

Population change in London during the COVID-19 pandemic

Annex - assessment of updated evidence

February 2022

Summary

This document supplements a report published in May 2021 and presents an updated assessment of available evidence concerning population change in London since the start of the COVID-19 pandemic.

We found that deaths have increased, mainly in the over-75 age group, due to COVID-19, and that births have continued their long-term downward trend. There is little evidence that fertility rates have been significantly impacted by the pandemic. So overall, concerning “natural change” in population, the usual positive difference between births and deaths in London was likely reduced to the lowest level seen since the 2000s. Concerning migration, the data indicate many young adults left London during and following the first lockdown, related to the economic slow-down, and that many returned during the Spring and Summer of 2021, most likely related to the recovery of the hospitality and tourism sectors. In contrast, house-price and GP registration data indicate the increased loss of other age groups to surrounding regions is a more persistent trend.

International migration flows to the UK and London fell due to the combined effects of the COVID-19 pandemic and the UK’s withdrawal from the European Union. Recent visa data indicates that non-visitor flows at least partially recovered in the months to September 2021.

Consistent with our earlier findings, we conclude there has been a negative effect on both natural change and migration in London. However, following an initial fall over the first year of the pandemic, London’s population has likely resumed growing, albeit at a slower rate than it had been before the pandemic.

Introduction

This document is an annex to a report published in May 2021¹ which presented an assessment of available evidence concerning population change in London since the start of the COVID-19 pandemic.

¹ City Intelligence (May 2021) *Population change in London during the COVID-19 pandemic*. London: Greater London Authority. Available at: <https://data.london.gov.uk/dataset/population-change-in-london-during-the-pandemic>

Most of the remainder of this section describes patterns of deaths in London over time and by age group and ends with a summary of the more limited data available on births. Details on deaths and mortality rates concerning geography, ethnicity, gender, and deprivation are given in the appendix.

Deaths

Compared to other regions of England, COVID-19 has had the greatest impact in London concerning mortality. In both the main “waves” the highest mortality rates were observed there, and to date deaths involving COVID-19 have accounted for the highest proportion of total deaths (20 percent in London compared to 9 percent in the South West, see Table 1). Table 1 includes the number of deaths in London and the other English regions since the start of the pandemic; the number of deaths from all causes that would have been expected over the same period, and the difference between the two figures - the “excess deaths”. The modelling (whereby average deaths obtained using a regression model on weekly death registrations from the previous five years were applied to the current ONS population estimates⁸) indicates that deaths in London have been 18 percent higher than expected, while in the South-West the proportional increase was only 7 percent (column 4). Table A1 includes the same data by borough.

The excess mortality figures can be considered to better capture the total impact of the pandemic on deaths than the actual number of deaths for which COVID-19 was mentioned on the death certificate (the latter is included for completeness in column 5 of Tables 1 and A1 together with COVID-19 deaths as % of total deaths in column 6). This is because COVID-19 “competes” with other causes of death such as influenza, so COVID-19 now causes deaths that would have otherwise been caused by the flu.

Some have suggested the pandemic has led to the deaths of many ‘vulnerable’ people who would have otherwise been expected to die in the following days, weeks, or months. There is indeed some evidence of this ‘mortality displacement’, but only among older age groups. For those aged under 65 years or in private homes, deaths are well above normal levels⁹ and this accounts for the significant excess mortality since the beginning of the pandemic quantified in Table 1.

Table 1: Cumulative deaths (all-cause and involving COVID-19) from 21/03/20 to 14/01/22, in England by region (ranked by level of excess mortality)

	(1) Observed deaths	(2) Expected deaths	(3) Excess deaths	(4) Ratio observed/ expected	(5) COVID- 19 deaths	(6) COVID-19 deaths as % observed
London	107,162	90,451	16,711	1.18	21,866	20%
West Midlands	115,063	99,507	15,556	1.16	18,047	16%
North West	148,659	129,447	19,212	1.15	24,133	16%
East Midlands	93,388	82,680	10,708	1.13	13,802	15%
North East	57,014	50,592	6,422	1.13	8,286	15%
Yorkshire & Humber	106,174	94,463	11,711	1.12	15,424	15%
East of England	115,903	105,230	10,673	1.10	17,119	15%
South East	164,817	149,350	15,467	1.10	23,441	14%
South West	110,935	103,867	7,068	1.07	9,974	9%
ENGLAND TOTAL	1,019,115	905,588	113,527	1.13	152,092	15%

Data source: Office for Health Improvement and Disparities (OHID) Excess mortality in England (A)

Note: Expected numbers of deaths were modelled using the previous 5 years of ONS death registration data (see footnote 8)

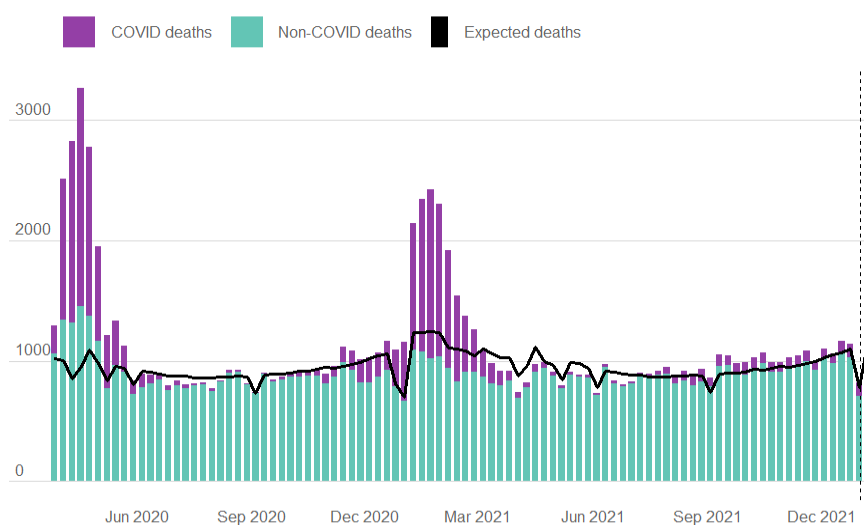
⁸ OHID (Oct 2021) *Excess mortality in England: Methodology*. Available at: <https://fingertips.phe.org.uk/documents/EMMethodology.pdf>

⁹ ONS (October 2021) *Excess mortality and mortality displacement in England and Wales: 2020 to mid-2021*. Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/excessmortalityandmortalitydisplacementinenglandandwales/2020tomid2021>

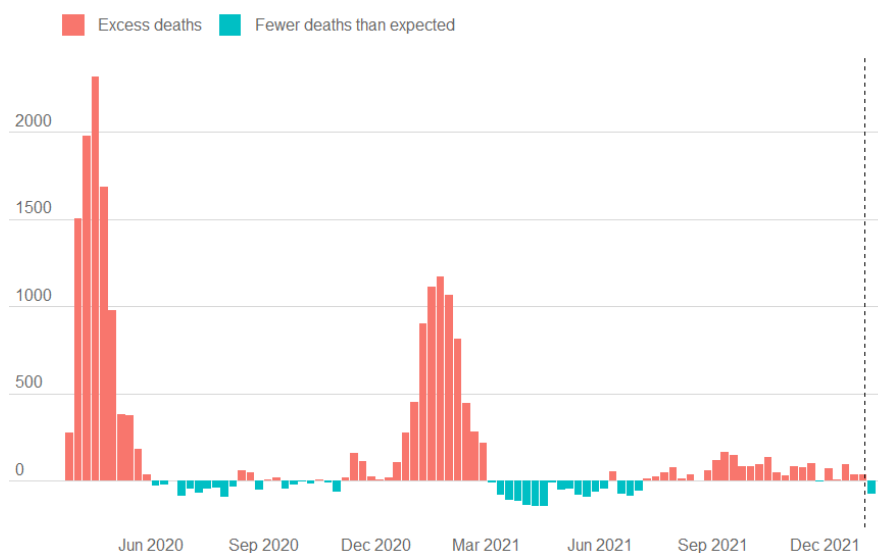
The ONS estimate of deaths in London up to 14th January 2022 in which COVID-19 was mentioned on the death certificate is 21,866 (see column 5 of Table 1). The first bar chart of Figure 1 shows how these occurred mainly during the first two “waves” of infection. The second bar chart shows how each of the waves was followed by slightly lower than expected mortality in the next weeks. Since July 2021, there has been consistent excess mortality, and the fact it remained at a low level is largely attributable to the vaccination programme. High levels of protection (over 90%) exist against mortality with all three vaccines, with relatively limited waning of protection over at least 5 months (against the Alpha and Delta variants, as protection against the Omicron variant is being assessed).¹⁰

