in a work context). The means shown here are calculated based on truncating the maximum number of contacts recorded at 50 per individual per day.

## References

1. Full list of local restriction tiers by area. [cited 21 Dec 2020]. Available: <https://www.gov.uk/guidance/full-list-of-local-restriction-tiers-by-area>
2. Jarvis CI, Van Zandvoort K, Gimma A, Prem K, CMMID COVID-19 working group, Klepac P, et al. Quantifying the impact of physical distance measures on the transmission of COVID-19 in the UK. *BMC Med.* 2020;18: 124.
3. Mossong J, Hens N, Jit M, Beutels P, Auranen K, Mikolajczyk R, et al. Social contacts and mixing patterns relevant to the spread of infectious diseases. *PLoS Med.* 2008;5: e74.

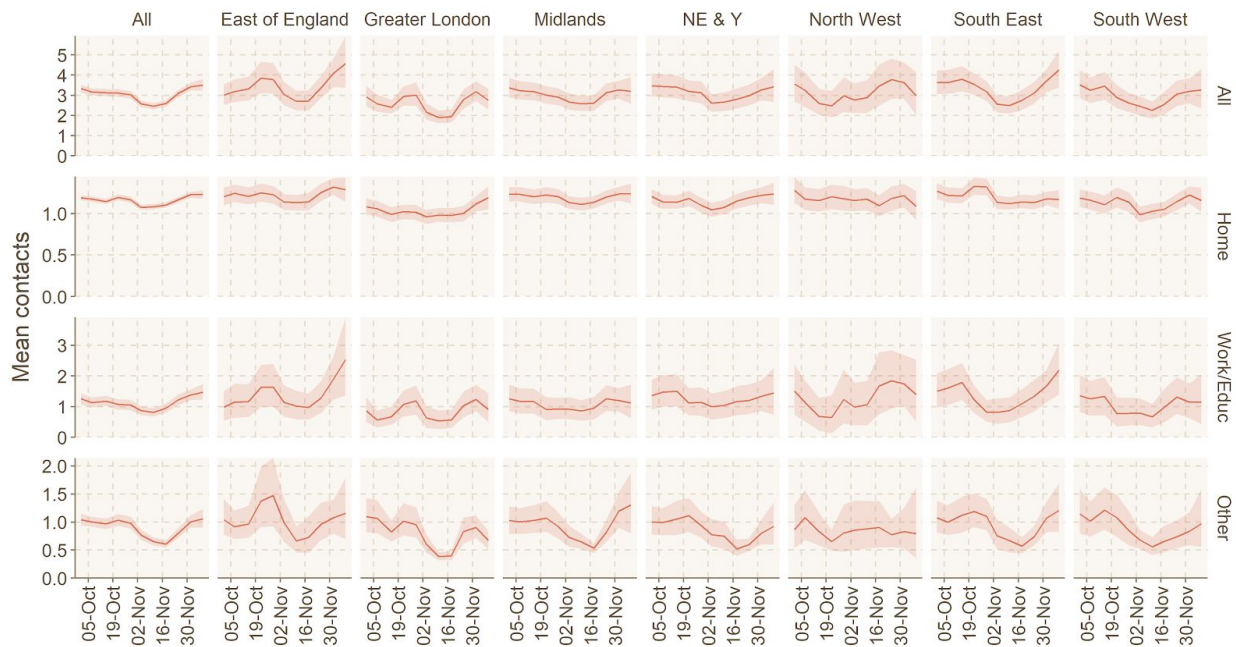
## Appendix



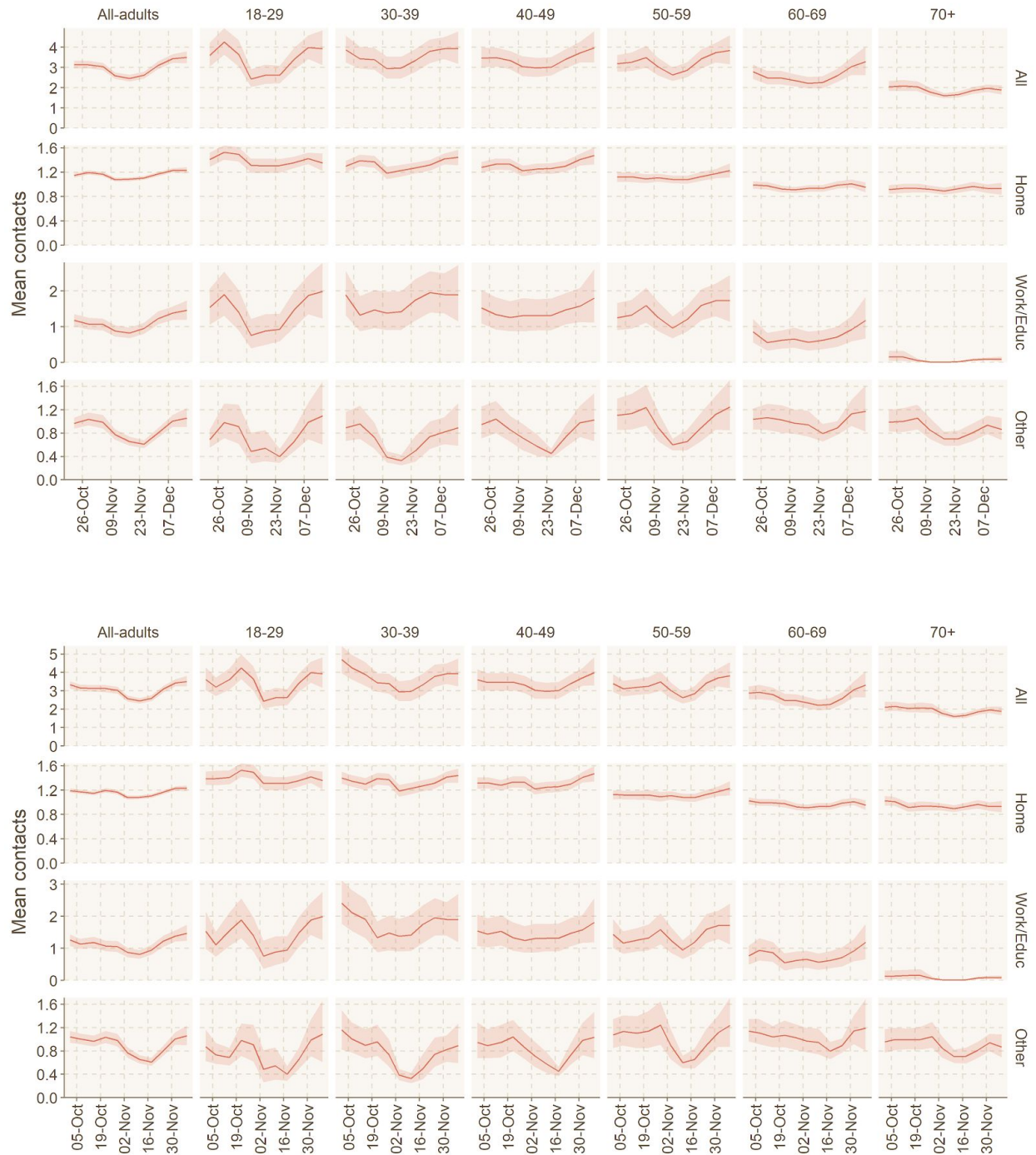
