BANCA D'ITALIA

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Questioni di Economia e Finanza

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LIVING ON MY OWN:
THE IMPACT OF THE COVID-19 PANDEMIC ON HOUSING PREFERENCES

by Elisa Guglielminetti,* Michele Loberto,* Giordano Zevi* and Roberta Zizza*

Abstract

We quantify the impact of the COVID-19 pandemic on the housing demand of Italian households by exploiting new information on their search activity on the market. The data comes from two unique datasets: the Italian Housing Market Survey, conducted quarterly on a large sample of real estate agents, and the universe of weekly housing sales advertisements taken from Immobiliare.it, a popular online portal for real estate services in Italy. The latter includes high-frequency and house-specific measures of the online interest of potential home buyers. The pandemic generated a large increase in demand for houses located in areas with a lower population density, mainly driven by a significant shift in preferences towards larger, single-family housing properties, with outdoor spaces. Fear of contagion, lockdown measures and the growth in remote working arrangements all likely shaped the evolution of housing demand, with potentially long-lasting consequences on the housing market.

JEL Classification: I18, O18, R21, R31.
Keywords: COVID-19, housing market, real estate, online housing advertisements, survey data, working from home.
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Contents

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1 Introduction[1]

The outbreak of the COVID-19 pandemic in the first months of 2020 dramatically changed households' behaviour in many respects. The fear of contagion and the restrictions introduced by the governments reduced mobility and social contacts. Many people experienced working from home arrangements for the first time and for a prolonged period, as well as new ways of spending (e.g. e-commerce, pay-TV and so on). Such changes severely affected the housing market, with potentially long-lasting consequences on the distribution of wealth and the organization of cities. A recent stream of works shows that in the US, house demand in suburbs and rural areas outperformed that in larger cities (Liu and Su, 2020; Gupta et al., 2021; Bloom and Ramani, 2021), reversing the pre-pandemic trend. A similar pattern has also been observed in other countries, for example the UK and Italy.

The aim of the paper is to quantify the impact of the epidemic on housing demand, with respect to both the physical characteristics of the houses and their location. Identifying the drivers of these shifts in demand is very useful for assessing whether these changes will be transitory or permanent. The housing market provides an interesting setting to understand how households perceive the persistence over the next few years of changes in their habits.[2] Moreover, structural modifications in housing demand could have radical consequences for the organization of cities, one of the major sources of growth and innovation (Glaeser, 2011).

We focus on the Italian market. In Italy the epidemic spread from the end of February 2020 and the government enacted a strict countrywide lockdown until May; then in the autumn, the country underwent a second wave of infection which the government addressed with differentiated restrictions across the country. Over this period, the fear of infection was widespread, according to consumer surveys. Furthermore, the pandemic induced a surge in working from home. Employers (and employees) learned that a significant share of jobs could be done remotely: indeed, this share increased ten-fold in the private sector and almost fifteen-fold in the public one.[3] All these factors probably affected the housing preferences of households and made their current homes inadequate

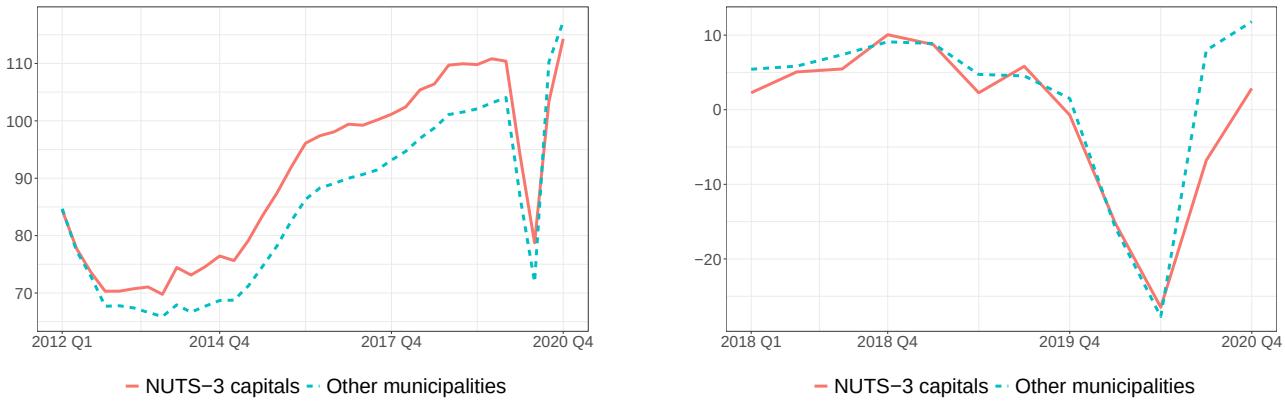
[1]The views expressed herein do not necessarily reflect those of the Bank of Italy. We are extremely grateful to Immobiliare.it for providing the data and for their assistance. The underlying data have been provided free of charge by Immobiliare.it for research purposes. They contain no personal confidential information. We thank Andrea Luciani for his assistance in the construction and maintenance of the dataset and Laura Bartiloro, Paolo Del Giovane, Silvia Fabiani, Stefano Neri and Alfonso Rosolia for their useful comments. All errors are our own.

[2]On the one hand, housing demand is highly responsive to cyclical macroeconomic drivers, such as household income and mortgage interest rates. On the other hand, housing demand factors in long-term considerations, as buying a house is one of the most significant and infrequent economic choices for a household, and it is hardly reversible in the short-term due to the illiquidity of real estate assets.

[3]For Italy, Depalo and Giorgi (2021) estimate that the percentage of employees in the private sector working from home rose to 14.4 per cent in the second quarter of 2020 from 1.4 per cent one year before. The expansion was even sharper in the public sector, to 33 per cent from 2.4 per cent the same period (Giuzio and Rizzica, 2021). On the employers' side, Basso and Formai (2021) report that more than 80 per cent of private firms resorted to this working arrangement in 2020, compared with less than 30 per cent the year before.

for their new needs, thereby boosting housing demand. Indeed, official data show that the dramatic fall in housing transactions in the first half of the year was followed by a sharp rebound, especially in small municipalities (Figure 1).

Figure 1: House sales in Italy



(a) *Levels* (b) *Y-o-y growth rates*

Source: our calculations based on data from OMI. For panel (a) data are seasonally adjusted and represented as an index equal to 100 in 2011. In 2019 housing transactions in NUTS-3 capitals accounted for 34 per cent of total transactions; in 2020 their share decreased to 32 per cent.

Compared with the existing literature, we exploit two unique datasets reporting detailed and timely information about households' housing demand and their search behaviour in the housing market.

The first dataset is the Italian Housing Market Survey (IHMS), a quarterly survey on a large sample of real estate agents that gathers their opinions regarding the current and expected performance of residential sales and rental markets. These data allow us to gauge the changes in sentiment and preferences as seen by the professionals in the field just before and during the pandemic.

The second dataset is the universe of housing sales advertisements (ads) provided by Immobiliare.it, the most popular online portal for real estate services in Italy. For each ad we have detailed information about the physical characteristics, location and asking price of the dwelling. Importantly, we have direct evidence on the interest of potential buyers for each dwelling, as we observe the number of views (*clicks*) and how many times the seller has been contacted by a potential buyer through the website (*contacts*). This information is updated weekly, thus making possible timely analyses of shifts in households' searching activity in the housing market in connection with the evolution of health conditions and local government restrictions. *Clicks* tell us where and what people are looking for, while *contacts* tell us which houses potentially suit the preferences of home buyers. To the best of our knowledge, this is the first paper to use information about online interest in properties at the

house level to analyse housing demand.

The empirical analysis yields the following results. First, we find a sudden significant shift in housing demand right after the outbreak of the pandemic, regarding both the physical characteristics and the locations of the houses. Real estate agents report a shift in demand towards larger dwellings, single-family homes (possibly with outdoor spaces), and houses in less congested locations. Moreover, the real estate agents reporting these changes in housing demand are also more optimistic about the medium-term outlook for the housing market, meaning that they consider these changes to be fairly permanent.

Second, evidence from online search activity confirms the assessments of real estate agents. Although in the second half of 2020 housing demand increased almost everywhere and in all market segments, its intensity has been heterogeneous. Without controlling for changes in the preferences for certain physical characteristics of the dwellings, we find that search activity in municipalities classified as rural areas, measured in terms of ad views, increased by 11 percentage points more than in cities. Demand increased in urban areas as well, particularly for houses in less densely populated census tracts. The propensity for potential buyers to contact the seller – that captures the real interest of the buyer in a specific house inside a chosen neighbourhood – rose significantly for larger homes, single-family properties, and dwellings with an outdoor space. By jointly considering the shifts in preferences for both physical and location characteristics, we find that the first explains the increasing demand in suburbs and rural municipalities since May 2020. The most intense search activity in less densely populated census tracts is also largely driven by dwelling characteristics. Thus, moving out of large cities is mainly due to the interest in housing properties that are less available or excessively expensive in urban areas, like dwellings with a private garden. Overall, our results suggest that the COVID-19 pandemic created mismatches between some households and their current homes, likely because they have re-defined their priorities in terms of housing arrangements and commuting distance to the workplace.

Should the shift in housing preferences prove to be at least partly permanent, there would be quite significant distributional consequences on households' wealth and profound implications for the organization of the cities. Such effects could be long-lasting legacies of the pandemic. Investigating the channels through which the pandemic impacted the housing market, here ranked by their probable persistence over time - government imposed restrictions, fear of contagion, the surge in working-from-home arrangements - is the natural next step of this research and is key to understanding how permanent the changes in housing demand will be. Evidence based on community mobility data suggests that all these factors may be at play.

Looking ahead, structural changes in the organization of work could be the most significant factor affecting both the commercial and the residential property markets. While a massive retreat from

cities is not plausible, the prospect of an excess of office space and retail outlets, to be potentially converted to other uses, is concrete. As far as housing is concerned, our findings suggest that households already place less value on proximity to the city centre, which could partly be explained by the reduced need to commute daily. Less pressing congestion issues, which have prevented a more uniform spreading of the population to the areas surrounding cities, could have induced households to explore cheaper housing deals in residential outskirts and rural areas, more suited to their new preferences.

The rest of the paper is organized as follows. The next Section reviews the relevant literature. Section 3 describes the data. Section 4 presents descriptive evidence on the impact of COVID-19 on the Italian housing market, using both survey and online data. Section 5 quantifies the impact of the pandemic on housing demand through an econometric analysis. Section 6 concludes.

2 Literature review

Our work is closely linked to the papers estimating the heterogeneous impact of COVID-19 on housing markets. Liu and Su (2020), Gupta et al. (2021) and Bloom and Ramani (2021) use US housing price data at the zip code level and find a substantial reallocation of housing demand away from congested city centres towards residential areas in the outskirts related to the possibility of teleworking. Compared to them, we have a timely and direct measure of the interest of potential buyers for each dwelling. Then, we can disentangle the shift in preferences for house locations and for house characteristics. As the latter seem very relevant, changes in the quality of housing supply in urban areas can partly offset the boost of housing demand in rural area.[4]

Some recent papers analysed the informational content of online housing search activity. van Dijk and Francke (2018) and Zhao (2020) have used average online views of houses for sale as a proxy for housing demand. Differently from us, they have access to aggregate series for specific locations, while we observe views for each ad at weekly frequency. That allows us to observe shifts in demand for houses' physical characteristics beyond those for locations. Piazzesi et al. (2020) use email alerts set on a popular real estate website (trulia.com), and analyse the housing search behaviour of a large sample of potential buyers across different locations, price ranges and house sizes. Differently from email alerts, our house-specific measures provide more flexibility in the analysis. *Clicks* tell us where and what people are looking for, while *contacts* tell us which houses potentially meet the preferences

[4]D'Lima et al. (2020) use micro-level data on property transactions in the US that enable them to control for house specific features. They do not have a direct measure of housing demand and focus on the impact of shutdown orders and re-openings on prices, without investigating possible shifts in housing preferences. Delgado Narro and Katafuchi (2020), on daily data for Japan, where the pandemic impact was less severe, do not find any statistically significant effect of restriction orders on real estate property prices.

of home buyers. Finally, Møller et al. (2021) and Wu and Brynjolfsson (2015) show that Google searches can be used to predict house prices and sales.

An important question concerns the length of the pandemic effects, once the COVID-19 outbreak is over. We deem likely that persistent impacts should derive from the possible structural breaks in the organization of the cities due to the rise of teleworking. Barrero et al. (2020) estimate that remote work accounted for about one half of paid hours in the period, which compares to about 5 per cent before the pandemic struck. They also argue that working from home will stick even after the pandemic. However, the degree of persistence of these effects is uncertain, as organizational barriers are difficult to overcome (Juhász et al., 2020).[5] Stanton and Tiwari (2021) provide a possible elasticity between the presence of workers from home in the household and changes in housing demand. Based on data preceding the pandemic, they show that the expenditure share on housing was 7 per cent higher for households of remote workers compared to similar non-remote households. This larger share reflects the need of larger and better-quality dwellings, usually within the same urban area, as sorting to suburban or rural areas was minimal. In general, several works argue that working from home will have a significant impact on the organization of cities (Ouazad, 2020; Brueckner et al., 2021; Davis et al., 2021; Delventhal et al., 2021).

Finally, previous literature has examined the trade-offs involved between housing values and unexpected shocks on households' preferences connected to health issues. Wong (2008) focused on the 2003 outbreak of the Severe Acute Respiratory Syndrome (SARS) epidemic in Hong Kong and the ensuing decrease in property prices; his estimates are of a 1-3 per cent direct negative effect. Davis (2004) analyzed the impact on residential prices in a Nevada county of the sudden increase in local leukemia risks. Hazam and Felsenstein (2007) studied how the 1999-2004 terroristic wave affected real estate values in Jerusalem. Increasing fear progressively invested the whole city and depressed especially rental prices rather than purchasing ones, pointing to a clear distinction, in the city inhabitants' minds, between short and long run effects. Smith et al. (2006) and Hallstrom and Smith (2005) analyzed the consequences on housing prices of the landing of Hurricane Andrew. Similarly to the pandemic, the flooding provoked by the hurricane, differentiated according to the city zones, represented a preference changing information which modified the ranking of local valuable housing characteristics. Francke and Korevaar (2021) consider historical episodes of plague and cholera outbreaks in Amsterdam and Paris. Back then, the plunge in residential prices was dramatic, but short lived, with values quickly reverting to pre-pandemic levels.

[5]Dingel and Neiman (2020) are able to classify the share of jobs that can be done from home by occupation by US zip code, building a geographic index whose level is likely to impact housing demand and prices in the near future. Building on their work, Bartik et al. (2020) survey a sample of American firms and find that remote work is much more common in industries with better educated and better paid workers. Over a third of employers believe that the COVID-19 changes will persist beyond the end of the pandemic.

