

Housing Supply & Population Density

- **Poor Data Limits Analysis of New Supply But EPCs Offer Some Insight**
- **Supply Has Increased Most In Areas With Lower Population Density**

New housing supply has rapidly increased across England since 2013 but the lockdown will have curtailed construction. Unfortunately, there is a lack of detailed, accurate, and timely statistics on housebuilding. This makes it difficult to assess what type of homes are being built, where they are being built, and who is building them. This is always an issue but especially so at the moment given the likely impact of the lockdown and the need to understand what is and isn't happening during the recovery. While we don't yet really know what is happening now, we can look back at what has been happening to housing supply. This note uses individual Energy Performance Certificates (EPCs) issued on new build properties to assess where new housing supply was being delivered with respect to population density. It highlights a big increase in housing delivery in less dense locations since 2013 while city centre delivery has stagnated since 2016.

A U-Shaped Distribution

There are massive problems with the available housing supply data in England. These issues limit our understanding of the housebuilding sector, make it difficult to accurately assess the success or failure of existing government policies, and constrain our ability to identify new policies that could increase supply. We have [talked recently](#) about the different housebuilding statistics and the [Housing Supply](#) series published by MHCLG are the best available for both net additions and new build completions. Unfortunately, they are currently only published once a year, 8 months after the financial year-end, and only provide data on total numbers by local authority. It is possible to tease out some information on tenure using MHCLG's [Affordable Housing Supply](#) data but it is limited and doesn't tell us anything about the type of housing or detailed location.

Fortunately, we now have access to individual Energy Performance Certificates (EPCs) issued on new build properties and, so far, these appear to act as a good proxy for total new housing supply (see Figure 3). This data allows us to assess housing supply in a more detailed way than previously possible and so, in this note, we are investigating the relationship between the location of new supply and population density. We have categorised Lower Super Output Areas (LSOAs) across England into deciles (ten groups) based on population density in 2018. The results of this analysis for 2019 are shown in Figure 1 below. Inevitably, there are more flats built in the most dense locations (deciles 1 & 2) and more houses in the least dense locations (deciles 9 & 10) but the overall U-shape is perhaps more surprising.

