CITY INTELLIGENCE

Population change in London during the COVID-19 pandemic

Annex: Overview of data sources

May 2021

Introduction

This annex provides a brief overview of the various data sources considered in the production of the report. Not all sources included here are discussed in the report itself. This document will be periodically updated to include both new sources and changes to existing ones.

Deaths and mortality

ONS death registrations and occurrences

ONS improved the timeliness and quality of its death statistics in response to the pandemic, with weekly provisional data published by COVID-19/other cause of death at local authority level with just two weeks of lag[1]. This data is available both by date of occurrence and by the date that the death was registered. Data broken down by age are regularly published at national level[2].

Prevalence of ongoing symptoms following COVID-19 infection

ONS has begun reporting on the duration of symptoms for persons previously infected with COVID-19. This analysis is based on self-reported symptoms from those participating in the Coronavirus Infection Survey (CIS)[3].

UK Government Coronavirus Dashboard

A wide range of data on coronavirus cases, vaccinations, patients in hospital, and deaths are published via the government's COVID-19 dashboard. The deaths data available through the dashboard are produced by Public Health England from multiple sources linked to confirmed cases. The data aligns closely with that published by ONS, but some alternative metrics are available, including deaths by age at region level.

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1 https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/datasets/deathregistrationsandoccurrencesbylocalauthorityandhealthboard

2 https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/weeklyprovisionalfiguresondeathsregisteredinenglandandwales

3 https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/1april2021

PHE Excess Mortality in England

Public Health England publish weekly estimates of excess mortality[4]. These estimates include various breakdowns of the data, including by cause of death, age group, deprivation, and ethnic group.

Births and fertility

ONS estimates based on birth registrations

ONS produces a range of official birth estimates at different geographic levels based on birth registrations. For regions, these estimates are typically published between seven months (for calendar year data) and a year (for mid-year data) after the end of the period they cover. At the time of writing, the most recently published set of official birth estimates available are those for calendar year 2019[5].

Updated estimates are scheduled for release as part of the 2020 mid-year population estimates in June 2021. However, due to delays in the registration of births as a result of the pandemic, it may be the case that complete data based on birth registrations will not be available for use in this release.

ONS provisional estimates based on birth notifications

As a workaround for the current issues with birth registration data, ONS is working with NHS Digital to produce provisional estimates of births based on birth notifications[6].

ONS recently released provisional monthly birth estimates for local authorities covering the period up to the end of August 2020[7]. These estimates are based on birth registrations up to the end of 2019 and then birth notifications from January 2020 onwards.

Number of infants present on the GP register

The number of children aged 0 (i.e. that have yet to reach their first birthday) registered with a GP provides a good indication of the number of births that occurred over the previous 12 months. For a number of years, the GLA has made use of GP registration data to create more timely birth estimates for use in projections of population and demand for school places[8].

The accuracy of the estimates produced in this way are dependent upon the consistency of the relationships between the number of 0-year olds on the GP register and the number of births.

The differences between the two figures are the result of:

- net migration of infants in or out of the area of interest
- delays in the registration of infants with a GP (which largely accounts for why the number of 0-year olds on the GP register is lower than the number of births).

Accuracy is therefore generally better for larger geographic areas where these effects will be subject to less volatility over time. Previous analysis by the GLA has indicated that, at London-level, birth estimates produced from GP registration data are typically accurate to around 1 percent of subsequent published

[4] https://fingertips.phe.org.uk/static-reports/mortality-surveillance/excess-mortality-in-england-latest.html
[5] https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/datasets/birthsummarytables
[6] https://digital.nhs.uk/services/birth-notification-service
[7] https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/adhocs/13094livebirthsbymonthsexandareaofusualresidenceofmotherenglandandwalesseptember2019toaugust2020provisional
[8] https://data.london.gov.uk/dataset/estimating-births-using-gp-registration-data

actuals. However, any shifts resulting from the pandemic in migration patterns or the time taken to register infants with a GP could serve to reduce the reliability of the estimates.

Data on the number of patients registered with a GP by single year of age by location of GP is published monthly by NHS Digital[9]. The GLA also receives six-monthly extracts of patient counts by age and location of residence under license from NHS Digital.

Jobs and employment

Pay As You Earn (PAYE) Real Time Information (RTI) data

These are experimental statistics[10] jointly produced by ONS and HMRC and first published in December 2019. Since April 2020, the data has been updated monthly. The data covers people paid through the Pay As You Earn (PAYE) system and should still include those employees who are furloughed as part of the Coronavirus Job Retention Scheme (CJRS).

The data is available with a number of different breakdowns, including:

- Number of employees by industry for the UK
- Number of employees by age for the UK
- Numbers of employees and median pay for UK regions and subregions (NUTS2)
- Numbers of employees by nationality for UK regions

Employees are counted where they are resident, rather than where their job is located. As such, the data will reflect moves of employees between regions, even if their place of employment does not change.