3 Data

3.1 Survey on real estate agents

The Italian Housing Market Survey is conducted at quarterly frequency since 2009 by Banca d'Italia with the cooperation of Tecnoborsa and Agenzia delle Entrate on a panel of 1,300-1,400 real estate agents, representative of the reference universe consisting of about 32,000 estate agencies who work on behalf of third parties. The 15 most-populated towns in Italy and their hinterland are all covered in the sample. The survey is unique in Europe in collecting at high frequency the sentiment of the housing market directly from the intermediaries (Cesaroni, 2018). The purpose of the survey is to obtain the assessment of estate agents on housing market trends in terms of residential sales and rents. Most of the information gathered is qualitative in nature and is designed to detect the opinions of estate agents on the current changes in the housing market in the reference quarter and looking forward. In detail, the standard questionnaire delves into agents' opinions regarding the course of house sales, price trends compared with the previous quarter and the short- and medium-term outlook at the local and the national level. In each January survey a section of the questionnaire is dedicated to the structural characteristics of the homes sold: floor area (in square meters), energy efficiency class, state of the dwelling (e.g. need of renovation) and type of property. Since the outbreak of the epidemic, specific questions aimed at investigating its impact were included.[6]

3.2 Online listings

Our second data source is a dataset of home listings published since January 2018 on Immobiliare.it, the largest online portal for real estate services in Italy. This dataset covers the full country.

Immobiliare.it provides us with weekly snapshots of all ads visible on the website every Monday. We have detailed information about the physical characteristics, the location, and the asking price of a dwelling. We also know the date when the seller created and removed the ad.

The owners of the website also provide us with key information to measure the interest of potential buyers on each dwelling. First, we observe each ad web page's number of views during a week (*clicks*). Second, we know how many times in a week the seller has been contacted by a potential buyer through the specific form on the ad's web page (*contacts*).[7] *Clicks* allow us to measure potential buyers' search activity across different geographic areas and market segments. *Contacts* measure more accurately

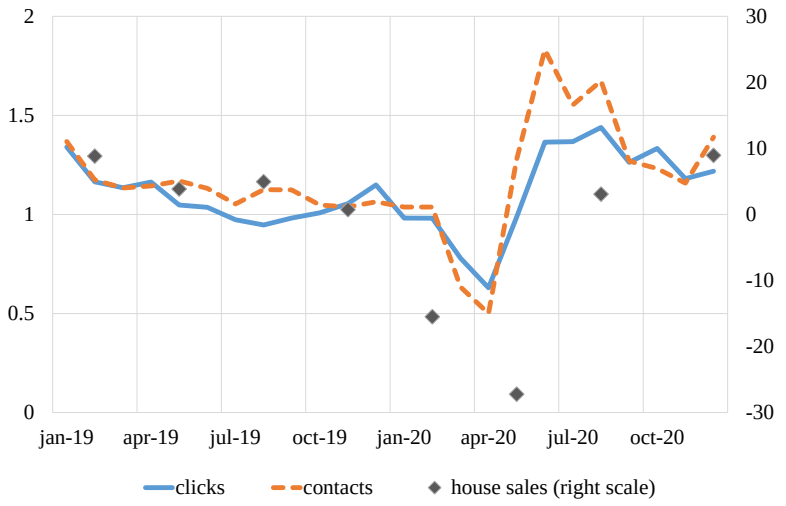
[6] About two thirds of the interviews are usually computer-assisted telephone interviews, while the rest are computer-assisted web interviews with a questionnaire that could be filled out online. The full methodology of the survey is described in Bank of Italy (2019). A quarterly report describing the main results is made available on the Banca d'Italia's website.

[7] Figure C.1 shows the placement of the seller contact form within the ad web page.

the interest in a particular home. Besides, *contacts* proxy a more concrete interest in buying, whereas viewing ads does not necessarily imply a willingness to buy a home soon.

Both *clicks* and *contacts* are a reliable proxy of housing demand (see Pangallo and Loberto 2018 and Loberto et al. 2018). Over time, their aggregate trend is nearly identical, and there is divergence only since the COVID-19 outbreak; their pattern is also similar to that of house sales (Figure 2). The divergence since March 2020 is plausibly due to the mobility restrictions introduced to counteract the spread of the epidemic.[8]

Figure 2: Daily clicks and contacts per ad and house sales



Source: *clicks* and *contacts* are based on data from Immobiliare.it and are computed as ratios with respect to the same period of the previous year. House sales are q-o-q growth rates based on OMI data.

When investigating *clicks* and *contacts* within narrow categories, their pattern could be partly different as they reflect different steps of households' search activity. When starting to look for a house on the portal, potential buyers first need to select the location of interest. Then, the website proposes only homes within the chosen location, that can be clicked upon to explore the details. Users can impose other filters as well: the most common one is the price range, while others regard specific features of the house, such as the availability of a garden or a garage. In most cases, however, imposing too many filters results in a low number of available homes, so that it is generally convenient to click upon most of the ads within the chosen location and then contact the agency only for those that look most interesting based on the description. It is important to take this factor into account in interpreting the results related to changes in preferences either for specific locations or features

[8]The inability to visit the home for sale in person likely prompted potential buyers to forgo contacting sellers. In contrast, containment measures did not involve an external constraint on website search activity. The stronger recovery of *contacts* relative to *clicks* after the lockdown ended is consistent with this hypothesis.

(such as outdoor space) within a given location.

In general, Loberto et al. (2018) show that listing data available on the Immobiliare.it platform were representative of the Italian housing market before the COVID-19 pandemic. Afterwards, if any, this information should have become even more representative of the actual housing demand, due to the sudden difficulty in visiting the houses for sale in person and the larger propensity of real estate agents to use digital tools.

3.3 Other data

In our analysis we will focus primarily on two levels of spatial aggregation: commuting zones and local housing markets.

The Italian Statistical Institute (ISTAT) identifies 660 commuting areas (*Sistemi locali del lavoro*), based on 2011 census data on individual home-to-work daily commuting patterns. Since the epidemic circulates with people's movements, commuting zones are ideal geographic areas for studying the impact of an epidemic. Moreover, as households are still uncertain about the future organization of work, they may prefer to move in a relatively nearby area, from which it is possible to reach their place of work on a daily basis. Indeed, it is plausible that in the future the recent upsurge in remote working arrangements will partially revert back, and workers will need to reach their company's premises at least periodically. Finally, commuting zones cross administrative borders, and this feature will be useful in identifying the impact of mobility restrictions imposed from the local authorities.

Furthermore, we identify local housing markets inside each city by adopting the partition developed by OMI, the Real Estate Observatory of the Italian Tax Revenue Agency. OMI identifies local housing markets ("OMI zones") as contiguous areas of the city territory that satisfy strict requirements in terms of homogeneity of house prices, urban characteristics, socio-economic characteristics, and endowment of services and urban infrastructures. This partition is periodically revised to satisfy these criteria, and the last major revision dates back to 2014. Generally, local housing markets are larger than census tracts.

We adopt the classification proposed by Eurostat to identify the degree of urbanization of Italian municipalities (Local Administrative Units). Based on population density and its distribution, we have three types of areas: cities, towns and suburbs, and rural areas. About 67 per cent of municipalities are classified as rural areas, about 30 per cent as towns and suburbs and only 3 per cent as cities. However, cities account for 33 per cent of Italian population, while rural areas for 25 per cent only.

To measure congestion at more granular level than municipalities, we use census data and we compute the population density for each census tract (number of residents per square meter). Since census tracts are much smaller than local housing markets, we will exploit this source of heterogeneity

within local housing market to better assess how much households value living in a less congested area.

4 The COVID-19 pandemic and the Italian housing market

Italy was one of the European countries hit the earliest and most hardly by the pandemic. In Europe, the first COVID-19 cases were identified at the end of January; however, the disease remained mostly undetected until the end of February, when infection clusters in Northern Italy became apparent. In Italy the first COVID-19 case was officially identified on the 21st of February. Since then, the epidemic gained momentum at a fast pace: in the first week of March the number of new cases per day more than tripled and the number of daily hospitalizations, which provide a more reliable picture of the spread of the epidemic in presence of reduced testing capacity, increased by more than 5 times (Figure 3a).

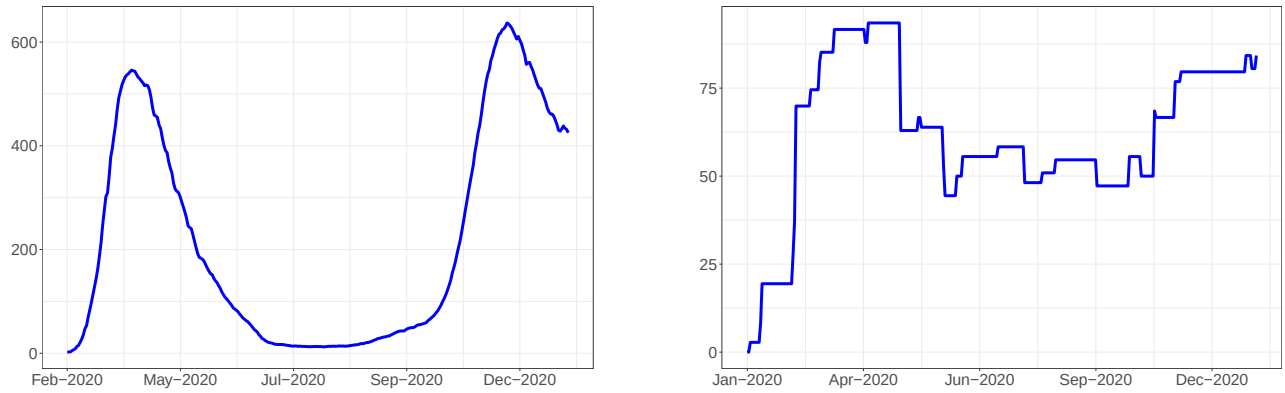
The reaction of the Italian government was strong: on the 10th of March it enacted a strict nationwide lockdown, as represented by the sharp rise of the Oxford Stringency Index (Figure 3b).[9] The containment measures allowed to bend the infection curve within a couple of months: from the 4th of May, economic activities gradually re-opened. During the summer months the spread of the virus slowed down and restrictions were eased. This tranquil period was followed by a new surge of infections from mid-October onward. To face the second wave of contagion, from the 6th of November the government implemented new restrictions differentiated on a regional basis to preserve a higher level of economic activity in those territories characterized by lower infections and hospitalization rates.

Against this background, the housing market was deeply affected by the evolution of the health conditions and the consequent government mandated restrictions. Real estate activities halted almost completely in March and April, during the first national lockdown. Not only the activity of real estate agents and households' search was severely hampered, but also housing transactions agreed before the outbreak of the epidemic were often delayed. As already noticed in the Introduction, this resulted in an unprecedented fall in house sales, which dropped by more than 20 per cent y-o-y in the first half of the year. In the third quarter, following the re-opening in May, transactions rebounded, to levels slightly above those recorded at the end of 2019, and they kept growing also in the fourth quarter. In the average of 2020 house sales were 8 per cent lower than in 2019. The second semester recovery was sharper in smaller municipalities, differently from the pre-COVID trend of increasing interest towards urban areas. These patterns suggest that the outbreak of the pandemic had strong and immediate consequences on the housing preferences of Italian households, that we are going to

[9]For the methodology underlying the Oxford Stringency Index, see Petherick et al. (2020).

analyze more thoroughly in what follows.

Figure 3: The evolution of the COVID-19 epidemic in Italy



(a) *Hospitalizations per million*

(b) *Oxford Stringency Index*

Source: Our World in Data.

4.1 The impact of COVID-19 according to real estate agents

In the IHMS waves referred to the last three quarters of 2020 agents were asked their opinion about how the COVID-19 epidemic was impacting the housing market.[10] Gauging the real time evolution of sentiment in the sector was one of the objectives of these waves. A second objective was to have clues on agents' views on the longer-run evolution of the market. Both these pieces of information cannot be easily inferred from hard data on purchases and prices, and therefore complement well the dataset derived from Immobiliare.it. The surveying strategy was to ask a set of questions on the immediate impact of the pandemic on the market already in the wave referred to the first quarter of 2020 (see Appendix F). Then, in light of the flowing information on the evolution of purchases and housing prices, some of these questions were repeated, and others were added, with the longer-term outlook in sight.

According to the agents, the sudden spread of the pandemic hit hard their activity: in spring 2020 on average 42 per cent of potential buyers delayed their purchases, 22 per cent of them canceled it altogether (see Appendix Figure A.1). Mean values hide heterogeneous effects on the agencies: about 10 per cent of them saw all their potential buyers delay the agreed purchases, and almost one fourth of agents saw at least 50 per cent of their customers canceling the purchases for good. About 45

[10]Such editions of the survey were partly delayed with respect to the usual calendar, due both to the disruptions directly connected to the pandemic (which made difficult to contact the agents), and to the administrative closures mandated by the government in certain periods, that included also the real estate sector.

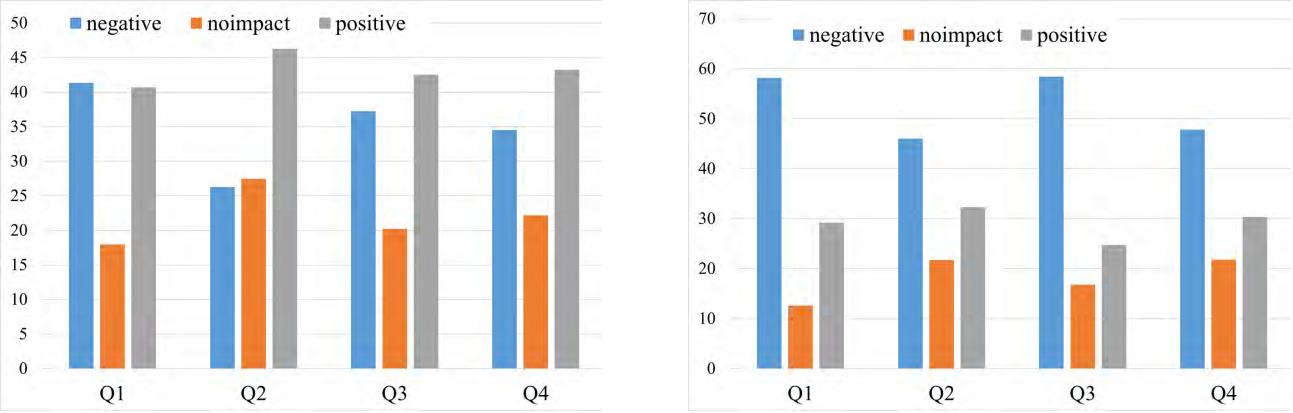
per cent of agents indicated a rising number of buyers withdrawing from a purchase or renegotiating transactions for reasons connected to the pandemic. Out of these faltering deals, in 27 per cent of the cases, agents signalled that the buyer withdrew from the transaction due to a deterioration in her income or employment situation. Considering the supply side, 26 per cent of sellers postponed the sale, and 16 per cent cancelled it.