Figure 1: New Housing Supply by Population Density Decile, 2019

Source: MHCLG, ONS, OS

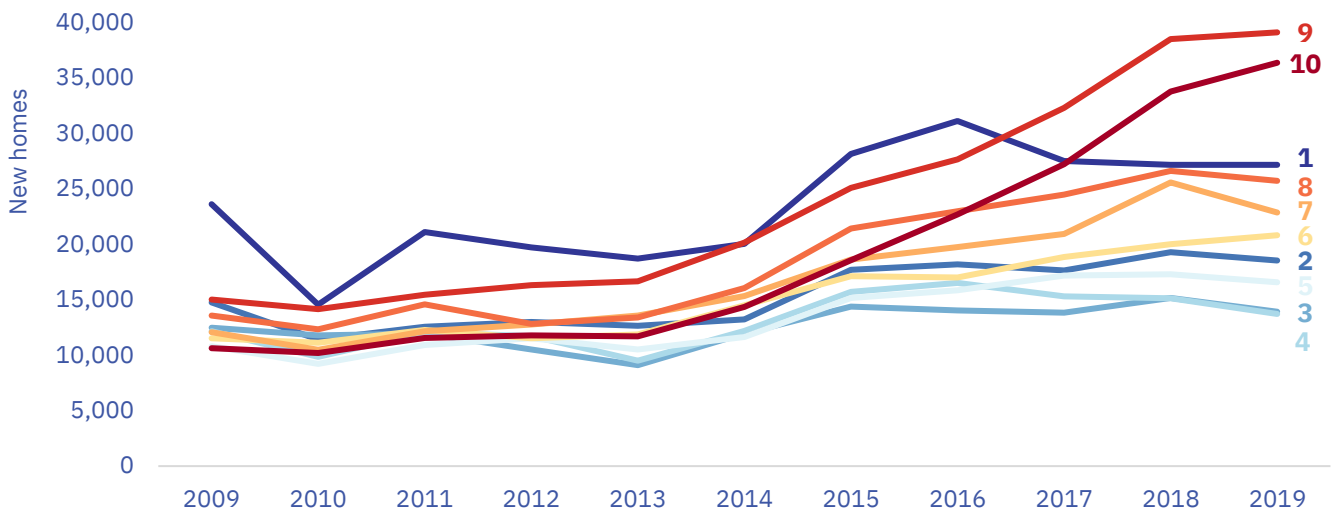


Digging Deeper

Housing supply has increased rapidly since 2013 but our analysis of new build EPCs by population density decile shows that it has not increased equally across all locations. As Figure 1 highlighted, there is now a U-shape in the distribution with 32% of new build EPCs during 2019 located in the two least dense deciles (9 & 10). However, this was not the case prior to 2014. While there has been an increase in supply across all deciles following the introduction of Help-to-Buy equity loan in 2013, the increase has been greatest in areas with lower population densities. Figure 2 below highlights the change in number of new build EPCs by decile. It shows the rapid rise in supply in the most dense decile (1) was curtailed from 2017 onwards. This was most likely due to the introduction of a 3% additional stamp duty band for investors in 2016. Meanwhile, the chart also shows a large part (44%) of the increase in total supply since 2013 was in the two least dense deciles.

Figure 2: New Housing Supply by Population Density Decile Over Time

Source: MHCLG, ONS, OS



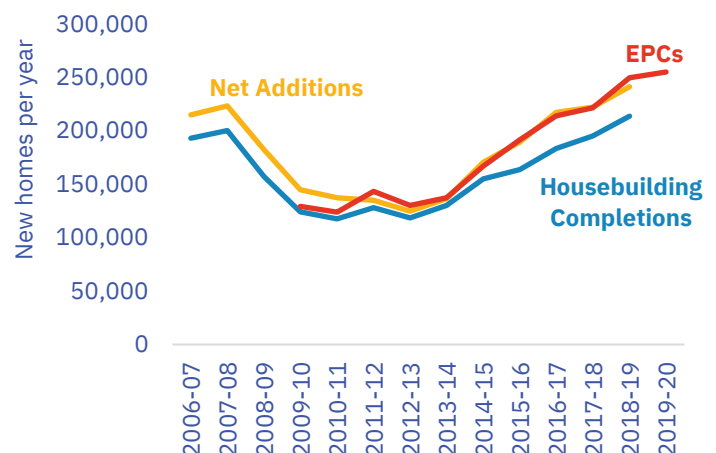
The larger increases in supply found in less dense locations is not particularly surprising given trends in housing and planning policy in recent years. Research into Help-to-Buy equity loan has found that buyers frequently used the scheme to buy bigger homes than they would've done otherwise and MHCLG statistics show 82% of total Help-to-Buy completions were houses. Meanwhile, housebuilders have typically concentrated their activity on larger greenfield sites due to a combination of planning policy, use of strategic land, and more limited competition from other property use classes in these locations. The implications of this research aren't as clear as they might have been prior to COVID-19. We probably would've highlighted the need for more new supply in denser locations but, although the long-term impact on consumer preferences as still up for debate, there does currently appear to be a preference for moving away from city centres in search of more space and gardens.

Figure 3: Measures of New Supply

Source: MHCLG, England

EPCs As A Leading Indicator

Energy Performance Certificates have proven themselves a reliable early indicator for net additions in recent years and MHCLG include them as a supplementary data source in their quarterly housebuilding release. Figure 3 opposite shows the relationship between the number of EPCs and net additions and they currently suggest that net additions in the 2019/20 financial year were around 250,000 homes across England.