Figure 1: Mortality in London, between 21/03/20 and 07/01/22

1A Weekly registered deaths



1B Weekly excess deaths by date of registration

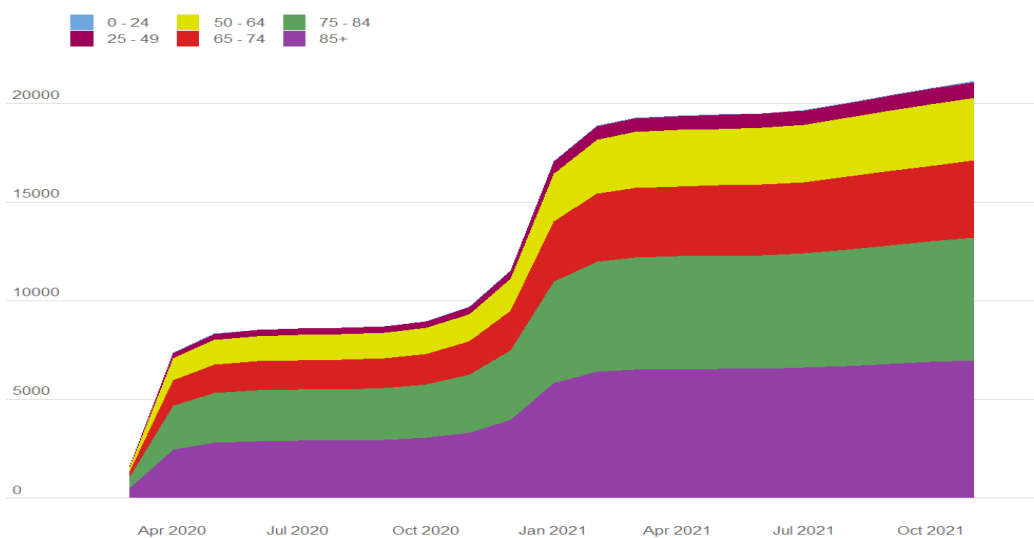


Data source: Office for Health Improvement and Disparities (OHID) Excess mortality in England (A)
Note: Dashed vertical line is at 1 January 2022

¹⁰ UK Health Security Agency (January 2022) COVID-19 vaccine surveillance report Week 1. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1045329/Vaccine_surveillance_report_week_1_2022.pdf

Figure 2 shows cumulative deaths by age group until end November 2021, and illustrates how COVID-19 related deaths in London have mainly occurred in the two older age groups, even though they only account for 1.7% (85+ years-old age-group) and 3.9% (75 – 84 years-old age-group) of the population. It provides evidence for ‘mortality displacement’ in these groups as described above. Figures A1, A2 and A3 in the Appendix show how COVID-19 related deaths were concentrated in the boroughs of London with the highest proportion of ethnic minority people, linked with deprivation, and that mortality rates were much higher for men than women.

Figure 2: Cumulative deaths involving COVID-19 in London, March 2020 - November 2021, by age group



Data source: OHID COVID-19 Health Inequalities Monitoring for England (CHIME) tool (B)

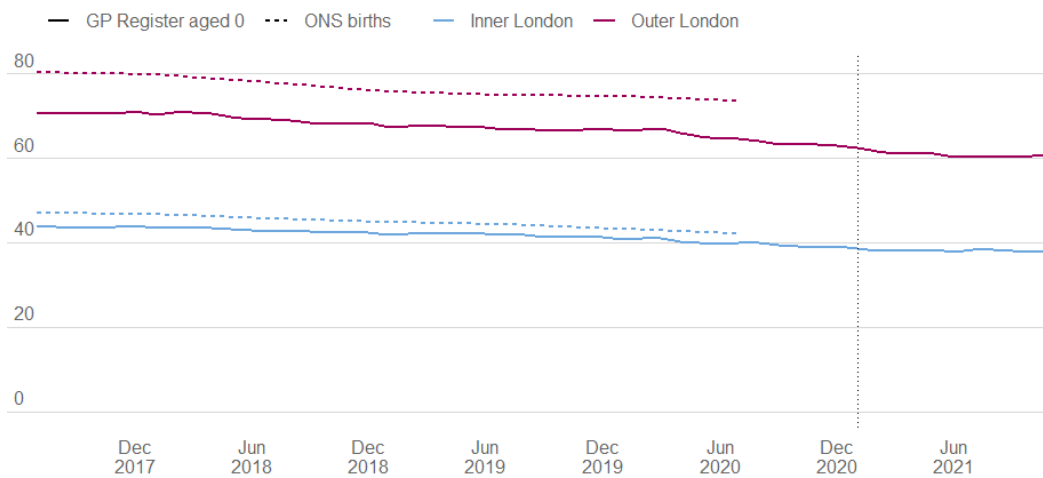
Births

Recent data indicates that the previously noted decreasing trend in the number of births in London has not perceptibly changed. Figure 3 plots the official data, and the number of children present on GP registers that have not yet reached their first birthday – the latter statistic is available on a timelier basis. One might argue the trend in Figure 4 shows some flattening but there is not sufficient data to be sure. Births in Outer London are higher than Inner London both because it accounts for around 60 percent of Greater London’s population and because the total fertility rate is higher, estimated for 2020 as 1.81 in Outer compared to 1.28 in Inner London.¹¹

Thus despite speculation that the pandemic would trigger a “lockdown baby boom”, our analysis provides no clear evidence that the pre-existing trends in London births have been affected.

¹¹ ONS (October 2021) *Births in England and Wales: summary tables*. Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/datasets/birthsummarytables>

Figure 3: Annual births and the number aged 0 on the GP register, June 2017 – November 2021, by Inner and Outer London (thousands)



Data sources: NHS (C) and ONS (D)

Note: Dotted vertical line is at 1 January 2021 (9 months after start of COVID-19 pandemic)

Natural change summary

As mentioned at the start of this section, the number of births in London has consistently outweighed the number of deaths over the last decade. But since March 2020 the COVID-19 pandemic has increased the number of deaths, mainly due to significant excess mortality in the over 75-year age group, and in the parts of London with highest levels of deprivation. So annual natural population increase is likely to have dropped by around 20,000 for the year to mid-2021.

In contrast to natural change, over the past decade migration has not directly contributed to a positive increase in London's population. We will now consider recent evidence on migration patterns.

Migration

Overview

London has large migration flows, but since the flows in and out (comprising positive net international migration, and negative net domestic migration) mainly balance, their overall effect has been relatively small since 2015. In the years to mid-2019 and mid-2020 the net flow was negative, at around 17,000.¹²

In the previous report, we noted that migration to London, both from the rest of the UK and overseas would have greatly fallen from its pre-pandemic level of 450,000, due to job losses, office closures and travel restrictions. We predicted that flows out of London (over 460,000 in the year to mid-2019) would have fallen less, so the negative net outflow would have likely increased during the pandemic.

Below we examine the recently available data pertinent to migration during the COVID-19 pandemic. Consistent with our assessment in the earlier report, we find that the net positive effect of international migration has fallen since the start of the pandemic, mainly due to lower flow in from the EU. We infer from indirect evidence that the net negative effect of domestic migration has likely increased, even after

¹² GLA (June 2021) 2020 Mid-Year Estimates. Available at: <https://data.london.gov.uk/dataset/londons-population>

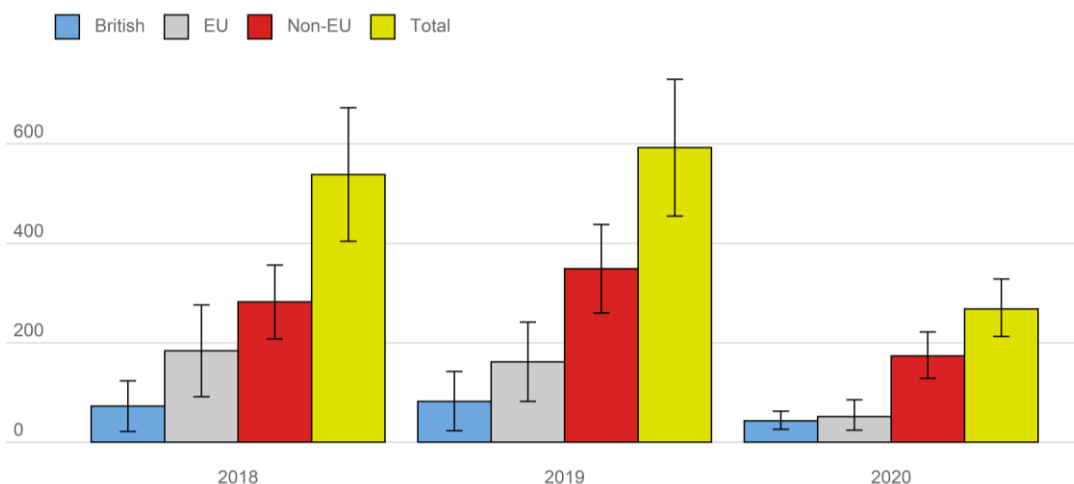
considering the return of many young people who left during and following the first lockdown. We conclude again that the negative net flow away from London has likely increased.

Assessment of UK migration patterns during the pandemic is complex for two reasons. First, the UK's withdrawal from the EU in January 2020 impacted on London's population simultaneously with the pandemic. The regulatory context changed as a new immigration system was introduced in January 2021, at the end of the withdrawal transition period. Second, during the pandemic the methods of collection of official statistics on international migration were disrupted, including the suspension of the International Passenger Survey, so development of new methods based on administrative data was accelerated. These use statistical modelling techniques and integrate data from the Department for Work and Pensions, Home Office visas and border data and other sources.¹³ The most recent outputs from these methods are presented below, and then we consider indirect evidence for population change. Before the pandemic London received about a third of all migrants coming to the UK,¹⁴ so although the official statistics relate to the whole UK, they are highly pertinent to this analysis.