Labour Force Survey

The Labour Force Survey (LFS) is a study of the employment circumstances of the UK population. It is the largest household study in the UK and provides the official measures of employment and unemployment.

Since the start of the pandemic, ONS has had to suspend face to face interviews for the survey. This in turn has introduced potential biases into the survey sample and results. In addition, some measures that ONS publish, are weighted to populations from the 2018-based subnational population projections (SNPP). Given the likely impact of the pandemic on demographic trends, ONS warns users that:

Rates published from the LFS remain robust; however, levels and changes in levels should be used with caution. This will particularly affect estimates for country of birth, nationality, ethnicity and disability.

International migration

International Passenger Survey

The International Passenger Survey (IPS) collects information about passengers entering and leaving the UK, and has been running continuously since 1961. The IPS conducts between 700,000 and 800,000 interviews a year, of which over 250,000 are used to produce estimates of overseas travel and tourism.[11]

[9] https://digital.nhs.uk/data-and-information/publications/statistical/patients-registered-at-a-gp-practice

[10] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/earningsandemploymentfrompayasyouearnrealtimeinformationuk/march2021

[11] https://www.ons.gov.uk/surveys/informationforhouseholdsandindividuals/householdandindividualsurveys/internationalpassengersurvey

The IPS has long been the foundation for the UK's international migration estimates. Other methods and sources have been introduced to supplement and spatially disaggregate the estimates, but the overall immigration and emigration flow estimates continued to be principally derived from IPS data until its suspension in March 2020.

Prior to its suspension, ONS produced a range of outputs based on the data, including estimates of migration by:

- Citizenship
- Country of next or last residence
- Country of birth
- Main reason for migration

While the IPS resumed in January 2021, it is not expected to have the same role in future migration estimates.

ONS modelled international migration estimates

ONS released a set of experimental estimates of international migration on 16 April 2021. These estimates underpin their *early indicators of UK population size and age structure*[12], published the same day, and the same approach will also be used to help inform the 2020 mid-year population estimates scheduled for publication in June 2021.

These estimates are based on a combination of time-series modelling, expert judgement, and a range of data sources, including:

- Visa applications
- Patterns of travel behaviour by visa holders
- Passenger arrivals and departures
- GP Patient registrations and Patient Demographic Service (PDS) embarkations

ONS stress the high level of uncertainty that exists within the estimates at this time and present the results as ranges, rather than point estimates.

The data is presented as monthly estimates of flows to and from the UK by nationality (British, EU, and non-EU), with upper and lower confidence intervals presented for each flow. The published data spans January 2018 to June 2020, with estimates based on the new modelled approach being used from March 2020 onwards and IPS-based estimates for months prior to this. ONS intend to extend these modelled to the end of 2020 in a subsequent iteration.

EU Settlement Scheme

The EU Settlement Scheme (EUSS) is a digital system that enables UK residents who are EU, EEA and Swiss citizens and their families to obtain settled or pre-settled status to continue living in the UK after June 2021. The Scheme formally launched in March 2019, though applications began to be accepted from August 2018.

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12 https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/articles/earlyindicatorsofukpopulationsizeandagestructure2020/2021-04-16

The Home Office publishes experimental statistics on the number of applications received and cases concluded, derived from the administration of the scheme[13].

Births by mother's place of birth

ONS publish annual data on the place of birth of new parents. This data is available at local authority level with the following breakdown of mother's place of birth:

- UK
- Pre-2004 EU countries
- Post-2004 EU accession countries
- Non-EU Europe
- Asia
- Africa
- Rest of world

Data for calendar year 2020, the first covering the post pandemic period, is scheduled for publication in July to August 2021. However, delays in birth registrations resulting from the pandemic could potentially affect the timing of this release.

ONS estimates of population by nationality and country of birth

ONS publishes annual estimates of the population by country of birth and nationality[14]. These incorporate rates derived from the Annual Population Survey (APS) applied to subnational population projections for the year in question. The APS itself is based on the Labour Force Survey, combining data from multiple waves of the LFS and local sample boosts.

Data is published at different levels of detail in terms of geography (from national, down to local authority) and country of birth/nationality (from a simple UK/non-UK split, down to individual countries). Such is the nature of sample-based estimates, the greater the detail of the output, the greater the size of the confidence intervals associated with the estimates.

The reliability of estimates based on the data are also dependent on:

- The accuracy of the overall population estimates to which the survey data are being grossed-up to match.
- The representativeness of the survey samples data.

ONS discourage users from using change in successive years of the estimates to attempt to infer annual migration flows, primarily due to the uncertainty in each individual estimate and the corresponding unreliability of the results.

The pandemic has created additional problems for the reliability of estimates based on the LFS and APS:

- The population projections currently available for use in grossing-up the estimates are based on data to mid-2018 and so take no account of the pandemic's impact on population trends – potentially skewing the resulting populations by country of birth/nationality.