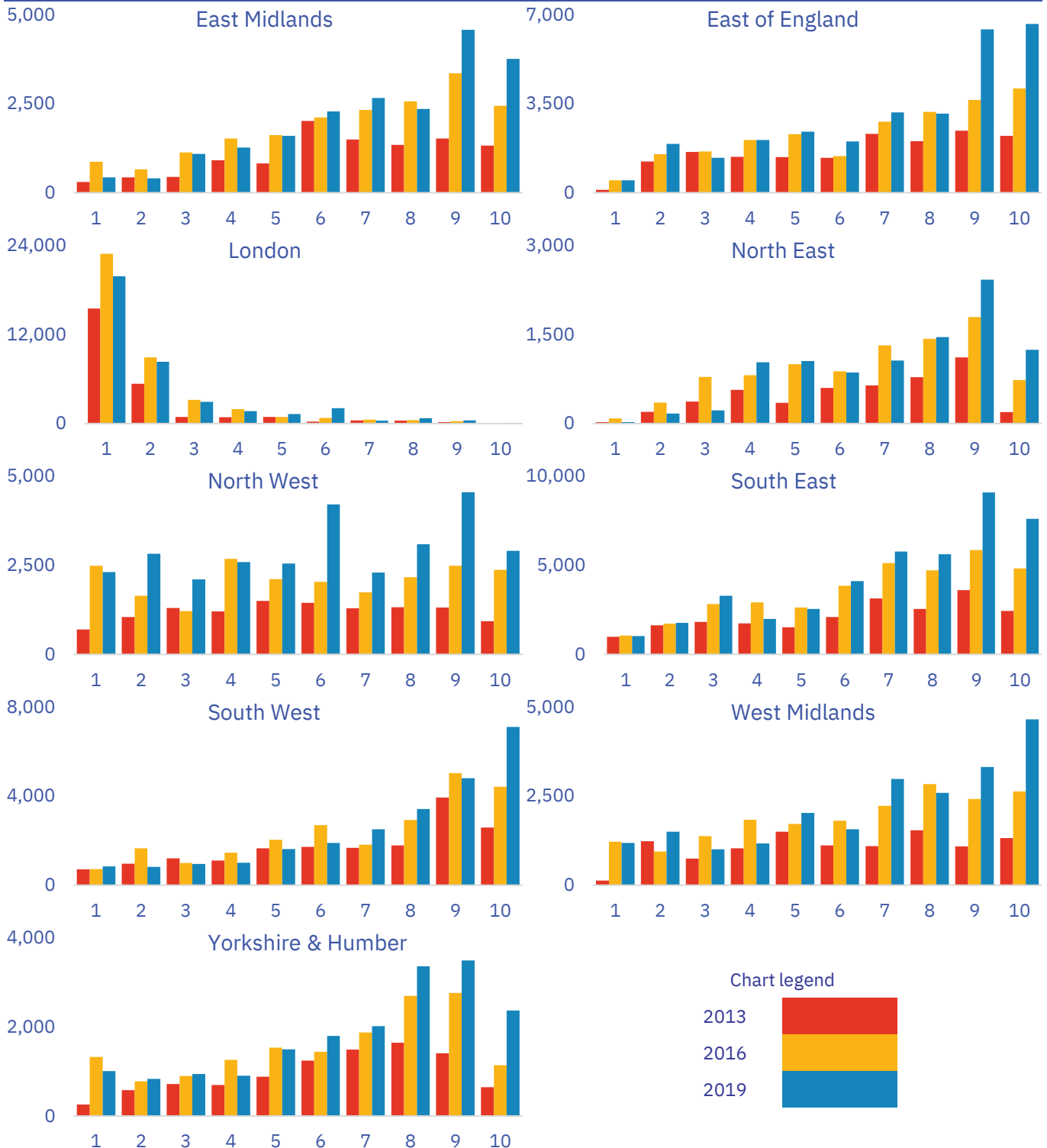
Digging Deeper

A London Effect?