Agents were also requested to provide their expectations about the sign of the impact (ranging from 'very negative' to 'very positive') and the expected duration of this impact (ranging between the four options 'until end-2020', 'until mid-2021', 'until end-2021', 'even longer') with reference to homes posted on the market, number of potential buyers and selling prices. This question has been repeated in the following three waves. Outcomes were clearly diverging when considering quantities and prices. On the one hand agents were evenly divided on the outlook for supply, with similar shares of them (about 40 per cent) thinking that the effects were going to be either positive or negative (Figure 4, left panel). On the other hand, demand was instead seen clearly as negatively affected (Figure 4, right panel). Therefore the impact on selling prices was seen to be largely downwards (Appendix Figure A.2, left panel). Effects were considered to be persistent, especially on prices. The lengths of the impact on demand and supply were broadly similar. On the quantity of homes supplied on the market, those agents that saw the positive effects prevailing, were expecting also the effects to be longer lasting. On the demand side, the persistence of the impact on potential buyers was not much differentiated according on being positive or negative (see Appendix Figures A.2-A.5).

The COVID-19 shock prompted also changes in how agencies practically dealt with potential buyers. At the end of 2020 agents were explicitly asked if the difficulties in organizing visits to homes due to the restrictive measures connected to the pandemic or the fear of contagion have had a significant impact on brokerage activities, or if their agencies managed to substitute in-person visit with camera-assisted on-line views or other digital tools. Almost 60 per cent of the respondents reported that the overall pandemic effect was low or medium thanks to such instruments, against about 25 per cent pointing to a severe impact on their activity.

In a longer-term perspective what matters the most are changes of buyers' preferences regarding the characteristics of the dwellings that are asked on the market and then effectively traded. The indications from the survey are clear: both the change in demand perceived by agents in the second quarter of 2020 and the transactions that were actually intermediated in the second and third quarters point towards an increase in the interest for single-family homes with outdoor spaces (Figure 5, left panel). These houses would be somewhat larger than those intermediated in the past by the same agencies, with lower average price per square meter. Considering the conformation of the Italian cities, these houses would largely be located in the semi-peripheral areas. Agents signaled also a modification in the composition of buyers and their motivation, towards a change in the primary

Figure 4: Judgments about how the pandemic will influence the national housing market



(a) *Homes on the market*

(b) *Potential buyers*

Source: our calculations based on IHMS data.

home and away from buying second homes, again suggesting some uneasiness with the current housing arrangements (Figure 5, right panel).

4.2 Evidence from online listings

The granular data taken from Immobiliare.it allow us to investigate more thoroughly the dynamics of the Italian housing market and the change in households' housing preferences highlighted by real estate agents.

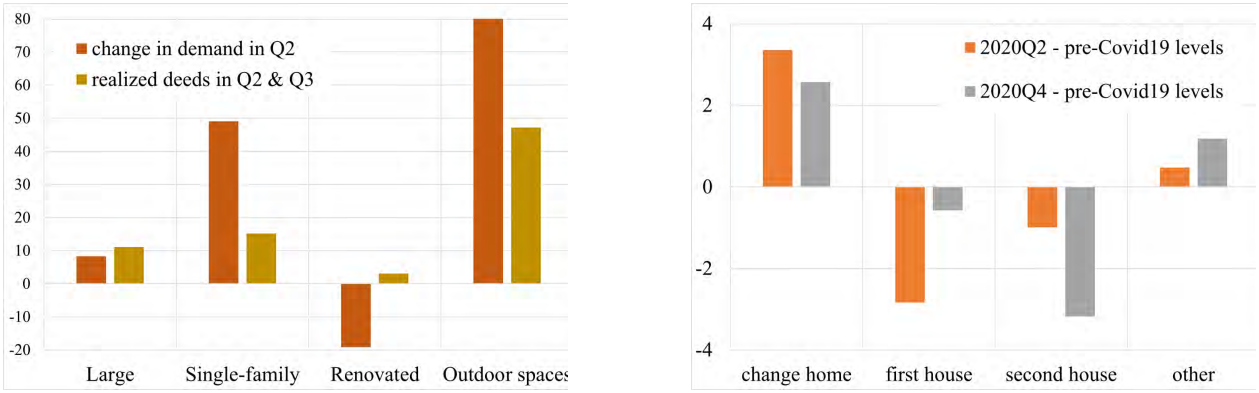
Here we present a few stylized facts about the evolution of housing demand (proxied by *clicks* and *contacts*) over the last two years (2019-2020). We focus on a sub-sample of ads referring to homes located in the most populous 100 commuting zones in Italy, since these are representative of the whole Italian housing market.[11]

Figure 6 reports the year-on-year change in average daily *clicks* in the commuting zone of Milan during the period May-December for 2019 and 2020. Milan is the second largest Italian city, and is the capital of the region most affected by the epidemic. Since the end of national lockdown the growth of housing search activity in Milan has been much lower than in close but less densely populated municipalities. That is a reversal of the pre-epidemic trend, as housing search activity was increasing mostly inside the urban area of Milan. We find a similar evidence for Rome and Turin, the two other largest Italian housing markets (Figures C.4 and C.5 in the Appendix).

This pattern has been broad-based. Figures 7 and 8 represent the evolution of average daily

[11] Appendix Figure C.2 represents the selected commuting zones, which cover 2,877 municipalities (out of 7,903). Results hold when the analysis is conducted on the full sample.

Figure 5: Change in dwellings and buyers' characteristics after the pandemic

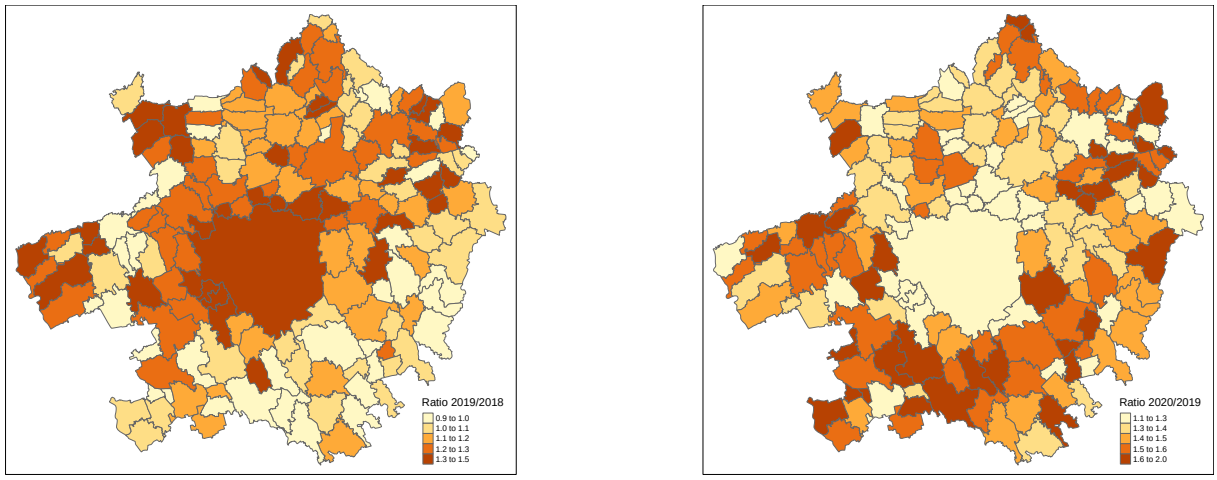


(a) *Characteristics of dwellings*

(b) *Buyers' characteristics*

Source: our calculations baseds on IHMS data. Note: percentage points balances between respondents indicating "increasing" and "decreasing" in answering to the question: *Could you tell how the prevailing characteristics of the housing demanded by potential buyers have changed since before the COVID-19 outbreak?* in 2020Q2 and in 2020Q4.

Figure 6: Change in housing search activity in the commuting area of Milan

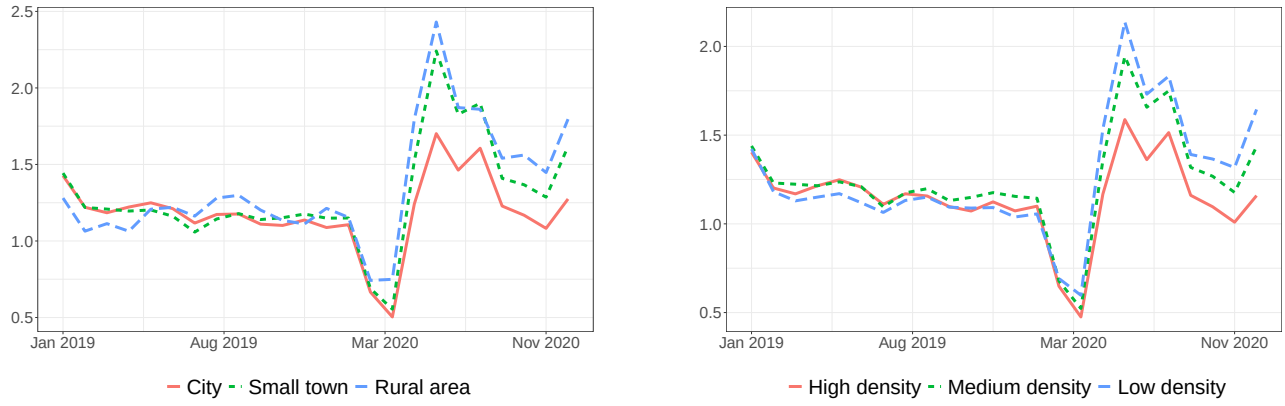


(a) *Ratio of the number of daily average clicks in 2019 and 2018*

(b) *Ratio of the number of daily average clicks in 2020 and 2019*

Source: our calculations based on data from Immobiliare.it. Notes: ratio of the number of daily average clicks during the period May-December of 2020 and 2019. Darker polygons are the municipalities with the larger increase in search activity. The scales of the charts are different as they represent the quintiles of the distribution in each year.

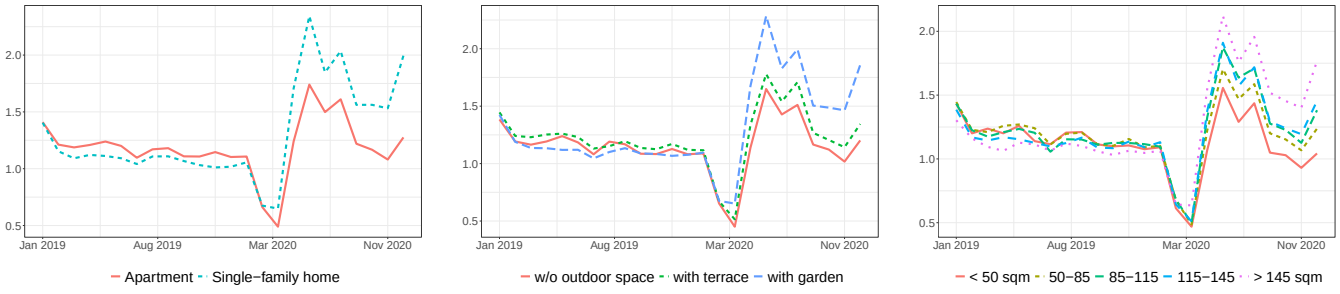
Figure 7: Daily *contacts* per ad: ratio with respect to the previous year



(a) *Degree of urbanization* (b) *Population density*

Source: our calculations based on data from Immobiliare.it.

Figure 8: Daily *contacts* per ad: ratio with respect to the previous year



(a) *Property type* (b) *Outdoor space* (c) *Floor area*

Source: our calculations based on data from Immobiliare.it.

contacts per ad compared to the same month of the previous year to control for seasonal effects. In Figure 7 we distinguish ads according to the neighbourhood congestion. We consider two measures of congestion. First, we rely on the Eurostat classification for the degree of urbanization, which distinguishes cities from small towns and rural areas (panel a). Second, we compute population density at the census track level using census data (panel b). In both cases it is evident a shift in location choices immediately after the outbreak of the pandemic. In March and April the *contacts* for houses located in small towns and rural areas declined by less compared to cities, and recovered more strongly at the re-opening; they remained on high levels also in the last months of 2020, while the interest in cities returned to the level of the previous year.

Figure 8 differentiates dwellings according to the physical characteristics emerged as relevant in the IHMS. Our data allows us to distinguish apartments from single-family homes and to classify them according to availability of outdoor spaces (terrace or private garden) and by their size (floor area). In the latter case we adopt the OMI's classification, which allocates dwellings into 5 categories, namely homes smaller than 50 sqm, between 50 and 85 sqm, between 85 and 115 sqm, between 115 and 145 sqm and larger than 145 sqm. The pandemic clearly signed a structural break in housing preferences, determining a rise in the interest in single-family homes and dwellings endowed with an outdoor space, especially a private garden. Moreover, since May 2020 users are also more likely to contact agencies for larger houses (panel c), as it is visible from the number of contacts monotonically increasing in the floor area. Overall, both figures 7 and 8 show that online search activity has increased in almost all locations and market segments, although with different intensities. In Section 5.2 we will quantify these differentiated effects through an econometric analysis.

5 Econometric analysis

In this section we show that the aggregate assessments from real estate agents collected in the IHMS and the overall online search behaviour recorded by the Immobiliare.it dataset could be reconciled by estimating the micro drivers of, respectively, the agents' judgements and the probability for an housing sale announcement to receive *contacts*. The dwellings' characteristics that improve the agents' opinions on the prospects of the housing market (provided they trade such kind of houses) are found to be the same ones that increase the *contacts* for online announcements.

5.1 Insights from real estate agents' assessments

The descriptive evidence based on the IHMS presented in Section 4.1 has shown that real estate agents were overall pessimistic about the impact of the pandemic on potential buyers and prices,

whereas they had divergent opinions regarding the supply of houses put on the market. This may seem in contrast with the marked rebound in *clicks* and *contacts* on Immobiliare.it since May 2020. To reconcile this evidence, we should recall that the revival in housing demand has been largely heterogeneous across locations and dwelling types, both in the agencies' opinions and in online listings. Therefore, it is likely that agencies' expectations depend on the location and the features of the houses that they generally intermediate: COVID-19 has determined a shift in demand away from the largest and most representative share of the market (i.e. apartments in urban areas), which could explain why the aggregate figures based on the IHMS depict a gloomier situation compared to what emerges from Immobiliare.it.[12]

We investigate this hypothesis by studying if the agents' assessment on the impact of the pandemic on demand and prices is linked to possible changes in the prevailing characteristics of the housing demanded by their potential buyers, as well as in their motivation for buying a home, due to the COVID-19 outbreak. In particular, we regress the probability of an increase in the number of potential buyers (*potbuy_pos*) and in selling prices (*prices_pos*) over a set of dummies equal to one in case the agent replied that potential buyers are searching more for units which are either larger (*large_more*), or single-family (*indep_more*), or in need to be renovated (*toreno_more*), or endowed with outdoor spaces (*outdoor_more*) or located in peripheral or non-urban areas (*peri_more*). We also include dummies capturing the changes in potential buyers' motivations, namely if after the spread of the epidemic the share of potential buyers either changing home (*change_more*), or purchasing a first home for themselves or for their family members (*first_more*), or purchasing a second home for vacation/investment purposes (*invest_more*) or for other reasons (*other_more*) is higher with respect to the pre-COVID situation. Dummies for the geographic area are also included.