ONS modelled estimates

Figure 4 shows modelled estimates of international inflows to the UK for 2018, 2019 and 2020, revealing immigration to have dropped from around 600,000 in 2019 to less than half that level in 2020, and the fall affected all groups. Figure 5 shows that estimated outflows fell in the British and non-EU groups but increased slightly in the EU group. The net consequence shown in Figure 6 is of a nearly zero flow at end 2020, with the confidence intervals denoting a possible net outflow of EU citizens, and a likely inflow of the non-EU group.

Figure 4: UK inflows by nationality, comparing 2020 with 2018 and 2019 (thousands)

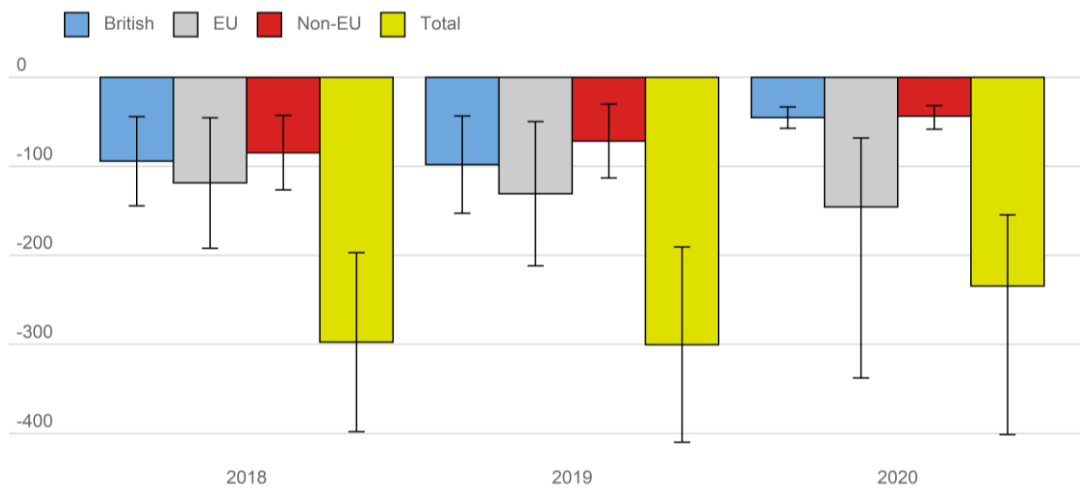


Data source: ONS modelled migration estimates (E)

¹³ ONS (June 2021) *Population and migration statistics system transformation – recent updates*. Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/populationandmigrationstatisticsystemtransformationrecentupdates/2021-06-25>

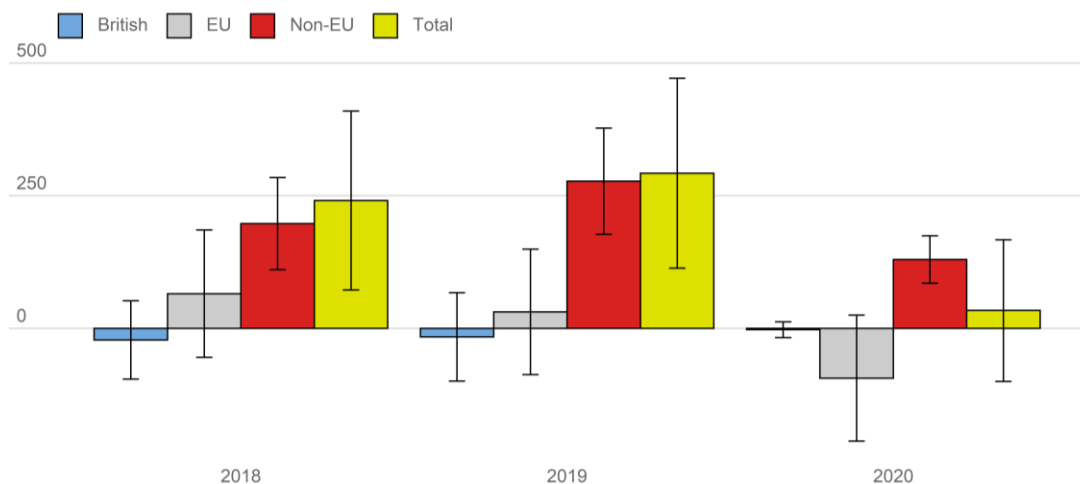
¹⁴ Migration Observatory (Dec 2018) *Where do migrants live in the UK?* Available at: <https://migrationobservatory.ox.ac.uk/resources/briefings/where-do-migrants-live-in-the-uk/>

Figure 5: UK outflows by nationality, comparing 2020 with 2018 and 2019 (thousands)



Data source: ONS modelled migration estimates (E)

Figure 6: UK net flows by nationality, comparing 2020 with 2018 and 2019 (thousands)



Data source: ONS modelled migration estimates (E)

Indirect evidence for migration

ONS publish annual estimates of population by country of birth and nationality.¹⁵ These estimates are primarily based on responses to the Labour Force Survey (LFS). In our May report, we discussed the issues with the reliability of such estimates caused by the suspension of in-person interviewing for the LFS in response to the pandemic. Since then, ONS have reweighted the survey responses in an attempt to mitigate these issues, and have attached the following disclaimer to the revised estimates¹⁶ :

¹⁵ ONS (September 2021) *Population of the UK by country of birth and nationality*. Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/datasets/populationoftheunitedkingdombycountryofbirthandnationality>

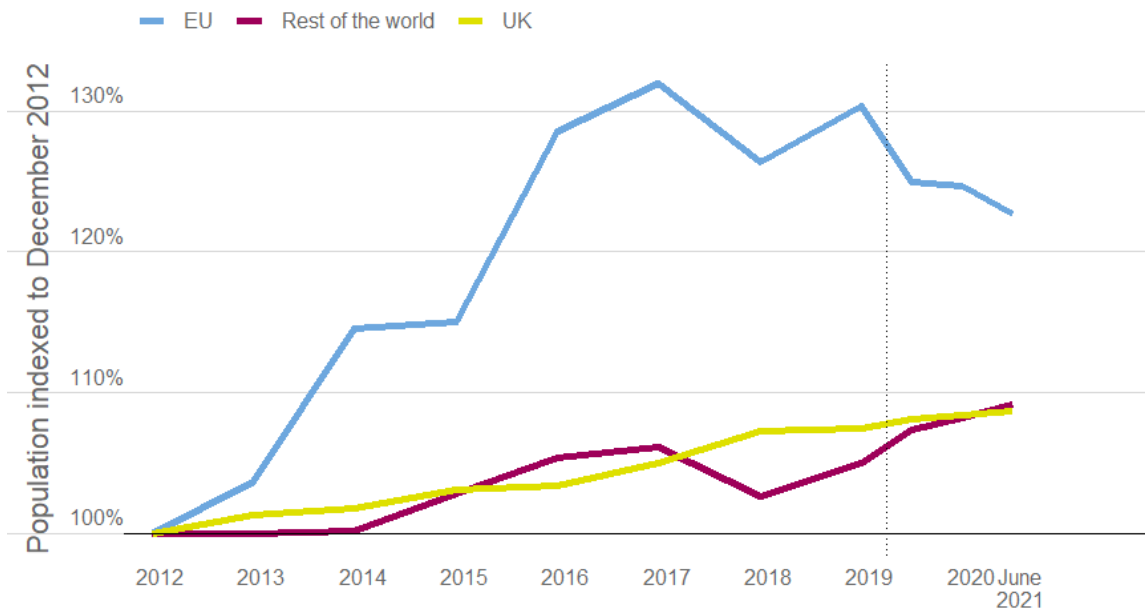
¹⁶ ONS (July 2021) *Impact of reweighting on Labour Force Survey key indicators, UK: 2020*. Available at: <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/impactofreweightingonlabourforcesurveykeyindicatorsuk/2020#overview-of-labour-force-survey-reweighting>

“A new weighting methodology has been introduced, which calibrates to UK, EU and non-EU-born populations for periods from January 2020. Data below UK, EU and non-EU level should be treated with caution and not be compared with previous years.”

While ONS’s work to reweight the survey has undoubtedly made the estimates based on them more realistic, it remains the GLA’s view that the data for London be interpreted with caution, even for these high-level country groupings.

Figure 7 shows the estimated population by country of birth for London, indexed to December 2012. These data show an overall downward trend since 2017 in the EU-born group, which continued over the pandemic period. Estimates of the population born in the UK and Rest of the World both saw recent modest increases continue over the pandemic period.