**Figure S1: Setting-specific mean contacts by age for Tier 4 and not Tier 4 regions in England over time.** Repeat of Figure 1 without age group <18 years of age.



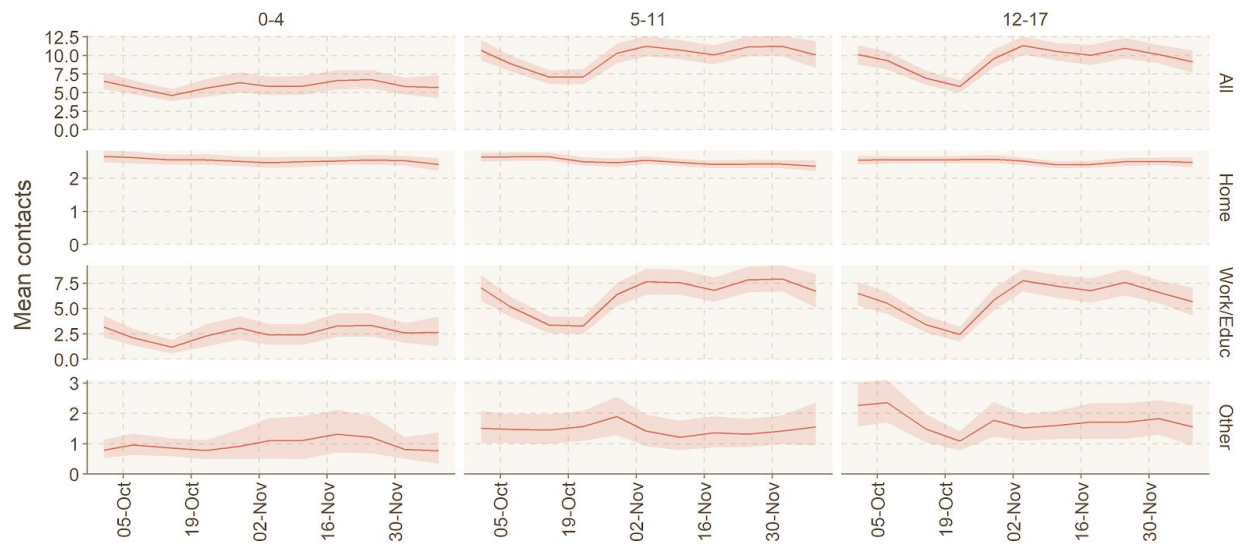
**Figure S2: Setting-specific mean contacts of Adults for UK nations over time.** Uncertainty calculated using Bootstrapped accounting. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Educ = education setting.



**Figure S3: Setting-specific mean contacts for adults by English region over time.** Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. NE & Y = North East and Yorkshire. Educ = educational setting.



**Figure S4: Setting-specific mean contacts by age-group for adults over time.** Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Educ = educational setting.



**Figure S5: Setting-specific mean contacts by age-group for children over time.** Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Educ = educational setting.