Table B.1 shows the marginal effects of a probit regression estimating the likeliness of agents declaring an increase in potential buyers according to their assessment on demand for certain houses' features, where weights are used in order to be representative of the whole market. A positive and significant association emerges for dwellings that are larger, single-family, in need to be renovated, with outdoor spaces units, as well as for second homes. For example, declaring that potential buyers are increasingly asking for single-family units or for second homes enhances the probability of agents pointing to a positive impact on potential demand by 0.14 points in both cases, which compares to an average observed probability of 0.31. The same regression for prices instead shows a significant association with houses with outdoor spaces only: if potential buyers ask more for this latter feature

[12]Moreover, there is a technical issue that could further rationalise why the agents' assessment on demand was less favourable. In the explaining notes of the survey questionnaire potential buyers are defined as the *number of potential purchasers who visited at least one property listed by your office*. As we reported in Section 4.1, the majority of agencies shifted at least in part from in-person visits to camera-assisted ones; to some extent they might have thus excluded such visits, inducing an underestimation of current and future potential buyers.

the probability of declaring a positive impact on prices is higher *ceteris paribus* by 0.04, which compares to an average observed probability of 0.09.

We then check whether agents' expected duration of the impact of the pandemic on potential buyers and prices is influenced by the same variables. In particular we consider the following question: "*How do you think the COVID-19 epidemic will influence the national housing market?*", which asks respondents first to assess if the impact of the pandemic had a positive, negative or neutral impact on potential buyers, and then asks the expected horizon of such impact. We construct a variable equal to 6 (months) if the horizon is 'end-2020', 12 if the horizon is 'mid-2021', 18 for 'end-2021' and 24 for a longer horizon. We split the sample among agents foreseeing a positive impact and those expecting a negative impact, and use the whole sample in order to control for the sign of the impact. Results are listed in Table B.2. It shows that the duration of the impact on the number of potential buyers is significantly lower – by about 1 month, which compares with an average duration of 14 months (12 the median) - for agents who sees the impact as negative and whose potential buyers became more interested in single-family homes after the pandemic. With reference to prices we instead do not detect any significant association with the characteristics of the dwellings.

Finally, we ask whether the longer-term agents' expectations are connected to some pandemic related structural breaks. In order to do so we run an ordered probit regression on the three possible answers (worse, same, better) to the question "*Considering the housing market only in your area, how will be like the performance compared with the current situation over the next 2 years?*". We find that agents are more likely to have favorable expectations if they see positive effects from the pandemic on potential buyers or house prices, while an increase in houses put on for purchase has no effect. Longer-run perspectives are slightly better in the South of Italy and somewhat worst in the North-East (Table B.3). Outcomes are similar if the dependent variable refers to the question "*What do you think the general situation in the housing market throughout Italy will be like compared with the current situation over the next 2 years?*", except that agencies operating in non-urban areas tend to express marginally more optimistic expectations (Table B.4).

Overall, the econometric analysis reveals that the real estate agents' optimism or pessimism about the evolution of housing demand in the near future is tightly linked to the shift in household preferences. Such changes are detected mainly by the agencies which were active in the *winning* market segments, thus explaining their favorable prospects in connection to the newly popular locations and dwelling features.

5.2 Quantitative evidence from online search activity

To quantify the impact of the COVID-19 outbreak on housing demand through the information coming from listings, we run the following pooled OLS regression:

$$y_{i,k,t} = \alpha_{k,t} + (\beta_1 C_{1,t} + \beta_2 C_{2,t})\,\mathbf{X}_i + \gamma \mathbf{Z}_{i,t} + \varepsilon_{i,k,t} \tag{1}$$

We consider monthly-frequency observations, therefore t is a month-year tuple. The dependent variable, y, is the logarithm of the number of clicks for ad i in location k during period t, or a Bernoulli variable equal to one if the seller of the ad i is contacted by a potential buyer at least once during period t. The choice to model *contacts* as a binary variable is motivated by the large number of zeros, and because the number of contacts in a month is greater than one only for a small fraction of observations (see Appendix Figure C.6).

The variables $C_{1,t}$ and $C_{2,t}$ are two dummies. $C_{1,t}$ is equal to one for the two-month period March-April 2020, that is immediately after the outbreak on COVID-19 in Italy (at the end of February). $C_{2,t}$ is equal to one from May 2020 onward. We split the post-outbreak period into two subperiods because during March and April the Italian government issued a national stay-at-home order, that implied a mandatory closure of real estate agencies and an almost complete shutdown of the housing market. That is evident in Figures 2-8.

The variables in $\mathbf{X}$ represent physical characteristics (e.g. size) or related to the location of the dwelling (e.g. population density) of our interest. $\mathbf{Z}$ includes a list of physical characteristics of the dwelling (property type, floor area, elevator, garage, terrace, garden), the distance from the centroid of the commuting zone (in km), and a set of time varying controls, such as the asking price per square meter, the number of days the ad has been published, the occurrence of a price revision during the month, and the number of days the ad has been listed on the website during month t. *Ceteris paribus*, relatively overpriced listings get less online interest, and price revisions can trigger a temporary increase in *clicks* or *contacts*. We control also for time on market, because listings get more attention in the early weeks they are online.

Finally, $\alpha_{k,t}$ is a set of time-varying fixed effects where, depending on the specification adopted, k would be the commuting zone or the local housing market, to control for any source of unobserved heterogeneity at local level. The impact of the epidemic has been very heterogeneous both among different geographic locations and over time, and these time-varying fixed effects allow us to identify the shift in demand for the different types of houses, while controlling for local idiosyncratic shocks.

Our parameters of interest are β_1 and β_2, and they measure the shift in housing demand for the dwellings' characteristics (or the location variables) being examined. Our identification assumption is that there would have been no major change in housing demand had the COVID-19 pandemic not

occurred. To show that this assumption is plausible, we report also the estimates of the following generalization of (1):

$$y_{i,k,t} = \alpha_{k,t} + \sum_{j=1}^{N} \beta_j^M M_{j,t} X_i + \gamma \mathbf{Z}_{i,t} + \varepsilon_{i,k,t} \tag{2}$$

where $M_{j,t}$ is a set of monthly dummy variables (one for each period t). Our identification assumption implies that the estimates for the β_j^M parameters would be broadly constant up to February 2020, and any major jump should be detected from March 2020 onward. To better clean up for seasonality in housing search activity, we will report $\beta_j^M - \beta_{j-12}^M$.[13]

Standard errors are clustered at the commuting zone level, as our sample include only the 100 largest commuting zones and the impact of COVID-19 was highly heterogeneous across these groups.

5.2.1 Results

Starting in May, after the end of the national lockdown that began in March, housing online search activity surged. Once controlling for homes characteristics and location, the number of clicks increased by almost 40 per cent compared to the pre-epidemic levels (Table D.1, columns 1-2). The probability that a seller is contacted by a potential buyer rose between 6 and 8 percentage points, that is a very relevant increase compared to a pre-epidemic probability equal to 22.5 per cent (Table D.1, columns 3-5). As already shown in Section 4, the increase in online search activity has been broad based across locations and market segments. All in all, it is plausible that many households have revised their housing preferences and begun to search for a new home.[14] In the following, we focus on the relative change in housing demand across locations and for different dwellings' characteristics.

Changing demand for location. After the outbreak of COVID-19, the search activity of potential buyers went up mainly in less congested places. *Clicks* increased mostly in municipalities classified as rural areas (11 per cent more than in urban areas) and in less densely populated census tracts (table D.2, columns 1-2). The elasticity of *clicks* to population density decreased by 1.2 percentage points, and we observe a reduction in this elasticity also when we introduce time-varying fixed effects for the local housing market (column 3). Overall, *clicks* are still higher for listings of houses localized inside cities, but the positive wedge compared to homes in rural municipalities diminished. Potential buyers search for less congested areas also inside a local housing market, while we do not detect any

[13] For example, we observe that the interest in houses with a private garden gradually increases starting in the spring and then decreases starting in September.

[14] Regarding the supply of homes on the market, the number of ads posted on Immobiliare.it declined at the outbreak of the pandemic but resumed pre-COVID levels in the Summer of 2020.

statistically significant impact of population density before the epidemic.[15]

The evidence is even more striking when considering the impact on the probability that a seller is contacted by a potential buyer (columns 4-6). After May 2020, this probability has become negatively correlated with population density. Compared to *clicks*, *contacts* point to a stronger increase of housing demand both in suburbs and rural areas than in cities. Since *contacts* are a stronger indicator of potential buyers' interest, these results are consistent with the better performance of house sales in small cities than in larger ones. However, these results should not be interpreted as a definitive debacle of large cities. Considering the coefficients for variables *suburbs* and *rural area* in columns 1 and 4, research activity is still stronger in cities, although the gap with less congested areas has narrowed by about one third.

Changing demand for dwelling characteristics. Given the evidence from the IHMS, we want to verify if those patterns are also observable in online search activity. Moreover, we want to understand how much the demand for less congested locations can be explained by a shift in preferences toward housing typologies with specific characteristics. For example, the sudden households' aversion to live in condos apartments could explain the increased demand for less densely populated areas, where single-family homes are more prevalent.

We estimate (1) interacting $C_{1,t}$ and $C_{2,t}$ with the following dwelling characteristics: single-family home (binary), availability of a terrace (binary), availability of a private garden (binary), and size (categorical). To limit the impact of the location, we allow for time-varying fixed effects at the local housing market level. We estimate a linear probability model where the variable of interest is the probability of observing at least one *contact* for a given ad in month t. This variable is more effective than *clicks* in measuring housing preferences between different characteristics inside a small area.

Our results indeed confirm that since May 2020 households have a stronger preference for larger dwellings, possibly single-family and with an outdoor space (Table D.3, columns 1-4), in line with the positive impact of such characteristics on agents' assessments. Considering the likelihood to contact the sellers of houses with outdoor spaces compared to those without, this wedge increased already during the national lockdown. As the characteristics that we consider are positively correlated, we focus on the results of the joint estimation (column 5). We observe that coefficients associated with the availability of a private garden or a terrace remain relatively unchanged compared to the case where each characteristic is analysed separately. After May 2020 the probability to contact the seller increased by 2.9 percentage points for houses with a private garden, and by 0.9 points for those with a terrace. The magnitude of the impact is sizeable, as before the epidemic the unconditional probability that a seller is contacted is 22.5 per cent. Moreover, before the epidemic, homes with a private garden had already an additional probability of 5.3 percentage points of receiving a contact

[15] In general, local housing markets include multiple census tracts.

compared to those without it (2.9 points in the case of a terrace). Also the coefficients for the different dwelling sizes remain relatively unchanged across specifications; the effect of size on search activity is generally negative but we find a relatively stronger interest in larger dwellings during the pandemic period. When interacting all dwelling features with the COVID-19 dummies, the coefficient associated with single-family homes post-May shrinks from 0.031 to 0.012 (see columns 3 and 5). The presence of ground floor apartments with a private garden in a multi-family property is not unusual in Italy. Therefore, we gauge that households preferences moved mostly toward the presence of a private garden.

The role of location and dwellings' characteristics. Finally, we consider the joint impact of the epidemic on the demand for housing characteristics and location (Table D.4), including time-varying fixed effects for the commuting zones. Accounting for the change in preferences for dwellings' characteristics affects dramatically the previous evidence about the role of location. Now, we do not detect a greater interest in suburban and rural municipalities since May 2020 (column 1). The strongest growth in housing demand outside the urban areas, that we observe in the descriptive statistics and in D.2, is entirely explained by the different housing needs of potential buyers. There is evidence of a relative greater search activity for houses in suburban and rural municipalities only in period March-April 2020, when a strict stay-at-home order was in place and households may have been scared of living into large cities. However, a municipality may be a too large area to assess the effect of location. Even within a small town, most of the dwellings could be concentrated in a small area, while households may prefer living in places where homes are more spread out. For this reason we also consider as a regressor the interaction terms $C_{1,t}$ and $C_{2,t}$ with the log of population density at the census tract level (column 2). Compared to the results in table D.2, the coefficient associated with population density post-May 2020 is still negative and statistically significant. Then, households do not want to move from big cities to small towns, but they have a greater preference for living in less congested places. However, the estimated coefficient shrinks from -0.006 to -0.002, meaning that changing preferences for housing physical characteristics account for most of the increase in the demand for lower congestion.

Robustness checks. As already said before, our identification assumption is that there would have been no major change in housing demand had COVID-19 epidemic not occurred. Figure D.1 reports the results of model (2) for the main variables of interest.[16] All charts clearly show a structural break in March 2020. If any, before the epidemic search activity was strengthening for smaller apartments, without a private garden, and in more densely populated locations. After the epidemic, past trends have been completely reversed.

[16]We plot $\beta_j^M - \beta_{j-12}^M$ to better control for seasonality in housing search activity.

5.3 The changing preferences of Italian households

We think that our results are consistent with a change in housing preferences experienced by a significant share of households during the pandemic. This conclusion stems from our analyses and not from direct observation as, unfortunately, we only observe what types of homes potential buyers are looking for, but we do not know who the potential buyers are and their motivation for looking for a house. Two other potential explanations for our results, and the reasons to exclude them, are the following.

First, what we observe may in principle be explained by a change in the composition of buyers. Current and expected household disposable income (and the tightly linked access to credit) is a relevant factor in housing choices. Being so many those affected by the pandemic, one could suspect that the pool of searching households was rebalanced towards the most affluent ones. While there might have been such a recomposition, this does not contrast with the fact that a change in housing preferences was a leading force in driving the market. Indeed, as shown in previous sections, demand has changed primarily according to housing characteristics and not due to the dwellings' location per se. Indeed, when analyzing changes in search activity regarding characteristics, we exploit the heterogeneity within very local housing markets (OMI zones), controlling for all potential unobserved factors with monthly fixed effects. By construction, local housing markets are homogeneous regarding households' socioeconomic characteristics, primarily because of the housing costs. Therefore, the potential distortion induced by a possible recomposition of the pool of potential buyers has to be minor in our analyses, being already largely controlled for by the fixed effects. Moreover, the results in Table D.4 – where we set fixed effects at the commuting zone level, a larger geographical area – are robust to the introduction as a further regressor of the interaction term of $C_{1,t}$ and $C_{2,t}$ with the average price per square meter in the local housing market before the pandemic.[17] Therefore, what we observe proves to be robust to asymmetric shocks to households' purchasing power.