Figure 7: Indexed estimates of London’s population by country of birth



Data source: ONS Population estimates (F)

Notes: Dotted vertical line at 1 March 2020; data plotted without confidence intervals;

Year-on-year change in the estimated stock is not a reliable measure of migration;

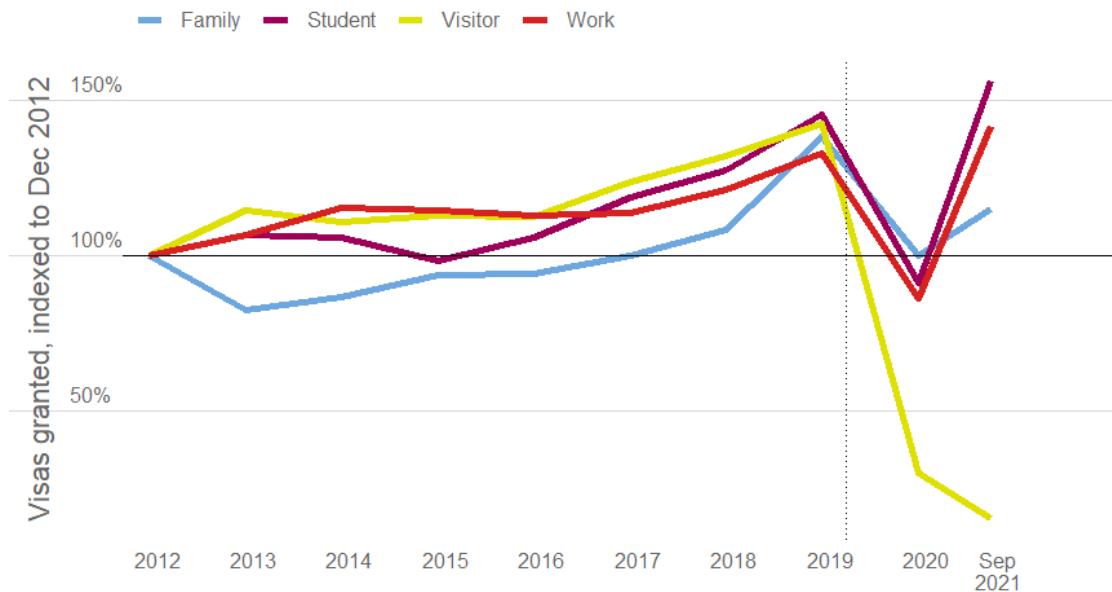
Y axis labels refer to years ending (i.e. 2012 is for year Jan - Dec 2012, and June 2021 is for July 2020 - June 2021);

The population group estimates in June 2021 were 994,000 EU; 2,351,000 rest of the world and 5,726,000 UK.

Figure 8 shows trends in visas granted indexed to December 2012, with the most recent data to the year ending September 2021. The data show a clear dip between the year ending December 2019, and that ending December 2020. The number of family and study visas has since strongly rebounded, in contrast to the number of visitor visas granted which continued to fall. The recovery in non-visitor visas granted provides evidence that immigration of the non-EU group has recovered to pre-pandemic levels.¹⁷ Now we will consider economic and property data as potential evidence for population movement.

¹⁷ EU immigrants now need to have visas to work live and study in the UK, but only a very small proportion of the visas shown in Figure 8 were granted to EU citizens (see sheets Vis_03a to Vis_04 in Table 2 at <https://www.gov.uk/government/statistics/immigration-statistics-year-ending-september-2021/list-of-tables>)

Figure 8: Indexed entry clearance visas granted, by type of visa, Dec 2012 – Sep 2021



Data source: ONS Immigration statistics (G). Notes: Dotted vertical line at 1 March 2020; Y axis labels refer to years ending (i.e. 2012 is for year Jan - Dec 2012, and Sep 2021 is for Oct 2020 - Sep 2021); Number of visas granted for year ending Sep 2021: 205,500 work; 434,400 study; 46,300 family & 260,300 visitor.

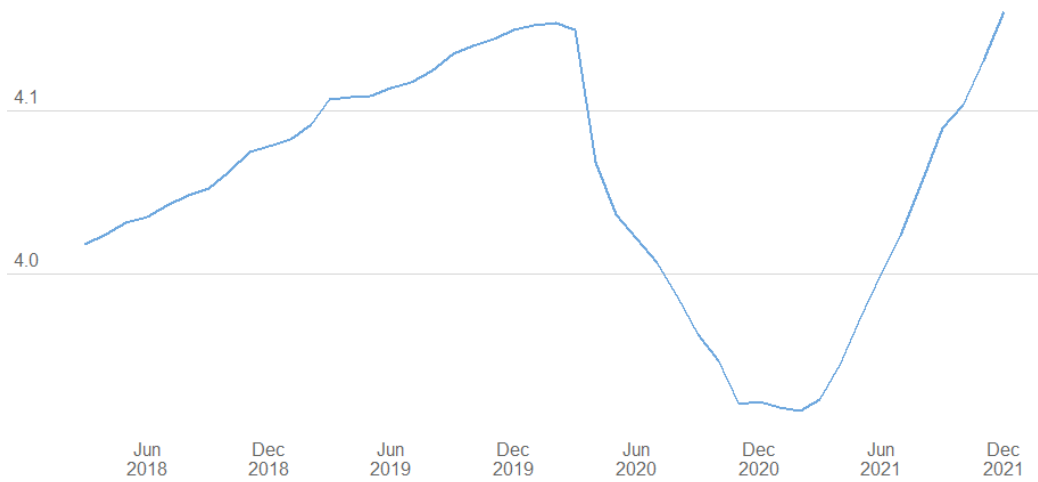
Before the pandemic the UK labour market was strong, and unemployment had been falling for several years. Although nationwide lockdowns forced several sectors to reduce or close their activity, so that unemployment rose, the most recent UK unemployment rate of 4.1% (September - November 2021) is nearly back to the pre-pandemic level.¹⁸ But the pandemic’s effect has been uneven, being more detrimental to London than the rest of the UK. London’s most recent unemployment rate was 5.4% compared to 4.5% in February 2020.¹⁹ Just focussing on payrolled employees²⁰, while their number rose in London rose sharply for nine consecutive months to December 2021, it has only just reached the level in February 2020 (Figure 9). When the data are disaggregated by sub-London geography (Figure 10), we see that in Outer London, specifically the West and North-West, the numbers are still down.

¹⁸ ONS (January 2022) *Labour market overview, UK: January 2022*. Available at: <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/uklabourmarket/january2022>

¹⁹ GLA (January 2022) *Labour market update for London – January 2022*. Available at: <https://data.london.gov.uk/briefings/labour-market-update-for-london-january-2022/>

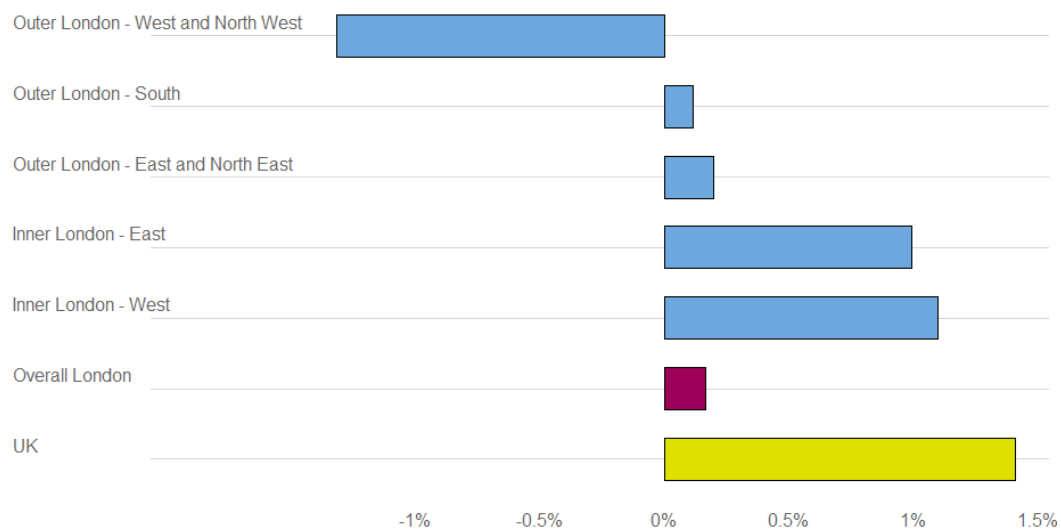
²⁰ The estimates presented on payrolled employees are experimental outputs from HM Revenue and Customs’ Pay As You Earn (PAYE) Real Time Information (RTI) data. The data only include those in employee jobs, and not other sections of the work-force such as self-employed.