[13] https://www.gov.uk/government/collections/eu-settlement-scheme

[14] https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/datasets/populationoftheunitedkingdombycountryofbirthandnationality

- The suspension of face-to-face interviewing for the survey is believed to have significantly skewed sample collection. While ONS has attempted to mitigate this issue by adjusting sample weights, it seems unlikely that this alone is sufficient to ensure that the data accurately represents the migrant population.

HM Customs and Revenue Real Time Information system

Experimental statistics based on HMRC's RTI system were discussed earlier in this document in the context of monitoring changes in employment. Recently published data from ONS has included a table of the number of employees by nationality and region. For this data, nationality is taken from the Migrant Worker Scan (MWS)[15], and based on evidence provided as part of individuals' applications for a UK National Insurance Number. The published data breaks nationality down into three categories: UK, EU and Rest of World.[16]

ONS provide a number of warnings and notes about the data and its limitations, including the following:

- *The changes in numbers reflect those entering or leaving paid employment, rather than entering or leaving the country. Hence, migrants entering paid employment in PAYE RTI do not need to be recently resident in the UK.*
- *Care should be taken when interpreting monthly changes as they might reflect changes in operational activity. Annual year-on-year changes are more reliable to reflect longer-term trends.*

National Insurance Number (NINo) registrations

National Insurance numbers (NINo) are provided to all individuals eligible and intending to work in the UK. Data on NINos registered to overseas nationals can provide useful information about migration trends, particularly in terms of the composition of migration flows by country of origin. However, the number of new registrations is not a direct proxy for long-term international migration[17].

Like many other sources of migration data, NINo registrations have been affected by the pandemic and the Department for Work and Pensions (DWP) has issued the following notice.

It is important to acknowledge that due to the Coronavirus (COVID-19) pandemic, NINo operations have been severely disrupted since mid-March. Demand for NINo services may have been impacted but this cannot be inferred from these statistics.

It is important to note that EU NINo services have been more heavily disrupted than Non-EU NINo services by the COVID-19 pandemic, this is due to the suspension of the 'Evidence of Identity' interview which EU applicants must attend. The majority of NINo registrations to EU nationals in Q3 2020 are registrations made for benefit purposes and do not necessarily reflect the demand for a NINo from EU nationals. Extreme caution must be taken when using the EU registrations for year ending September 2020 and Q3 2020 for migration statistics, due to the larger impact the Covid-19 pandemic has had on the NINo allocation service to EU nationals.

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15 https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/migrantworkerscanqualityassuranceofadministrativedatausedinpopulationstatisticsjan2017

16 https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/employmentsfrompayasyouearnrealtimeinformationadhocestimatesofpayrolledemployeesbynuts1regionandnationalityseasonallyadjusted

17 https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/noteonthedifferencebetweennationalinsurancenumberregistrationsandtheestimateoflongterminternationalmigration/2016

The postal process for NINo applicants with a valid work visa was reinstated on 1 June, after being suspended in March 2020, affecting applications from Non-EU nationals.

NINo registration data is therefore likely to be an unreliable guide to migration patterns since the start of the pandemic. However, the data is still useful for understanding longer-term trends including the impact of the referendum on arrivals from the EU.

Domestic migration and overall population change

Average rental prices for new tenancies

Statistics published by ONS[18] cover existing as well as new tenancies, making them slow to reflect changes in pricing. Estimates of rental prices for new tenancies only are published by several commercial companies.

This report uses published data from the HomeLet Rental Index[19]. According to their methodology statement, HomeLet's Rental Index is based on data gathered from their tenant referencing service, with rental amounts being based on actual achieved rental prices with accurate tenancy start dates in a reported month, rather than advertised costs. In creating their index values, HomeLet state that they factor in property type and geography, to create mix adjusted averages.

Figures are also quoted from the Rightmove Rental Price Tracker[20]. This is based on a dataset compiled from the asking rents of properties coming onto the market. The prices are adjusted to account for the mix of properties and excludes short lets.

Persons registered with a GP

Counts of patients present on the GP register can provide useful indicators of population change with less lag than official estimates. However, the data is not a direct substitute for population estimates. Delays in registration, especially among young adults, and list inflation caused by the slow purging of past emigrants from registers, mean that the data must be interpreted with caution. The quality of the data is best for groups that engage the most with GP services, typically children, older people, and women. Data tends to be worst for young adult men, and in areas with a large amount of international migration.

NHS Digital publish a range of data[21] on a monthly basis on the number of patients registered with a GP. In addition, the GLA receives six-monthly extracts of patient counts by age and location of residence under license from NHS Digital.

[18] https://www.ons.gov.uk/economy/inflationandpriceindices/bulletins/indexofprivatehousingrentalprices/march2021
[19] https://homelet.co.uk/homelet-rental-index
[20] https://www.rightmove.co.uk/news/rental-price-tracker/
[21] https://digital.nhs.uk/data-and-information/publications/statistical/patients-registered-at-a-gp-practice

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