Second, another competing explanation could be that households' preferences over the primary residence may have remained unchanged, but a number of families might have begun looking for a second/holiday home. This does not square with our evidence. According to real estate agents, indeed, since the beginning of the pandemic the share of potential buyers looking for a second home has declined while the share of families wanting to change their home of residence has increased. Besides, our sample includes listings from the largest 100 local commuting zones, and thus most of the Italian touristic locations are excluded. Even if there were an increase in second-home purchases, these would be homes in nearby locations to the main urban areas, expected to be used more intensively than the traditional seaside or mountain holiday homes.

Finally, additional evidence is consistent with the hypothesis that the epidemic has created a

[17] Results are available upon request.

certain dissatisfaction with their current dwelling for many households, pushing them to search for a new home. First, search activity has grown in virtually all locations, including in large cities. Second, we observe an increase both in housing demand and supply, signalling that some households look for a new house and put their own one on sale at the same time. Third, our finding of shift in housing demand within narrowly defined geographical areas suggests that many families may be unable or unwilling to move to suburban or rural areas but are no longer comfortable in their current home and would like to change it.[18]

5.4 From the pandemic to housing demand: channels of transmission

The re-composition of housing demand is a robust finding of our analysis, but other questions deserve further investigation. In particular, to better understand the sources of variation in housing demand one should identify the channels of the transmission from the pandemic to the housing market. We can think of three possible transmission channels, namely the fear of contagion, the government mandated restrictions and structural changes in work arrangements, such as the extended possibility of teleworking. Although the first two factors should in principle be temporary, a recent survey shows that the large majority of Italian households attributes a positive probability to a new pandemic occurring in the next ten years.[19] Hence the fear of infection and the mobility restrictions imposed during the COVID-19 health crisis not only could have had a direct (possibly negative) effect on the possibility of visiting dwellings on sale but could also have made salient the negative consequences of such an event and permanently changed consumers' habits, thus shifting households' preferences for a long-term investment such as housing.

In Appendix E we provide a first intuition of the relationship between housing demand and the intensity of the epidemic exploiting community mobility data. The epidemic *per se*, proxied by the fall in mobility to stores selling essential items, is negatively correlated with housing search activity, consistently with the assessment provided by real-estate agents. Moreover, community mobility data shows that the demand for single-family properties increased mostly where both social distancing and working from home have been more widespread. This evidence motivates further investigation about the transmission channels exploiting our measures of housing search activity, which are very reactive and detailed, together with the time profile of government mandated restrictions, the data about the spread of the epidemic, easily available at the local level, and information on actual and potential remote work arrangements as provided in the Istat Labour Force Survey.

[18] For example, many people prefer to stay close to their workplace and are not willing to move to other neighborhoods because they are satisfied with the facilities they have (e.g. schools, parks).

[19] According to the fourth wave of the Special Survey of Italian Households conducted by Banca d'Italia in March 2021, about 20 per cent of households think that a new pandemic will certainly occur in the next 10 years (see Bank of Italy, 2021).

6 Conclusions

By using two unique datasets on the Italian housing market, we find that the COVID-19 pandemic has led to a shift in households' preferences toward dwellings with specific physical characteristics, such as the availability of outdoor spaces, the surface area and being a single-family home. This demand re-composition has been reflected in more optimistic assessments on the prospects of the housing market by those real estate agents who are more able to intercept it.

Should these changes be at least partly long-lasting, as is confirmed by the preliminary evidence on mobility and on remote working arrangements, looking ahead, they could have significant repercussions on the distribution of wealth, which in Italy is mainly represented by residential properties, on financial stability – due to the variation in the values of collateral – and on the agglomeration forces which usually make cities a hub for growth and innovation.

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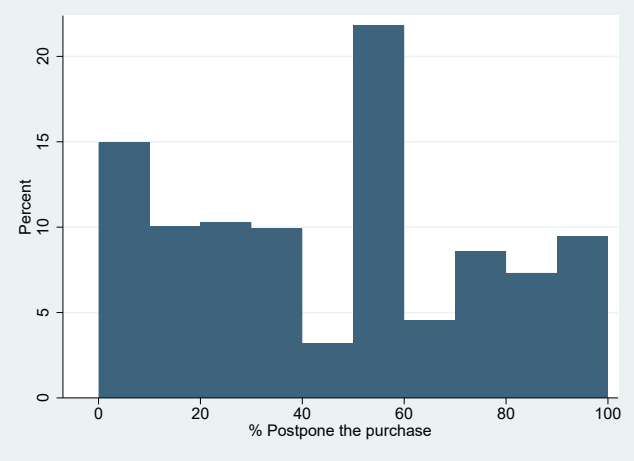
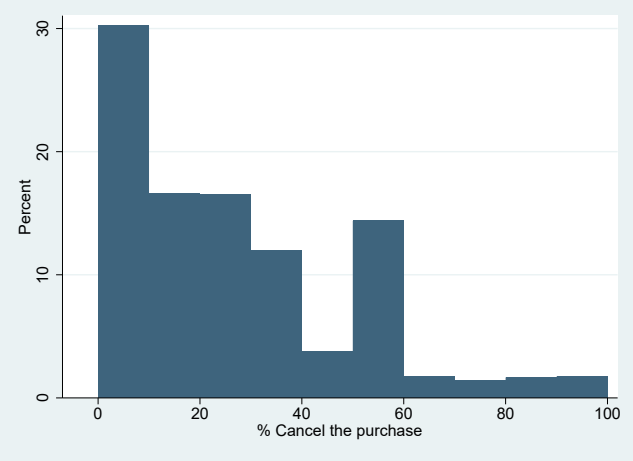
A Italian Housing Market Survey: additional figures

Figure A.1: Impact of COVID-19 in 2020Q1, buyers' postponing and canceling of purchases



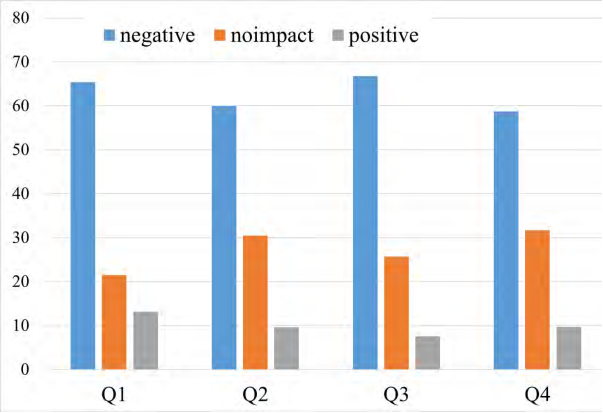
(a) *Share postponing purchase*



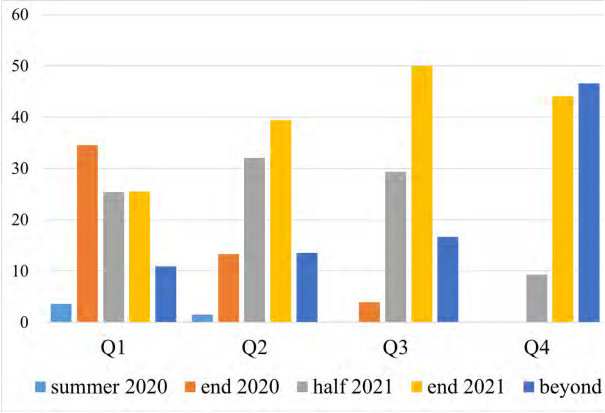
(b) *Share canceling purchase*

Source: our calculations based on IHMS data.

Figure A.2: Expected impact of the pandemic on selling prices



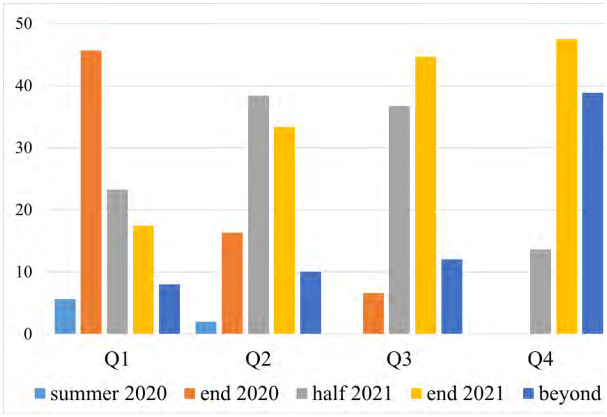
(a) *Sign of the impact*



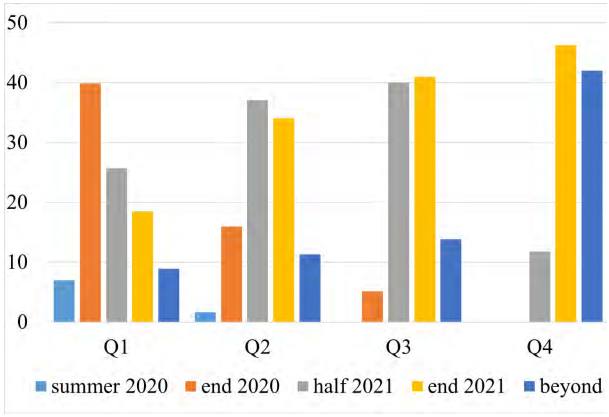
(b) *Duration of the impact*

Source: our calculations based on IHMS data.

Figure A.3: Expected duration of the impact of the pandemic on supply and demand



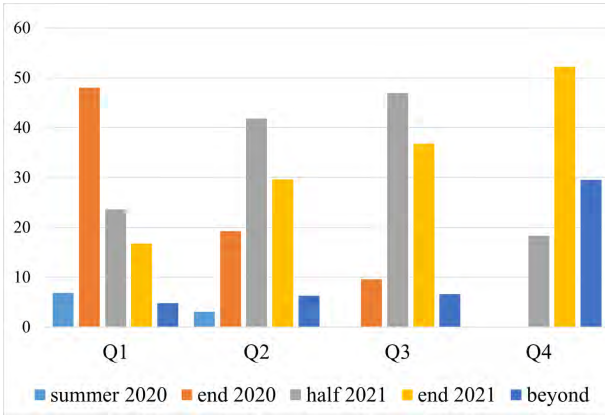
(a) *Homes on the market*



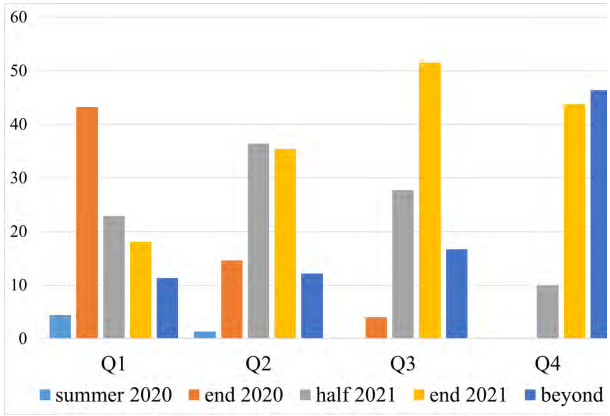
(b) *Potential buyers*

Source: our calculations based on IHMS data.

Figure A.4: Expected duration of the pandemic on homes on the market, by positive or negative impact



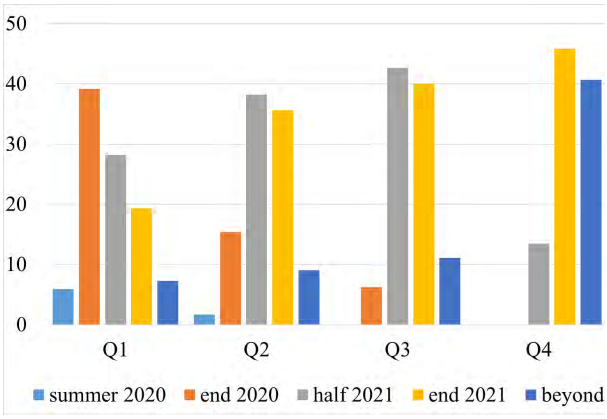
(a) *Expected negative impact of COVID-19*



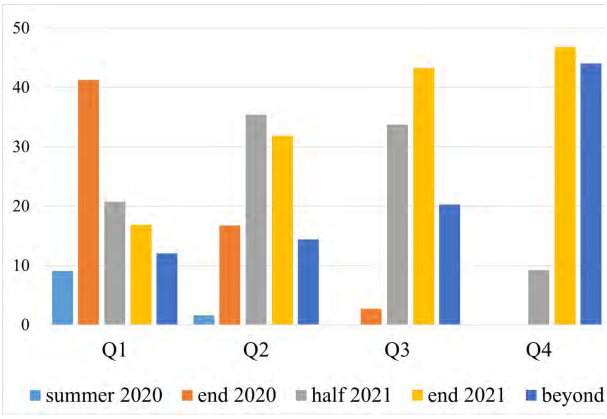
(b) *Expected positive impact of COVID-19*

Source: our calculations based on IHMS data.

Figure A.5: Expected duration of the pandemic on potential buyers, by positive or negative impact



(a) *Expected negative impact of COVID-19*



(b) *Expected positive impact of COVID-19*

Source: our calculations based on IHMS data.