Figure 9: Number of payrolled employees in London, seasonally adjusted (millions)



Data source: ONS, Earnings and Employment PAYE Real Time Information (H)

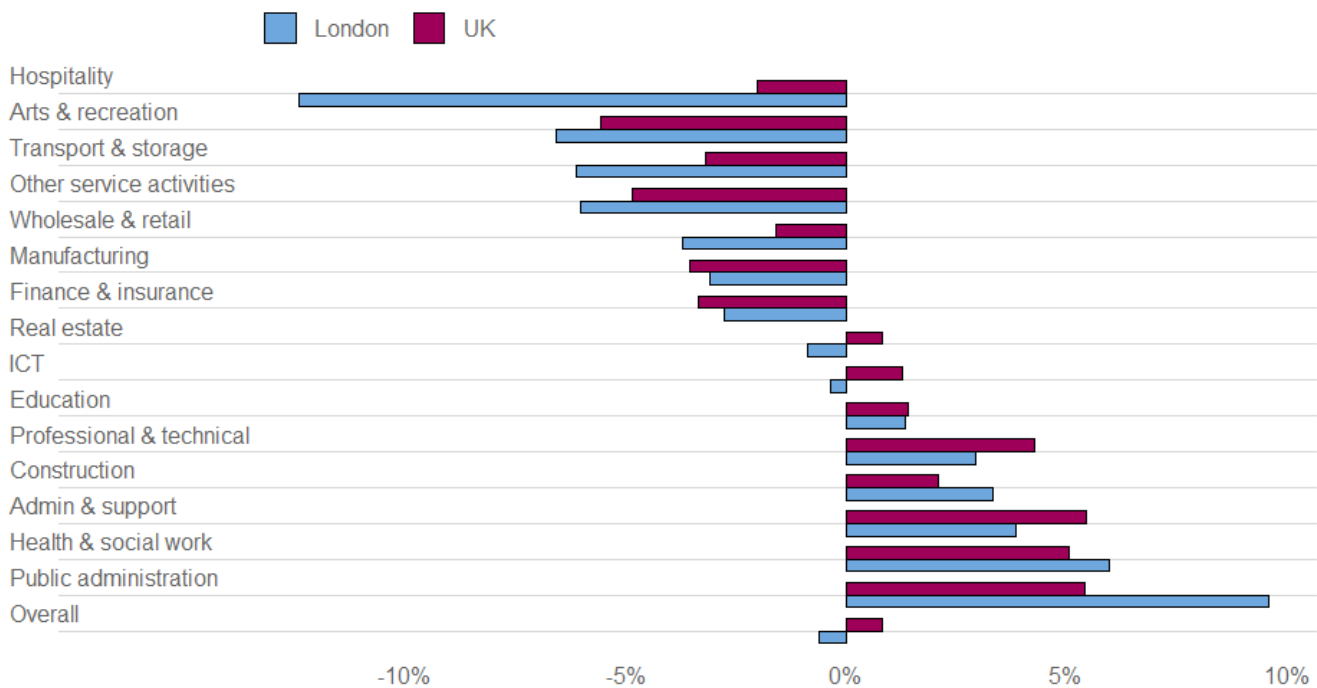
Figure 10: Percentage change in London payrolled employees by NUTS2 region, Feb 2020 - Oct 2021



Data source: ONS, Earnings and Employment PAYE Real Time Information (I).

Note: Estimates are based on where employee lives.

Figure 11: Percentage change in London and UK payrolled employees by sector, Feb 2020 - Oct 2021



Data source: ONS, Earnings and Employment PAYE Real Time Information (I)

Notes: Estimates are based on where employee lives;

Sectors with < 50,000 employees in London are not illustrated in the chart (but contributed to the “Overall” figures).

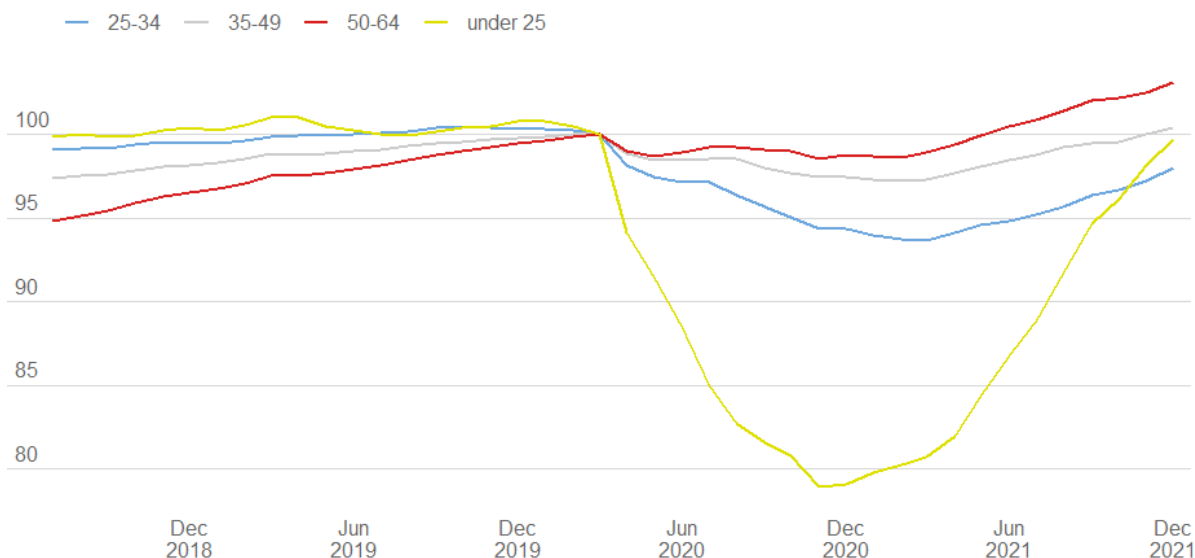
Figure 11 shows there is substantial variation between sectors in change, and that payrolled employees in those sectors with many young workers - hospitality, the arts and recreation, and other service activities - are still much lower than pre-pandemic. “Oyster tap” data at the 15 central London “City” stations²¹ from October 2021 were still at only about 56% of 2019 levels,²² so one can infer that many residents in outer London have shifted to working at home, and the impact on arts and hospitality is likely to recover only slowly. Figure 12 shows the dip in jobs affected the under 25 years-old age-group most (which accounts for 12% of London employees).

²¹ TfL include 15 tube stations in the “City” category, see:

<https://app.powerbi.com/view?r=eyJrIjoiMjZjMmQwYTktZjYxNS00MTIwLTg0ZjAtNWwNGE0ODMzZGJhliwidCI6IjFmYmQ2NWJmLTVkdWYtNGVIYS1hNjkyLWEwODIjMjU1MzQ2YiIsImMiOiJ9>

²² City Intelligence (December 2021) *Analytical update on London’s recovery, Presentation to the London Recovery Board*. Available at: <https://data.london.gov.uk/dataset/analysis-for-the-london-recovery-board>. See Slide 8.

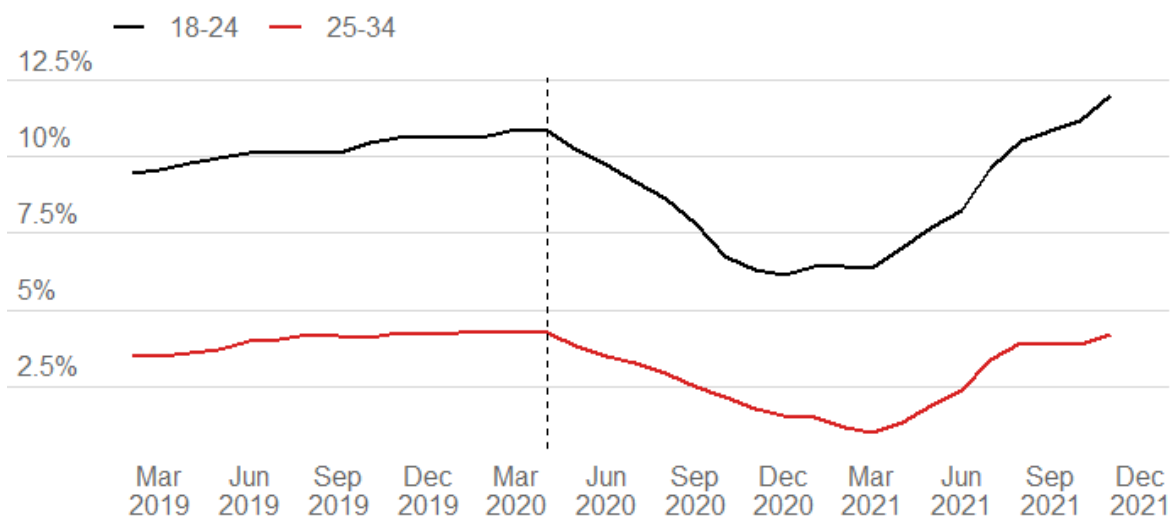
Figure 12: Indexed change in London payrolled employees by age group (Indexed: March 2020 = 100)



Data source: ONS, Earnings and Employment PAYE Real Time Information (H)

As mentioned above, the data on payrolled employees presented here covers only part of the working age population (not the self-employed or economically inactive). It also excludes children and older London residents, so it is not possible to draw reliable conclusions about population movements just from the economic data considered. But when considered together with the GP registration count data illustrated below in Figure 13, which shows a similar rebound, one may infer that many young adults left London in the months following the first lockdown, and many returned during 2021.