The rapid rise and subsequent decline in new build EPCs in the most dense decile (1) inevitably raises the question of whether this is just a London effect and so the U-shape is the result of the housing market cycle. As Figure 4 below shows, the majority of new supply in the most dense decile is indeed found in London but not just limited to it. The North West and to a lesser extent the West Midlands and Yorkshire & Humber have seen an increase in delivery in the most dense decile. The regional analysis also highlights that, with the exception of London and possibly the North West, new supply is heavily concentrated in the least dense deciles.

Figure 4: New Housing Supply by Population Density Decile & Region

Source: MHCLG, ONS, OS



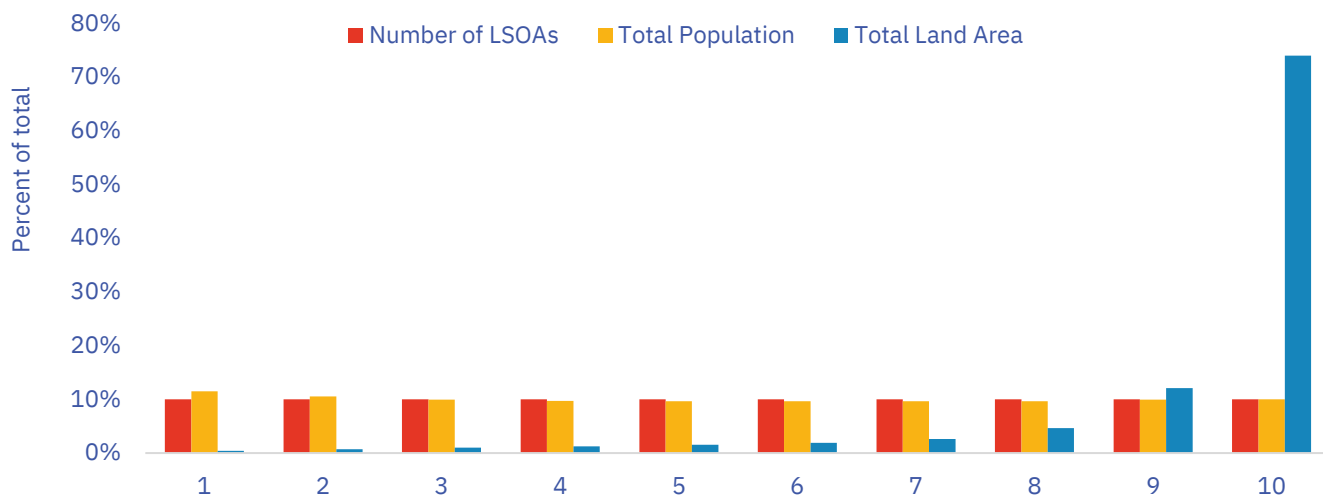
Digging Deeper

Methodology

We chose to define location by population density to highlight where new supply is located relative to existing housing and population. We specifically defined the deciles with respect to the number of LSOAs but this also broadly reflects total population. However, as Figure 5 shows, there is a clear difference when our defined deciles are viewed relative to total land area. The least dense decile accounts for 74% of total land area across England. This result clearly has an impact on the previous results given development requires land and analysis that categorised the population density by land area would not have led to the same results.

Figure 5: New Housing Supply by Density Band, England

Source: MHCLG, ONS, OS



The Hyde Park Problem

One of the challenges we faced when trying to determine population density was what geography should we use. We ultimately picked LSOAs as an area broad enough to reflect the local character of an area that might be missed by output areas but equally fine enough to capture detail across local authorities.

Our first pass at categorising the LSOAs raised an important issue that we have called the Hyde Park problem based on the London park. Inevitably the calculation of population density is heavily dependent on the size of the area and so you can end up with LSOAs covering very dense locations (Knightsbridge) and much less dense areas (Hyde Park). The calculation of an average density across the whole LSOA may be technically accurate but doesn't reflect the true character of the area. Therefore, we calculated the density at output area and then calculated the median output area density within each LSOA. The results of our analysis are shown in the map opposite.

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Figure 6: LSOA Density Categories

Source: Residential Analysts using ONS & OS data