B Italian Housing Market Survey: regression tables

Table B.1: Probability of an expected positive impact of COVID-19 on potential buyers and prices

	Potential buyers	**Prices**
large_more	0.0962***	0.023
	[0.0327]	[0.0188]
indep_more	0.136***	0.0211
	[0.0303]	[0.0176]
torenov_more	0.0786**	0.00354
	[0.0315]	[0.0174]
outdoor_more	0.0846**	0.0445**
	[0.0378]	[0.0188]
periph_more	0.0425	0.0214
	[0.0331]	[0.0200]
change_more	-0.003	0.025
	[0.0288]	[0.0177]
home1_more	0.0224	-0.0159
	[0.0351]	[0.0189]
home2_more	0.143***	0.0367
	[0.0380]	[0.0230]
other_more	-0.0475	0.0221
	[0.0532]	[0.0350]
_Iareag4_2	-0.0446	0.0103
	[0.0366]	[0.0219]
_Iareag4_3	-0.0255	-0.0342*
	[0.0353]	[0.0177]
_Iareag4_4	-0.0488	-0.0484***
	[0.0353]	[0.0162]
Observations	1403	1403
obs. prob	0.311	0.0924

The Table reports the marginal effects of a probit regression, with robust standard errors in brackets. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B.2: Expected duration of the impact of COVID-19 on potential buyers and prices

	Duration pot. buyers pos.	Duration pot. buyers neg.	Duration pot. buyers	Duration prices pos.	Duration prices neg.	Duration prices
	(1)	(2)	(3)	(4)	(5)	(6)
large_more	0.201	0.493	0.366	1.544	0.295	0.446
	[0.643]	[0.539]	[0.417]	[1.299]	[0.479]	[0.447]
indep_more	-0.364	-1.055**	-0.792*	0.686	-0.728	-0.549
	[0.725]	[0.491]	[0.412]	[1.418]	[0.469]	[0.445]
torenov_more	-0.478	-0.431	-0.46	-0.222	-0.576	-0.417
	[0.613]	[0.529]	[0.402]	[1.267]	[0.474]	[0.443]
outdoor_more	1.034	0.61	0.659	-3.96	0.767	0.403
	[1.068]	[0.631]	[0.541]	[2.415]	[0.552]	[0.547]
periph_more	0.727	0.596	0.618	-0.64	0.631	0.456
	[0.680]	[0.532]	[0.420]	[1.464]	[0.462]	[0.445]
change_more	0.577	-0.0443	0.173	0.919	-0.276	-0.106
	[0.644]	[0.489]	[0.389]	[1.206]	[0.439]	[0.417]
home1_more	-1.104	0.186	-0.284	-1.116	0.543	0.365
	[0.732]	[0.538]	[0.432]	[1.658]	[0.484]	[0.462]
home2_more	-0.368	0.0612	-0.234	0.0458	-0.00217	-0.0943
	[0.721]	[0.623]	[0.468]	[1.278]	[0.527]	[0.486]
other_more	2.467**	-1.032	0.236	0.245	-0.131	0.023
	[0.995]	[0.790]	[0.629]	[1.790]	[0.795]	[0.737]
_Iareag4_2	0.3	0.217	0.235	0.93	0.785	0.92
	[0.848]	[0.648]	[0.515]	[1.532]	[0.620]	[0.573]
_Iareag4_3	-0.847	0.336	-0.195	2.947*	0.636	1.023**
	[0.781]	[0.626]	[0.486]	[1.595]	[0.536]	[0.512]
_Iareag4_4	-0.289	0.741	0.294	4.305**	0.822	1.183**
	[0.850]	[0.616]	[0.500]	[1.949]	[0.528]	[0.509]
covid_c6_2			0.206			
			[0.193]			
covid_c6_3						0.567*
						[0.313]
Constant	13.86***	13.89***	13.72***	17.27***	14.21***	13.57***
	[1.103]	[0.685]	[0.632]	[2.272]	[0.577]	[0.653]
Obs.	421	639	1060	124	829	953
R-squared	0.032	0.016	0.011	0.112	0.017	0.019

Robust standard errors in brackets. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table B.3: Expected performance of the own housing market 2 years ahead

var25_2	Coef.	Robust Std. Err.	z	pvalue	[95% Conf.	Interval]
covid_c6_1_imps						
noimpact	0.028787	0.05348	0.54	0.59	-0.07603	0.133606
positive	0.006829	0.04415	0.15	0.877	-0.0797	0.093356
covid_c6_2_imps						
noimpact	0.333308	0.05236	6.37	0	0.230692	0.435925
positive	0.690778	0.04974	13.89	0	0.593288	0.788267
covid_c6_3_imps						
noimpact	0.5584	0.04451	12.55	0	0.471168	0.645633
positive	0.818193	0.07622	10.73	0	0.668806	0.96758
2.sstr1	-0.00469	0.0383	-0.12	0.902	-0.07977	0.070379
areag4						
2	-0.1871	0.04907	-3.81	0	-0.28327	-0.09092
3	-0.00474	0.05059	-0.09	0.925	-0.10389	0.094411
4	0.122528	0.0511	2.4	0.016	0.022373	0.222683
periodo						
20202	0.136816	0.05032	2.72	0.007	0.038184	0.235447
20203	0.108394	0.05102	2.12	0.034	0.008397	0.208391
20204	0.199038	0.05335	3.73	0	0.094468	0.303609
/cut1	-0.00145	0.05506			-0.10937	0.106478
/cut2	0.878487	0.05619			0.768366	0.988609

The Table shows the results of an ordered probit regression on the IHMS question *Considering the housing market only in your area, how will be like the performance compared with the current situation over the next 2 years?*. The possible outcomes are: worse, same, better.

Table B.4: Expected performance of the Italian housing market 2 years ahead

var23ay	Coef.	Robust Std. Err.	z	pvalue	[95% Conf.	Interval]
covid_c6_1_imps						
2	0.214069	0.046511	4.6	0	0.122909	0.305229
3	0.09858	0.038736	2.54	0.011	0.022659	0.174501
covid_c6_2_imps						
2	0.160674	0.046799	3.43	0.001	0.068949	0.252399
3	0.175699	0.043682	4.02	0	0.090083	0.261315
covid_c6_3_imps						
2	0.952999	0.043397	21.96	0	0.867942	1.038056
3	1.27683	0.073083	17.47	0	1.133591	1.42007
2.sstr1	-0.12769	0.033264	-3.84	0	-0.19288	-0.06249
areag4						
2	0.19664	0.044169	4.45	0	0.110071	0.283209
3	-0.1392	0.042677	-3.26	0.001	-0.22284	-0.05555
4	-0.21859	0.04785	-4.57	0	-0.31238	-0.12481
periodo						
20202	0.270077	0.045689	5.91	0	0.180529	0.359626
20203	0.1535	0.044918	3.42	0.001	0.065462	0.241538
20204	0.31753	0.046516	6.83	0	0.22636	0.4087
/cut1	-0.91927	0.050903			-1.01904	-0.81951
/cut2	-0.15471	0.048516			-0.2498	-0.05962
/cut3	0.369028	0.04899			0.273009	0.465046
/cut4	0.880998	0.050523			0.781974	0.980022
/cut5	2.465948	0.065034			2.338484	2.593412
/cut6	3.092857	0.078312			2.939369	3.246345
/cut7	3.505902	0.099482			3.310921	3.700883
/cut8	3.733466	0.116573			3.504987	3.961946

The Table shows the results of an ordered probit regression on the IHMS question *What do you think the general situation in the housing market throughout Italy will be like compared with the current situation over the next 2 years?*. The possible outcomes are: worse, same, better.

C Immobiliare.it: additional Figures and Tables

Figure C.1: Placement of the seller contact form within the ad web page

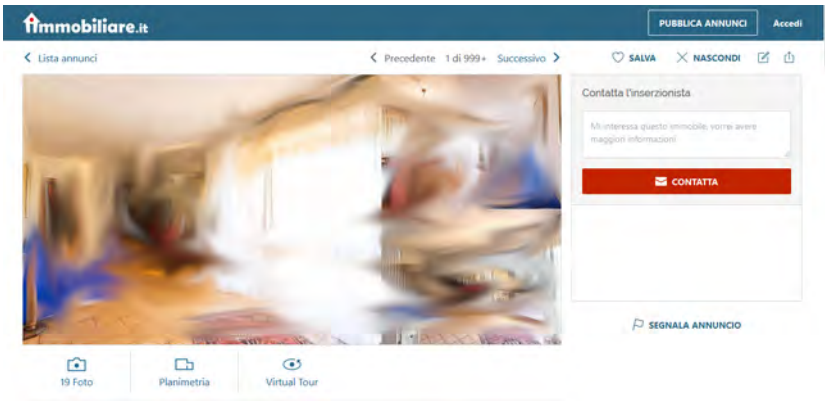


Figure C.2: Sample selection: distribution of the 100 biggest commuting zones in Italy

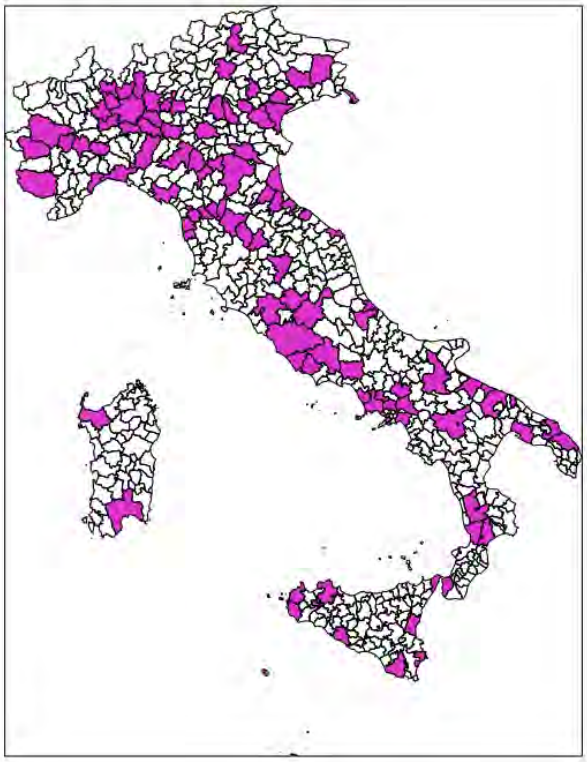
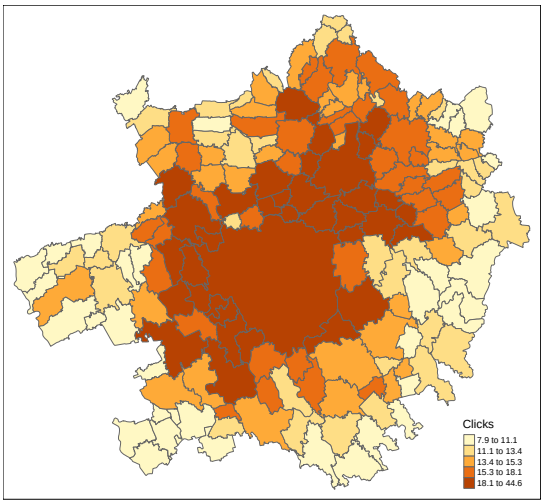
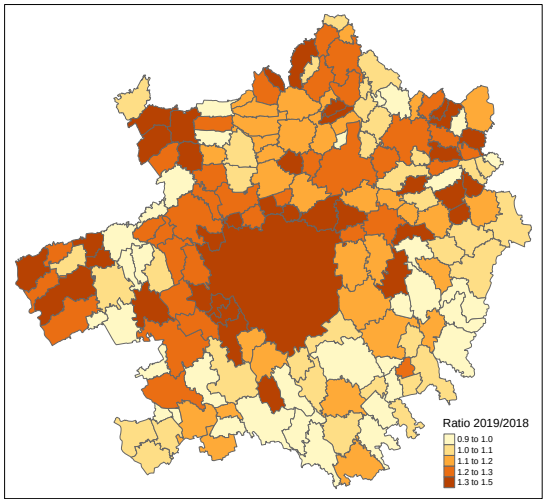


Figure C.3: Housing search activity in the commuting area of Milan

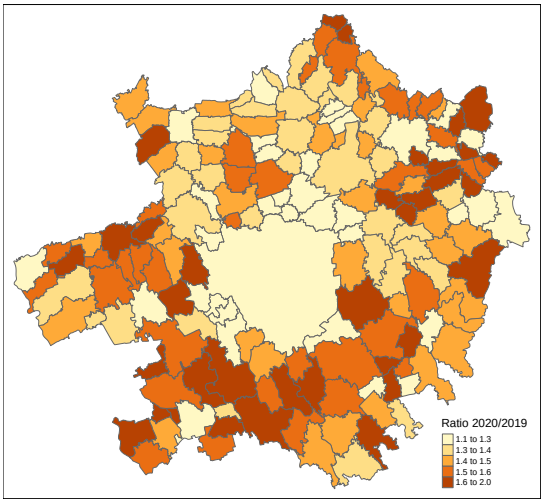
(a) *Commuting area of Milan*



(b) *Number of daily average clicks in 2020*



(c) *Ratio of the number of daily average clicks in 2019 and 2018*

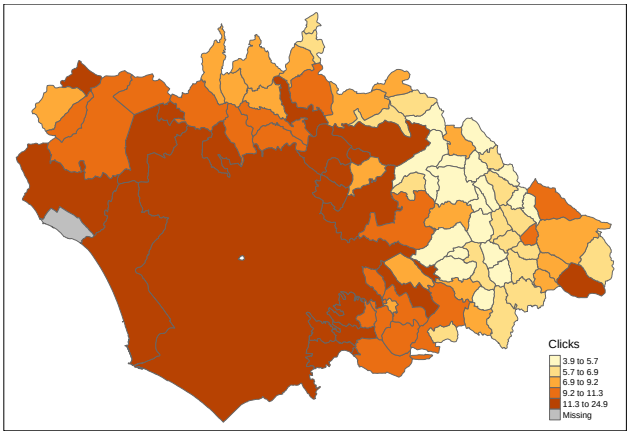


(d) *Ratio of the number of daily average clicks in 2020 and 2019*

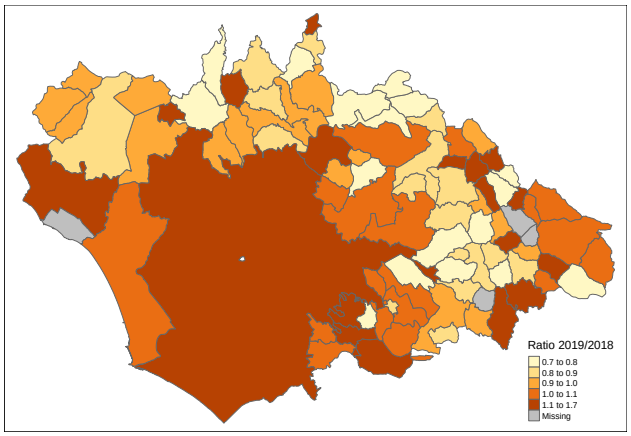
Source: our calculations based on data from Immobiliare.it. For each year, we calculated the average daily number of clicks taking into account only the period May-December.