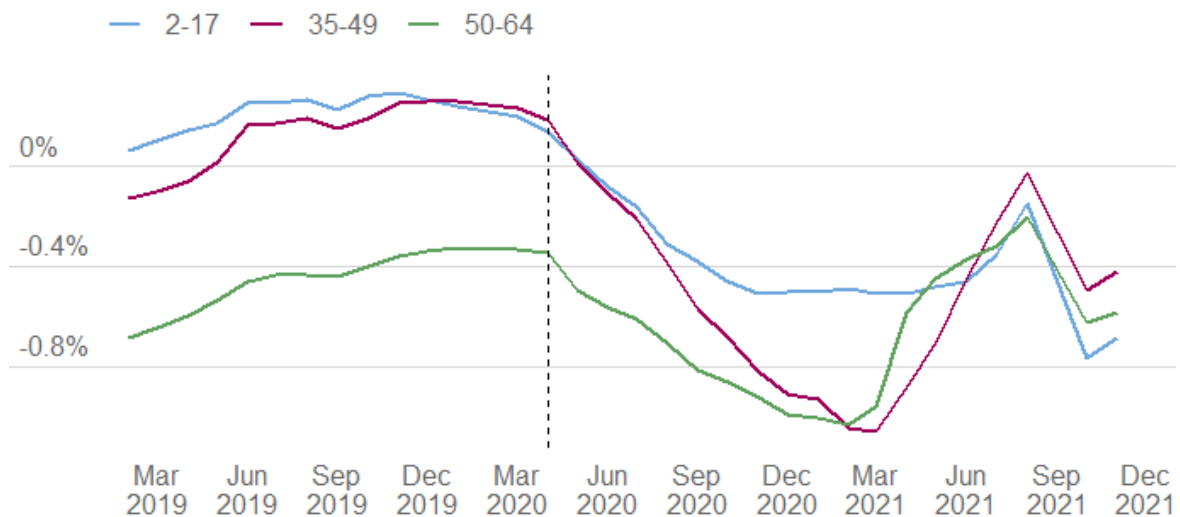
Figure 13: Proportional annual within-cohort change in GP register count for the age-groups 18 – 24 y. and 25 – 34 y. in London (percentage change from one year before)



Data source: NHS digital (J). Notes: Dotted vertical line at 1 April 2020. Cohort age at end of period.

GP registration counts for the other age-groups are summarised in Figure 14 (the over 65 years-old group are not included as the data will have been overly influenced by additional deaths from COVID-19). As for the 18-24 and 25-34 years-old age-groups, these data also show a dip during the pandemic, but the rebound during the Summer of 2021 was transient, in contrast to that for the young working-age population.

Figure 14: Proportional annual within-cohort change in GP register count for the age-groups 2 – 17, 35 – 49 and 50 – 64 y. in London (percentage change from one year before)

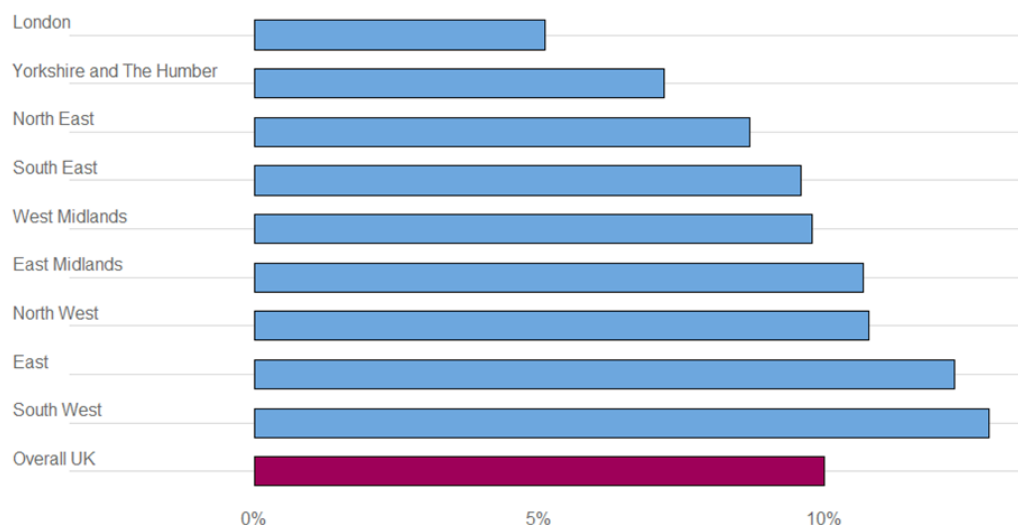


Data source: NHS digital (J). Notes: Dotted vertical line at 1 April 2020. Cohort age at end of period.

The influence of the pandemic on London’s population can also be inferred from trends in residential property data. For example, Figure 15 shows that house prices are rising more slowly in London than elsewhere. London’s house prices rose by 5.1% in the year to November 2021, while the adjacent regions of the South East and the East of England saw rises of 9.6% and 12.3%, respectively. Probably the greater price rises for housing outside London are driven by altered working patterns and a desire for more domestic space. Three trends have been noted by academic researchers - (a) a tilt in demand towards suburban family homes and away from urban flats; (b) decentralisation of demand to near urban locations with good connectivity to London; and (c) changing patterns of demand for more distant countryside locations beyond the London green belt.²³ While a proportion of these purchases might be for second homes, these housing data together with the GP data illustrated in Figure 14 make it clear that more families are leaving London than did so before the COVID-19 pandemic.

²³ Gallent, N. and Madeddu, M. (2021) Covid-19 and London’s Decentralising Housing Market – What are the Planning Implications? *Planning Practice and Research* Vol 36, No.5, pp. 567-577. Available at: <https://www.tandfonline.com/doi/full/10.1080/02697459.2021.1964782>

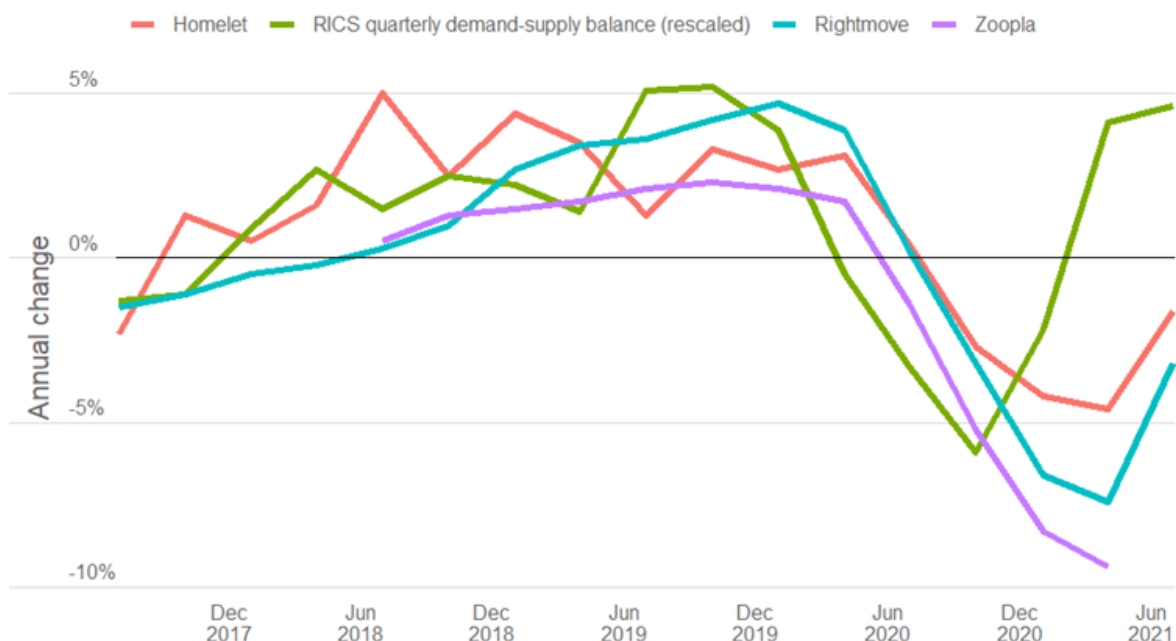
Figure 15: All dwellings annual house price rates of change, by English region, year to November 2021



Data source: ONS, House Price Index (K). Note: Data are not seasonally adjusted

Recent rental market data from sources summarised by the GLA and illustrated in Figure 16, indicate that average private rents in London dipped in mid-2020 and have since rebounded.²⁴

Figure 16: Quarterly indicators of private rental growth in London, 2017-2021



Data source: GLA, Housing in London report (L)

²⁴ Gleeson, J. and Finnerty, C. (November 2021) *Housing in London 2021*. Greater London Authority. Available at: <https://data.london.gov.uk/dataset/housing-london>. See p.59.

Average monthly rental value for new tenancies in London in December 2021 was £1,752 in London - 13% higher than December 2020, and 5% higher than their pre pandemic peak.²⁵ Figure 17 uses data from a “roommate” website to illustrates the surplus of properties available to rent in London during the pandemic in relation to people seeking tenancies. There was a big surplus of rooms to rent over the number of people searching between April 2020 and mid-2021, and the supply has now equilibrated. The increasing demand for rentals may be due partly to the return of students (most of whom were taught online during 2020/21) and Airbnb clients. Thus, the combination of property purchase and rental data indicates significant domestic movement away from London during the pandemic, and a recent partial return.