Figure C.4: Housing search activity in the commuting area of Rome

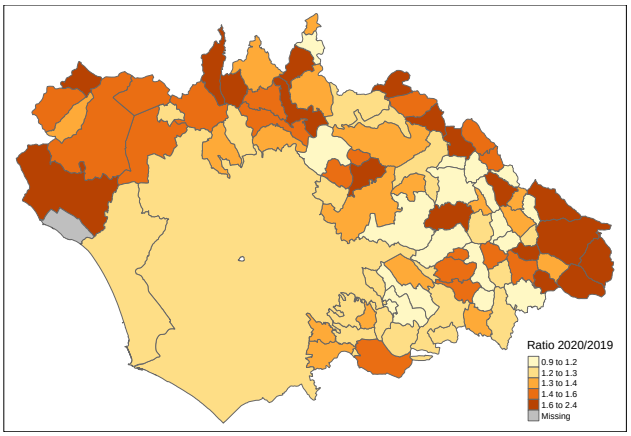
(a) *Commuting area of Rome*



(b) *Number of daily average clicks in 2020*



(c) *Ratio of the number of daily average clicks in 2019 and 2018*

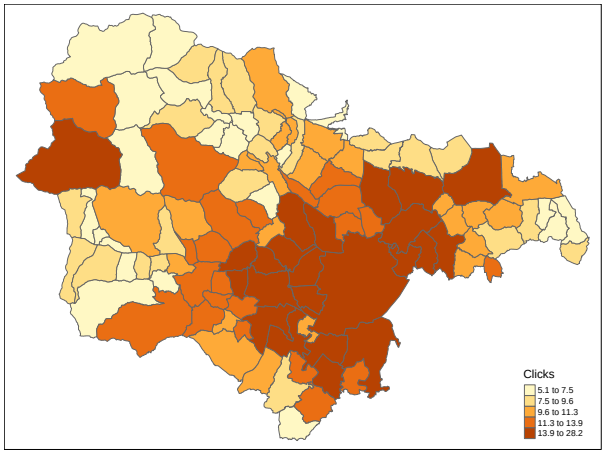


(d) *Ratio of the number of daily average clicks in 2020 and 2019*

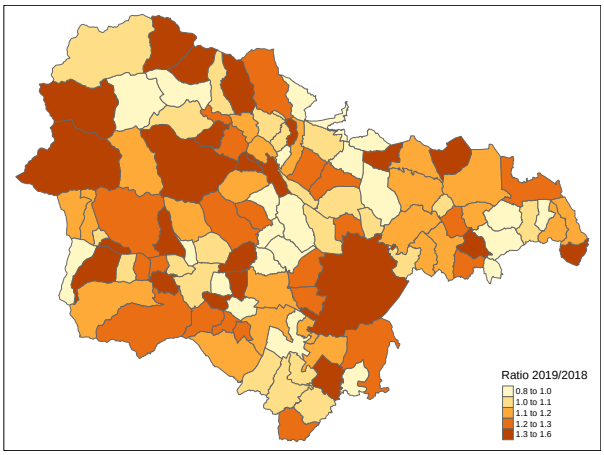
Source: our calculations based on data from Immobiliare.it. For each year, we calculated the average daily number of clicks taking into account only the period May-December.

Figure C.5: Housing search activity in the commuting area of Turin

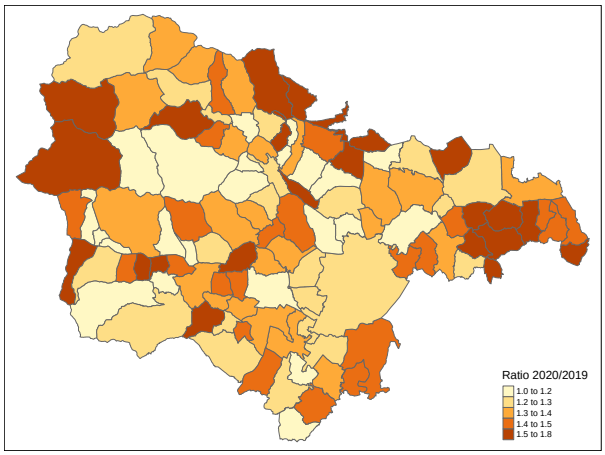
(a) *Commuting area of Turin*



(b) *Number of daily average clicks in 2020*



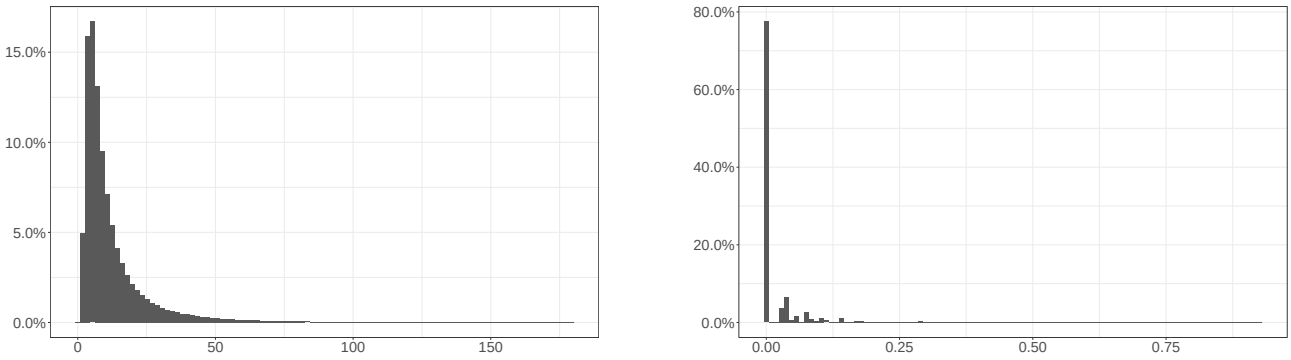
(c) *Ratio of the number of daily average clicks in 2019 and 2018*



(d) *Ratio of the number of daily average clicks in 2020 and 2019*

Source: our calculations based on data from Immobiliare.it. For each year, we calculated the average daily number of clicks taking into account only the period May-December.

Figure C.6: Distribution of daily *clicks* and *contacts*



(a) *Clicks* (b) *Contacts*

Source: our calculations based on Immobiliare.it. Distribution of daily *clicks* and *contacts* in the 100 most populous commuting zones in Italy over the years 2018-2020.

D Immobiliare.it: regression Tables and Figures

Table D.1: Effects of COVID-19 on housing demand

	Log(Clicks)		P(Contacts> 0)		
	(1)	(2)	(3)	(4)	(5)
(Intercept)			0.225***		
			(0.016)		
Mar-Apr 2020	-0.053*	-0.037	-0.037***	-0.032***	-0.027***
	(0.028)	(0.034)	(0.002)	(0.003)	(0.006)
Post May 2020	0.367***	0.379***	0.062***	0.075***	0.079***
	(0.022)	(0.025)	(0.004)	(0.004)	(0.006)
Observations	11,717,459	11,717,459	11,717,459	11,717,459	11,717,459
R^2	0.343	0.471	0.034	0.071	0.121
Within R^2	0.263	0.280		0.040	0.045
Commuting zone×Month fixed effects	✓			✓	
Local housing market×Month fixed effects		✓			✓

Notes: Standard errors are clustered at the commuting zone level. Control variables include property type, size, private garden, terrace, garage, balcony, elevator, distance from the centroid of the commuting zone, price per m^2, price revision, time on market, number of days the ad has been visible during the month.

Table D.2: Effects of COVID-19 on housing demand by location

	Log(Clicks)			P(Contacts> 0)		
	(1)	(2)	(3)	(4)	(5)	(6)
Suburbs	-0.185***			-0.043***		
	(0.034)			(0.010)		
Rural areas	-0.302***			-0.056**		
	(0.068)			(0.022)		
Mar-Apr 2020*Suburbs	-0.053*			0.014***		
	(0.030)			(0.003)		
Post May 2020*Suburbs	0.016			0.015***		
	(0.023)			(0.005)		
Mar-Apr 2020*Rural areas	0.048*			0.028***		
	(0.026)			(0.004)		
Post May 2020*Rural areas	0.105***			0.016**		
	(0.021)			(0.006)		
Log of population per m^2		0.022***	0.0007		0.004***	-0.002***
		(0.003)	(0.001)		(0.0009)	(0.0004)
Mar-Apr 2020*Log of population per m^2		-0.002	-0.002**		-0.004***	-0.002***
		(0.002)	(0.001)		(0.0005)	(0.0005)
Post May 2020*Log of population per m^2		-0.012***	-0.003***		-0.006***	-0.001***
		(0.002)	(0.001)		(0.0008)	(0.0004)
Observations	11,717,459	11,591,151	11,591,151	11,717,459	11,591,151	11,591,151
R^2	0.374	0.369	0.518	0.075	0.075	0.143
Within R^2	0.246	0.240	0.256	0.036	0.036	0.040
Commuting zone×Time dummies fixed effects	✓	✓		✓	✓	
Local housing market×Time dummies fixed effects			✓			✓

Notes: Standard errors are clustered at the commuting zone level. Control variables include property type, size, private garden, terrace, garage, balcony, elevator, distance from the centroid of the commuting zone, price per m^2, price revision, time on market, number of days the ad has been visible during the month.

Table D.3: Effects of COVID-19 on *contacts* by dwellings' characteristics

	P(Contacts>0)				
	(1)	(2)	(3)	(4)	(5)
Single-family home	0.056***	0.056***	0.049***	0.043***	0.041***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Terrace	0.035***	0.033***	0.035***	0.031***	0.029***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)
Private garden	0.055***	0.064***	0.064***	0.060***	0.053***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)
Size (m^2)	-0.0008***	-0.0008***	-0.0008***		
	(5.22×10^{-5})	(5.23×10^{-5})	(5.23×10^{-5})		
Size = 50-85				-0.012*	-0.012*
				(0.007)	(0.007)
Size = 85-115				-0.020	-0.020
				(0.013)	(0.013)
Size = 115-145				-0.047***	-0.045***
				(0.016)	(0.016)
Size > 145				-0.140***	-0.135***
				(0.015)	(0.015)
Mar-Apr 2020*Private garden	0.006***				0.005**
	(0.002)				(0.002)
Post May 2020*Private garden	0.034***				0.029***
	(0.002)				(0.002)
Mar-Apr 2020*Terrace		0.006***			0.004**
		(0.002)			(0.002)
Post May 2020*Terrace		0.011***			0.009***
		(0.002)			(0.001)
Mar-Apr 2020*Single-family home			0.003		-0.009***
			(0.002)		(0.002)
Post May 2020*Single-family home			0.031***		0.012***
			(0.003)		(0.002)
Mar-Apr 2020*Size = 50-85				0.002	0.002
				(0.004)	(0.004)
Post May 2020*Size = 50-85				0.011***	0.010***
				(0.003)	(0.003)
Mar-Apr 2020*Size = 85-115				-0.0009	-0.001
				(0.007)	(0.007)
Post May 2020*Size = 85-115				0.017***	0.014***
				(0.005)	(0.005)
Mar-Apr 2020*Size = 115-145				0.001	0.001
				(0.006)	(0.006)
Post May 2020*Size = 115-145				0.022***	0.014**
				(0.006)	(0.005)
Mar-Apr 2020*Size > 145				0.013*	0.014**
				(0.007)	(0.006)
Post May 2020*Size > 145				0.028***	0.007
				(0.007)	(0.007)
Observations	11,717,459	11,717,459	11,717,459	11,717,459	11,717,459
Local housing market×Time dummies fixed effects	✓	✓	✓	✓	✓

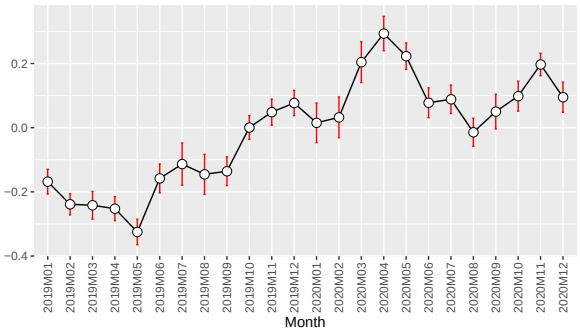
Notes: Standard errors are clustered at the commuting zone level. Control variables include property type, size, private garden, terrace, garage, balcony, elevator, distance from the centroid of the commuting zone, price per m^2, price revision, time on market, number of days the ad has been visible during the month.

Table D.4: Effects of COVID-19 on *contacts* by dwellings' characteristics and location

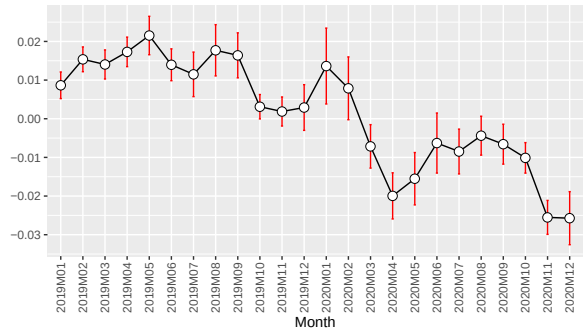
	P(Contacts>0)	
	(1)	(2)
Single-family home	0.034***	0.034***
	(0.005)	(0.005)
Terrace	0.009***	0.009***
	(0.003)	(0.003)
Private garden	0.027***	0.027***
	(0.004)	(0.003)
Size = 50-85	-0.012***	-0.013***
	(0.004)	(0.005)
Size = 85-115	-0.009	-0.010
	(0.006)	(0.006)
Size = 115-145	-0.021***	-0.021***
	(0.007)	(0.007)
Size > 145	-0.089***	-0.089***
	(0.008)	(0.008)
Suburbs	-0.040***	
	(0.010)	
Rural areas	-0.050**	
	(0.022)	
Log of population per m^2		0.004***
		(0.0009)
Mar-Apr 2020*Single-family home	-0.005*	-0.004
	(0.003)	(0.003)
Post May 2020*Single-family home	0.018***	0.017***
	(0.002)	(0.002)
Mar-Apr 2020*Terrace	0.008***	0.008***
	(0.002)	(0.002)
Post May 2020*Terrace	0.013***	0.013***
	(0.002)	(0.002)
Mar-Apr 2020*Private garden	0.010***	0.010***
	(0.003)	(0.003)
Post May 2020*Private garden	0.036***	0.035***
	(0.003)	(0.003)
Mar-Apr 2020*Size = 50-85	0.005	0.004
	(0.004)	(0.004)
Post May 2020*Size = 50-85	0.015***	0.016***
	(0.004)	(0.004)
Mar-Apr 2020*Size = 85-115	0.0005	0.0007
	(0.006)	(0.006)
Post May 2020*Size = 85-115	0.018***	0.018***
	(0.004)	(0.004)
Mar-Apr 2020*Size = 115-145	-0.0002	-0.0005
	(0.006)	(0.006)
Post May 2020*Size = 115-145	0.015***	0.015***
	(0.005)	(0.005)
Mar-Apr 2020*Size > 145	0.011*	0.010*
	(0.006)	(0.006)
Post May 2020*Size > 145	0.005	0.006
	(0.008)	(0.008)
Mar-Apr 2020*Suburbs	0.011***	
	(0.003)	
Post May 2020*Suburbs	0.004	
	(0.005)	
Mar-Apr 2020*Rural areas	0.024***	
	(0.004)	
Post May 2020*Rural areas	-0.003	
	(0.007)	
Mar-Apr 2020*Log of population per m^2		-0.003***
		(0.0005)
Post May 2020*Log of population per m^2		-0.002**
		(0.0009)
Observations	11,717,459	11,591,151
Commuting zone×Time dummies fixed effects	✓	✓

Notes: Standard errors are clustered at the commuting zone level. Control variables include property type, size, private garden, terrace, garage, balcony, elevator, distance from the centroid of the commuting zone, price per m^2, price revision, time on market, number of days the ad has been visible during the month.