Figure 17: Trends in demand and supply for flat-sharing in London, September 2018 – November 2021 (thousands)



Data source: SpareRoom.com (M)

Migration summary

As mentioned at the start of this section, before the COVID-19 pandemic, the large migration flows to and from London largely balanced one another, with a relatively small net outflow as a remainder.

Official data indicate that international migration to the UK has fallen since 2019, mainly due to lower inflow from the EU. While the data is not available below UK-level, it seems reasonable to assume that the trends in London have broadly followed those for the whole country.

Indirect evidence summarised above indicates that the movement away from the centre of young people working in the hospitality and tourism sectors appears to have been largely reversed. In contrast it is not clear to what extent the increased outflow of older adults and their families, which likely resulted mainly from adoption of more flexible working patterns, will persist.

The GLA’s 2020-based population projections (published September 2021) assumed a greatly increased net migration outflow from London for the year to mid-2021 of around 138,000 (-129,000 net domestic,

²⁵ Homelet Average Rents London. Available at: <https://homelet.co.uk/homelet-rental-index/london?range=24>

and -9,000 net international)²⁶. These assumptions were based on the evidence available at the time of the analysis. As explained above, the indirect evidence from economic sources and patient registration data leads us to expect much of this additional net outflow to have reversed, and London's population to have largely recovered. Evidence from visa data suggests a temporary dip in international migration, which is why we still cautiously estimate an international outflow of around 10,000 for the year to mid-2021. Consequently, we surmise from the data assessed that the net migration outflow from London has likely increased since the start of the pandemic, with the caveat that accurately quantifying changes to migration flows remains difficult.

Conclusions

The data examined show that since early 2020:

- Deaths have increased, mainly in the over-75 age group, due to COVID-19.
- Annual births have continued their long-term downward trend, but there remains little evidence that fertility rates have been significantly impacted by the pandemic.
- Natural change in London since the start of the pandemic has remained positive but has been at the lowest level seen since the 2000s.

The data also indicate that:

- In the months following the first lockdown, there was short-term movement of young adults away from the centre related to the economic slow-down, and this has largely been reversed.
- In contrast, house-price and GP registration data indicate the increased rate of loss of other age groups to surrounding regions to be a more persistent trend.
- International migration flows to the UK and London fell due to the combined effects of the pandemic and Brexit. Recent visa data indicate that non-visitor flows at least partially recovered in the months to September 2021.

Hence our updated analysis of data sources has revealed a negative effect on London's population during the pandemic, with respect to both natural change and migration. Consistent with our earlier findings, the balance of evidence indicates that, in the first year of the pandemic, London's population likely saw its first annual fall in over three decades. However, the evidence now also supports the view that, since Spring 2021, London's population has been growing again, albeit at a slower rate than it had been prior to the pandemic.

²⁶ The GLA Demography Team produce annual population projections that include a range of variants based on different assumptions about future levels of migration. The most recent 2020-based projections, published in September 2021, are available at: <https://data.london.gov.uk/dataset/trend-based-population-projections>. All variants use common assumptions about migration for the year to mid-2021 that represented our view of the most likely size of migration flows to and from London, based on the evidence available at the time.

Appendix: Variation in COVID-19 mortality

This appendix provides some more details on mortality patterns in London, starting with geographical variation. Table A1 includes the number of deaths by borough since the start of the pandemic; the deaths from all causes that would have been expected over the same period, and the difference between these figures - the “excess deaths”.

Table A1: Cumulative deaths between 21/03/20 and 14/01/22, from all causes and involving COVID-19, in London, by borough (ranked by level of excess mortality)

	(1) Observed deaths	(2) Expected deaths	(3) Excess deaths	(4) Ratio observed/ expected	(5) COVID- 19 deaths	(6) COVID-19 deaths as % observed
Newham	3,340	2,497	843	1.34	917	27%
Redbridge	4,025	3,155	870	1.28	983	24%
Haringey	2,871	2,249	622	1.28	581	20%
Harrow	3,497	2,762	735	1.27	792	23%
Hackney	2,686	2,113	573	1.27	613	23%
Brent	4,075	3,231	844	1.26	982	24%
Hammersmith & Fulham	2,121	1,677	444	1.26	366	17%
Ealing	4,525	3,634	891	1.25	981	22%
Merton	2,689	2,179	510	1.23	531	20%
Barking and Dagenham	2,686	2,191	495	1.23	622	23%
Tower Hamlets	2,426	1,997	429	1.22	594	24%
Lewisham	3,344	2,766	578	1.21	710	21%
Enfield	4,498	3,761	737	1.20	883	20%
Hounslow	3,381	2,824	557	1.20	741	22%
Waltham Forest	3,094	2,581	513	1.20	674	22%
Havering	5,010	4,235	775	1.18	1,006	20%
Lambeth	3,071	2,602	469	1.18	658	21%
Hillingdon	4,306	3,684	622	1.17	851	20%
Sutton	3,139	2,685	454	1.17	561	18%
Croydon	5,398	4,651	747	1.16	1,134	21%
Barnet	5,181	4,467	714	1.16	1,051	20%
Greenwich	3,341	2,890	451	1.16	590	18%
Wandsworth	3,137	2,714	423	1.16	579	18%
Southwark	2,862	2,468	394	1.16	557	19%
Bexley	4,161	3,655	506	1.14	727	17%
Islington	2,285	2,009	276	1.14	410	18%
Westminster	2,327	2,068	259	1.13	454	20%
Bromley	5,158	4,722	436	1.09	849	16%
Kingston upon Thames	2,150	1,981	169	1.09	385	18%
Kensington & Chelsea	1,665	1,533	132	1.09	316	19%
Richmond upon Thames	2,399	2,236	163	1.07	390	16%
Camden	2,314	2,165	149	1.07	378	16%
LONDON TOTAL	107,162	90,382	16,780	1.19	21,866	20%

Data source: Office for Health Improvement and Disparities (OHID) Excess mortality in England (A)

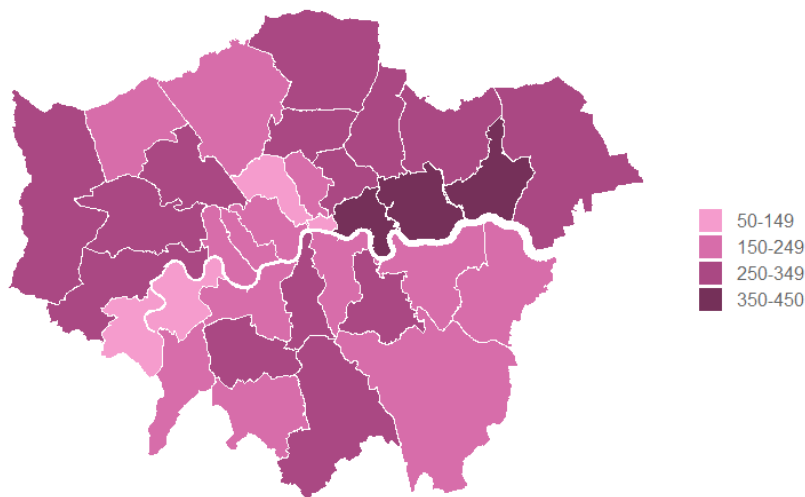
Notes: Expected numbers of deaths were modelled using the previous 5 years (2015-2019) of ONS death registration data²⁷; City of London is combined with Hackney.

²⁷ OHID (Oct 2021) Excess mortality in England: Methodology. Available at: <https://fingertips.phe.org.uk/documents/EMMethodology.pdf>

Table A1 reveals a more than three-fold variation in excess mortality between boroughs. Newham has the highest excess mortality at 34%, while Camden and Richmond-upon-Thames have the lowest value of 7% (column 4).

Excess mortality is useful to assess the impact of the pandemic, and mortality rates provide additional contextual detail for comparing geographical and demographic groups as it adjusts for their different age structures. Figure A1 maps the cumulative age-standardised COVID-19 related mortality rates per 100,000 population (deaths from March 2020 until April 2021) and shows how there is more than 2-fold variation between boroughs, with Newham, Barking and Dagenham, Tower Hamlets having the highest rates at 401, 391 and 359 per 100,000 population, and City of London, Richmond-upon-Thames and Camden having the lowest rates at 117, 145 and 146 per 100,000.²⁸

Figure A1: Age-standardised cumulative COVID-19 mortality rates in London, March 2020-April 2021 (deaths per 100,000 population)



Data source: ONS, Deaths due to COVID-19 by local area and deprivation (N)

Figure A2 plots the cumulative age-standardised COVID-19 mortality rate for each borough against the proportion of the population from an ethnic minority group for that borough, and shows a clear positive relationship between the two variables, consistent with findings across the whole of England from the start of the pandemic.²⁹ The most recently available (October 2021) cumulative age-standardised mortality rates for COVID-19 per 100,000 for London are 536 for Black/Black British, 512 for Asian/Asian British, 290 for Mixed/Multiple ethnic groups and 280 for White,³⁰ providing evidence that COVID-19