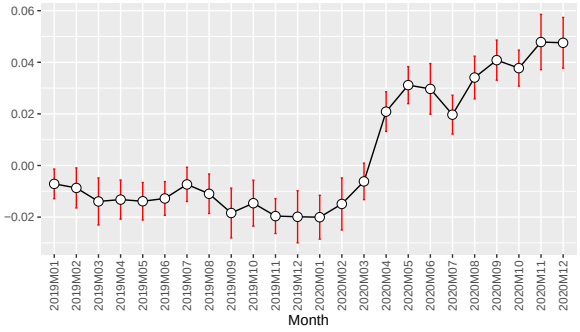
Figure D.1: Relative interest in dwelling characteristics and location by month



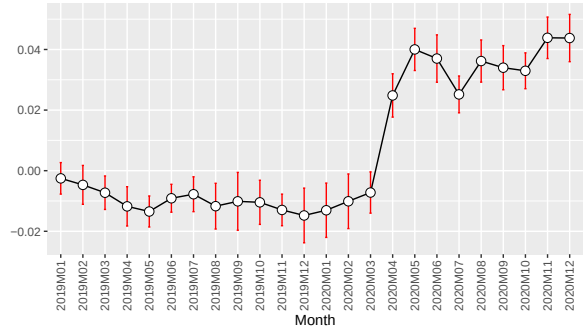
(a) *Rural area*



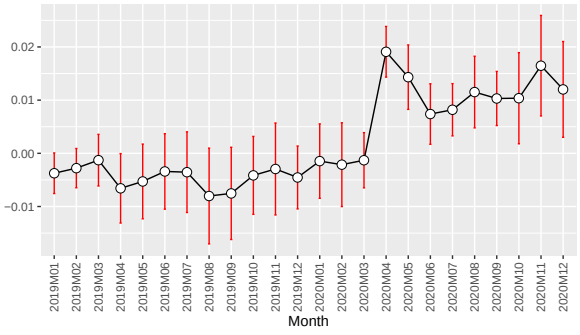
(b) *Population per* m^2



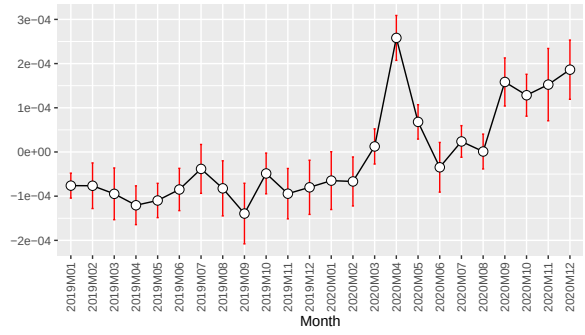
(c) *Property type*



(d) *Garden*



(e) *Terrace*



(f) *Floor area*

In these charts we reports for each variable of interest the estimates of $\beta_j^M - \beta_{j-12}^M$ from model (2). In charts *(a)* and *(b)* the dependent variable is the logarithm of clicks. In charts *(c)*-*(f)* the dependent variable is $P(Contacts > 0)$.

E Community mobility and housing search

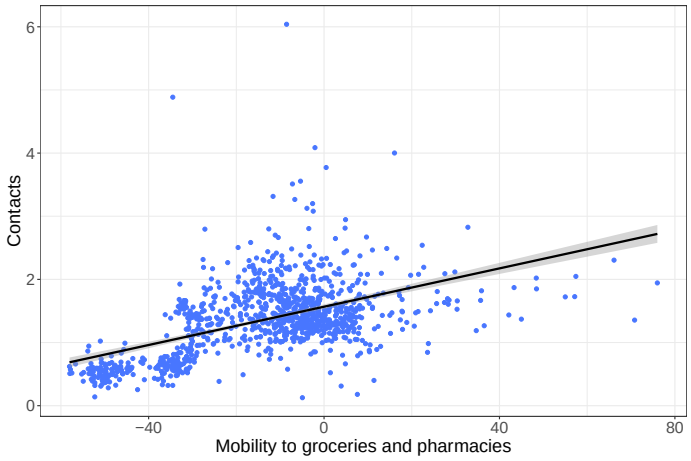
To get a first intuition on the relationship between housing demand and the intensity of the epidemic, we exploit the geographical and time variation in these two dimensions across Italy. As a first step, we approximate the strength of the pandemic with Google Mobility data, available at the NUTS-3 (province) level. We uncover a positive relationship between the average number of *contacts* per ad in each NUTS-3 region and average mobility to groceries and pharmacies in the same location and during the same period (Figures E.1a and E.1b). In particular, each dot in Figure E.1a is a monthly-province observation, while in Figure E.1b each dot represents a province either during the first national lockdown (red dots) or from May onward (blue dots). These Figures suggest that the epidemic *per se*, proxied by the reduction in mobility to stores selling essential items, has a negative effect on housing search activity, consistently with the assessment provided by real-estate agents.

Using the same type of representation we can also show how the relative demand for single-family homes varied depending on the intensity of epidemic and restrictive measures. In Figures E.1c and E.1d each dot represent the demand (*contacts* per ad) for single-family homes relative to apartments compared to the corresponding period of the previous year. In this case we focus on the post-May period, where restrictions were eased and search activity rebounded. We find a negative association between the interest for single-family homes and mobility, both to groceries and pharmacies and to workplaces.[20] This suggest that the direct experience of the epidemic influenced the request for different types of dwellings. However this preliminary analysis does not allow distinguishing whether these effects are predominantly driven by the fear of contagion or the possibility of working remotely. Indeed, the negative correlation holds both with mobility to groceries and pharmacies, which was not limited by the government but was arguably connected by the spread of the infection and the fear of contracting the virus, and mobility to workplaces, which is directly related to remote working arrangements.[21]

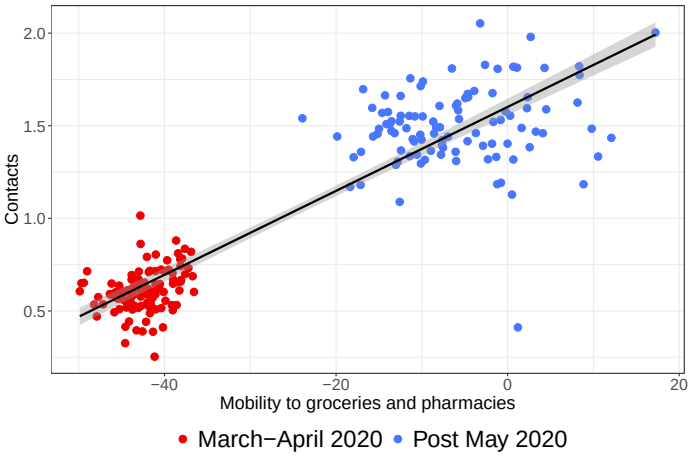
[20]The negative correlation with mobility holds for other characteristics as well, like the availability of a private garden and being in a less congested area. Results are available upon request.

[21]The correlation between mobility to groceries and pharmacies and mobility to workplaces across Italian NUTS-3 regions is 0.6 at the daily frequency and 0.66 when considering the average mobility from May 2020 onward.

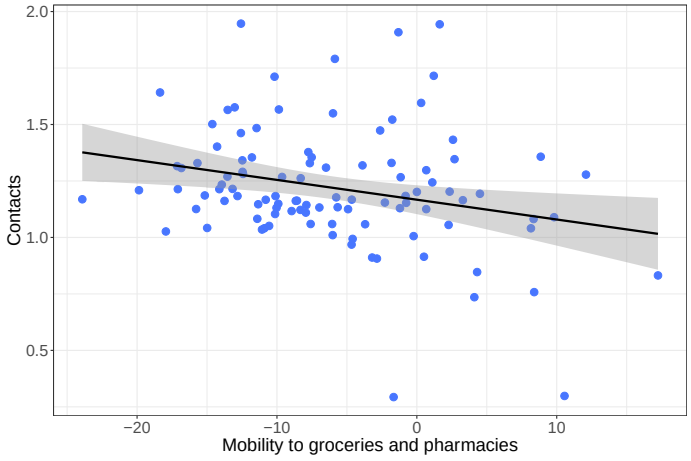
Figure E.1: Mobility and housing search



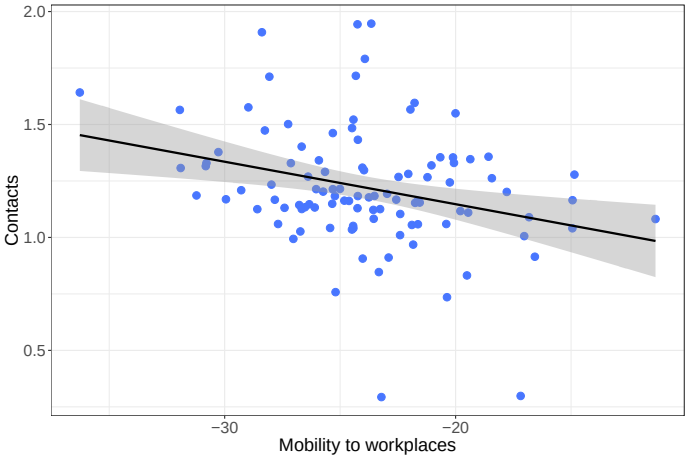
(a) *Contacts and mobility to groceries/pharmacies*



(b) *Contacts and mobility to groceries/pharmacies*



(c) *Demand for single-family properties and mobility to groceries/pharmacies - Post May 2020*



(d) *Demand for single-family properties and mobility to workplaces - Post May 2020*

Source: our calculations based on data from Immobiliare.it and Google mobility reports.

F Italian Housing Market Survey: COVID-19 related questions

Immediate impact (2020Q1)

A4.2 Considering the **potential buyers your office assisted before the COVID-19 epidemic** that you have been able to contact again after re-opening:

	Percentage of the potential buyers	**I cannot answer**
A4.2a What **percentage of potential buyers** intend to **postpone the purchase of a property because of the epidemic**?	|_____|	|__|
A4.2b What **percentage of potential buyers no longer intend to purchase a property because of the epidemic**?	|_____|	|__|

A11.1 Considering the homes brokered by your agency, in your opinion, **has the COVID-19 epidemic caused an increase in the number of buyers withdrawing from a purchase or renegotiating transactions,** such as a previously signed preliminary contract or a pre-accepted proposal.

- ❑ No
- ❑ Yes
- ❑ Don't know

A11.2 Which of the following situations have you come across most frequently?
(up to three responses possible)

- ❑ The buyer withdrew from the transaction because of a change in income or employment situation
- ❑ The buyer withdrew from the transaction because of difficulties in obtaining a mortgage
- ❑ The buyer withdrew from the transaction for other known or unknown reasons
- ❑ The seller withdrew from the transaction because they no longer intend to sell the home
- ❑ The seller withdrew from the transaction for other known or unknown reasons
- ❑ The parties renegotiated the selling price
- ❑ The parties postponed the date of the deed of sale because one of them had temporary difficulties

A12 Considering the **potential sellers who had given your agency a mandate to sell before the COVID-19 epidemic:**

	Percentage of the potential sellers	**I cannot answer**
A12a What **percentage of potential sellers** intend to **postpone the sale of a property because of the epidemic?**	|_____|	|__|
A12b What **percentage of potential sellers no longer intend to sell a property because of the epidemic?**	|_____|	|__|

Questions asked multiple times on influence and duration of impacts (2020Q1, Q2, Q3, Q4)

C6 How do you think the **COVID-19 epidemic** will influence the national housing market?

	Impact of the COVID-19 epidemic					Expected duration (if there is an impact)				
	Very negative	Negative	No impact	Positive	Very positive	Until the summer	Until end-2020	Until mid-2021	Until end-2021	Even longer
Homes on the market	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
Number of potential buyers	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒
Selling prices	❒	❒	❒	❒	❒	❒	❒	❒	❒	❒

Questions about the dwellings' characteristics demanded: expected and realized (2020Q2, Q3)

A4.1 Could you tell how the prevailing characteristics of the housing demanded by potential buyers have changed since before the Covid-19 outbreak? [2020Q2]

Accomodation feature	Decreasing	Stable	Rising
Large housing units	❒	❒	❒
Independent housing units (e.g. villas, cottages)	❒	❒	❒
Houses to renovate	❒	❒	❒
Availability of outdoor spaces (balcony, terrace, garden)	❒	❒	❒
Access to internet connectivity	❒	❒	❒
Peripheral or non-urban area	❒	❒	❒

A3.1. Consider the transactions that you intermediated and that ended with a deed transfer **between April and September 2020**. indicate **how the following characteristics of the houses have changed compared to the same period of the previous year September 2019)**? [2020Q3]

Housing features	Lower	About the same	Higher	I do not know
Average size (square meters)	❒	❒	❒	❒
Average price	❒	❒	❒	❒
Share of independent housing units out of total sales	❒	❒	❒	❒
Share of housing units with available outdoor space out of total sales	❒	❒	❒	❒
Share of housing units in excellent condition or recently renovated out of total sales	❒	❒	❒	❒

Questions about the potential buyers and their motivation (2020Q2, Q3)

A4.2 Could you cluster potential buyers according to their motivation for buying a home? [2020Q2]

	Percentuale				
	Home change	Purchase of the first home for yourself or for family members	Purchase of a second house for investment purposes	Other	Total
Before the Covid-19 epidemic	|__|	|__|	|__|	|__|	100
After the Covid-19 epidemic	|__|	|__|	|__|	|__|	100

A3.2. Consider the transactions that you intermediated and that ended with a deed transfer **between April and September 2020**. Please indicate **how the following characteristics of the buyers have changed compared to the same period of the previous year (April-September 2019)**? [2020Q3]

Buyer characteristics	Lower	About the same	Higher	I do not know
Average age of buyers	❒	❒	❒	❒
Percentage of those who bought their primary residence	❒	❒	❒	❒
Percentage of those who changed homes (purchase close to a sale)	❒	❒	❒	❒
Percentage of those who had urgent need to take possession of the home	❒	❒	❒	❒

A4.2. Could you cluster potential buyers according to their motivation for buying a home in **october-december 2020**? [2020Q4]

Percentuale				
Home change	Purchase of the first home for yourself or for family members	Purchase of a second house for investment purposes	Other	Total
|__|	|__|	|__|	|__|	100