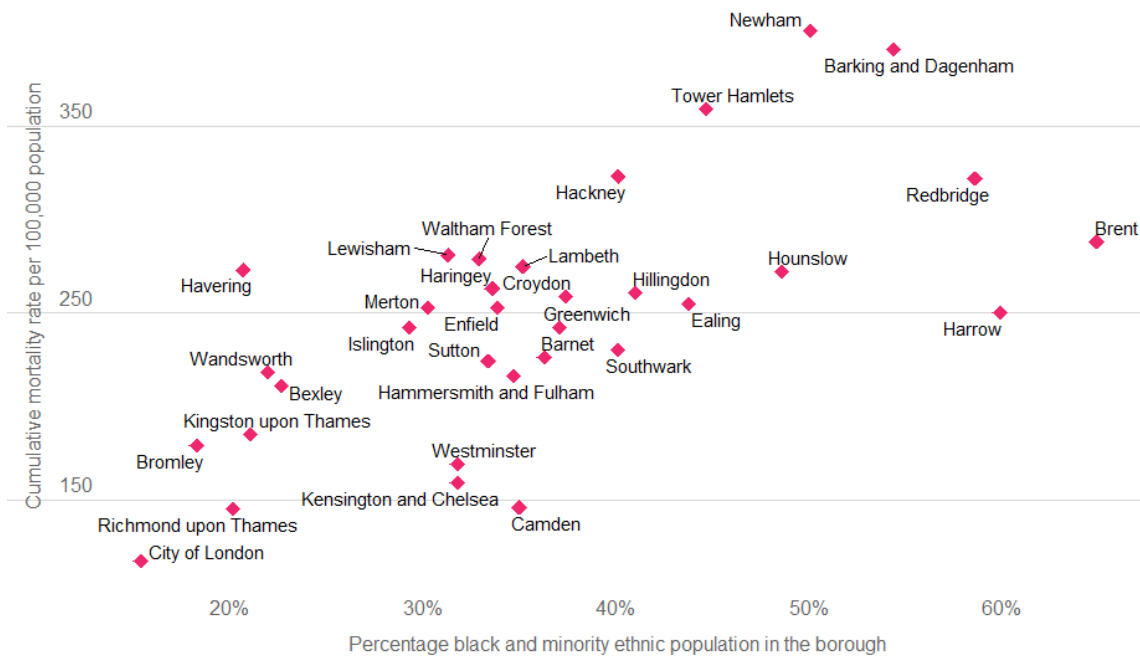
²⁸ The definition of a COVID-19 death used for the borough mortality rates shown in Figures A1 and A2 differs from that used for excess mortality calculation underlying Tables 1 and A1, and Figures 1 and 2. For the borough mortality rates, the denominator is deaths “Due to COVID-19” where the virus was specified as an underlying cause of death. For the other figures, the deaths are “Involving COVID-19” where the virus was mentioned anywhere on the death certificate. There has recently been discussion in the media of much lower mortality figures, where only those for whom COVID-19 was mentioned as the sole cause of death are counted. We do not consider these statistics in this report, as they under-represent the number who died from COVID-19.

²⁹ Nazroo, J and Becares, L. (2020) Evidence for ethnic inequalities in mortality related to COVID-19 infections: findings from an ecological analysis of England. *BMJOpen*. Available at: <https://bmjopen.bmj.com/content/10/12/e041750>

³⁰ Office for Health Improvement and Disparities (OHID) *COVID-19 Health Inequalities Monitoring for England (CHIME) tool*. Available at: <https://analytics.phe.gov.uk/apps/chime/CHIME>

has had a disproportionate impact on ethnic minority groups. It is now clear that the main factors behind their higher risk of infection include occupation, living with children in multigenerational households and living in densely-populated urban areas with poor air quality and higher levels of deprivation. For all ethnic groups, once a person is infected, factors including older age, male sex, having a disability or a pre-existing health condition (such as diabetes) are associated with a higher risk of death from COVID-19.³¹

Figure A2: Scatterplot of age-standardised cumulative COVID-19 mortality rate (March 2020 – April 2021) against the proportion of ethnic minority people in London boroughs

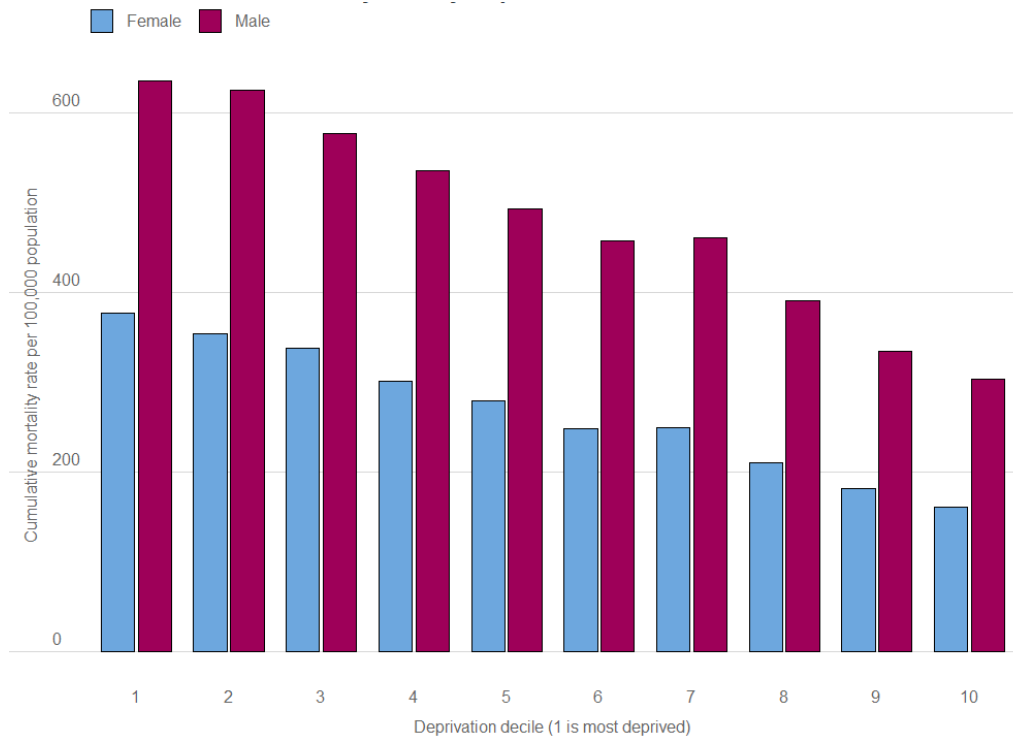


Data sources: Mortality rates from ONS (N); % BAME from GLA (O)

Figure A3, where decile 1 is the most deprived, shows the strong relationship of cumulative mortality rate with deprivation and the much lower rate in females.

³¹ Race Disparity Unit (December 2021) *Final report on progress to address COVID-19 health inequalities*. Available at: <https://www.gov.uk/government/publications/final-report-on-progress-to-address-covid-19-health-inequalities>

Figure A3: Age-standardised cumulative COVID-19 mortality rate in London, March 2020-November 2021, by deprivation decile and sex



Data source: OHID COVID-19 Health Inequalities Monitoring for England (CHIME) tool (B)

Internet links to data sources for tables and figures

- (A) <https://app.powerbi.com/view?r=eyJrIjoiYmUwNmFhMjYtNGZhYS00NDk2LWFIMTAtOTg0OGNhNmFiNGM0liwidCI6ImVINGUxNDk5LTRhMzUtNGlyZS1hZDQ3LTVmM2NmOWRIODY2NiIsImMiOiJh9>
- (B) <https://analytics.phe.gov.uk/apps/chime/>
- (C) <https://digital.nhs.uk/data-and-information/publications/statistical/patients-registered-at-a-gp-practice/>
- (D) <https://www.nomisweb.co.uk/query/construct/components/stdListComponent.asp?menuopt=12&subcomp=100>
- (E) <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/bulletins/longterminternationalmigrationprovisional/yearendingdecember2020/relateddata>
- (F) <https://www.gov.uk/government/statistics/population-of-the-uk-by-country-of-birth-and-nationality-year-ending-june-2021>
- (G) <https://www.gov.uk/government/statistics/immigration-statistics-year-ending-september-2021/list-of-tables#entry-clearance-visas>
- (H) <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/earningsandemploymentfrompayasyouearnrealtimeinformationuk/january2022>
- (I) <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/earningsandemploymentfrompayasyouearnrealtimeinformationuk/november2021>
- (J) <https://digital.nhs.uk/data-and-information/publications/statistical/patients-registered-at-a-gp-practice/>
- (K) <https://www.ons.gov.uk/economy/inflationandpriceindices/bulletins/housepriceindex/november>
- (L) <https://data.london.gov.uk/download/housing-london/822effdf-3d0f-4adf-86c2-55f286ef2bac/Housing%20in%20London%202021%20-%20tables%20data%20only.xlsx> (sheet 3.14)
- (M) <https://spareroom.co.uk/flatshare-house-share/uk/>
- (N) <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/deathsduetocovid19bylocalareaanddeprivation>
- (O) <https://data.london.gov.uk/dataset/ethnic-group-population-projections>

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