Urban Flight or Stagnation? Patterns of residential migration in post-COVID Spain

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Abstract

During the COVID-19 pandemic, the media in different countries reported a mass flight from cities, due to a combination of pandemic fears, the search for better living conditions and rising home working. This chapter investigates internal migration flows in Spain, using data aggregated by municipality from the population register over 2011 to 2021, capturing both the peak pandemic year and initial recovery period. As well as trends over time, we apply GIS to assess migration dynamics across space: categorising municipalities based on commuting proximity to core cities. To understand the nature of migration trends, we break down its components into outflows versus inflows. Our results crucially reveal how changes in 2020 at the peak of the pandemic do not support a common narrative of 'urban flight' but were mostly driven by a stagnation of rural outflows alongside more stable inflows to larger cities. However, looking at 2021, there is evidence of an increasing trend towards suburbanisation and expansion of metropolitan city boundaries – particularly for the largest cities – reflecting a shift in preferences even within a context of high mobility.

Keywords

Internal migration, COVID-19, commuting, metropolitan areas, residential migration

Introduction

Since the outbreak of the pandemic, real estate companies, media reports and some academic work (Batty, 2020; Brail, 2021) have argued that COVID-19 was generating a widespread flight from cities to suburban and rural areas. The explanation for this process was attributed to three fundamental changes that have altered people's residential preferences and choices: (a) the increasing acceptance and facilitation of working from home (WFH); (b) the diminished appeal of dense urban environments associated with their higher incidence of COVID-19 and reduced urban amenities during the pandemic lockdowns, and relatedly (c) increased attention on housing quality and size given more time spent at home (particularly where lockdowns were implemented). Firstly, the spread of WFH during the pandemic seems to be a crucial factor in understanding a potential urban exodus, with some authors pointing to it as the origin of this process (Delventhal and Parkhomenko, 2020). Home working has fundamental implications for housing and locational choices (Doling and Arundel, 2020). On the one hand, it implies the need for new space and configuration demands of the dwelling, combining living and working. On the other hand, it implies greater freedom in the choice of residential environment. In a context of (partial or full) working from home, the employment location becomes less

important (or indeed in some cases, irrelevant), allowing households to choose their location of residence based on other lifestyle and housing considerations. Secondly, the increased incidence of COVID-19 in urban settings, as well as the restrictive measures implemented to prevent its spread, have led to a loss of attractiveness of cities (Conway et al., 2020; McFarlane, 2021; Florida et al., 2022). Fear of the disease, combined with the reduction (or suppression) of cultural and economic activity, has undermined the traditional appeal of cities (Trasberg & Cheshire, 2021). Finally, especially during lockdown, housing itself took on a new importance. In contexts, such as Spain or Italy, where residents had to stay at home for weeks – echoed to different extents across most countries – many urban residents were confronted with being confined to small, limited spaces. This experience forced many citizens to change their dwelling priorities towards more space and the availability of private outdoor areas, such as balconies (Mesa-Pedrazas et al., 2023). Such shifting preferences in dwelling characteristics usually imply looking beyond the urban cores where available housing tends to be smaller, more expensive, and often lacking sufficient outdoor space. Such factors are intensified in contexts such as Spain, which is characterized by dense urban environments, exhibiting the highest share of households residing in apartments in Europe (Eurostat, 2022).

In the midst of the pandemic, research was carried out that pointed to a process of 'urban flight', using 2020 internal migration data in national contexts as different as Japan (Fielding & Ishikawa, 2021), Germany (Stawarz et al., 2021), the United States (Brown & Tousey, 2021; Bloom & Ramani, 2021) or Spain (González-Leonardo et al., 2022). Other researchers found significant correlations between the process of urban flight and the aforementioned driver factors (Brown & Tousey, 2021; Whitaker, 2021). Notwithstanding the evidence found looking at 2020 data, the notion of a widespread phenomenon of urban flight remains a topic of debate. Three key reasons undermine claims of such a dynamic.

First, the empirical evidence supporting such a hypothesis has not been as strong as media discourses have popularized, or indeed some of the scientific scholarship. Although it is true that an analyses of residential balances have revealed in many contexts a net loss of population in (core) cities and a gain of suburban and rural populations – a pattern which has been termed the 'donut effect' (Bloom and Ramani, 2021) – these do not directly evaluate patterns of *out*migration (i.e. the urban *flight* itself). Changes in net population may instead be more strongly connected to the contextual scenario of reduced mobility caused by the pandemic (and its associated restrictions) more than to a real dynamic of 'urban flight' (see González-Leonardo et al., 2022; Stawarz et al., 2021).

Second, much scholarship has focused on the peak of the pandemic period in 2020 and are not able to assess the direction of trends as conditions return towards 'normality', or potentially a 'new normal'. Looking at even just the subsequent year of 2021 allows an empirical consideration of initial post-pandemic trends given a partial return to normality. While, in 2021, COVID-19 infections remained extant, this period saw, at minimum, easing of the aforementioned factors that would drive migration out of the cities: home working, fear and reduced appeal of cities, and increased prioritization of comfort at home. This fuels debate over the potential continuation of pandemic-associated migration trends or whether conditions would (partly) return to a pre-pandemic scenario. Chapter 3 of this book has some interesting insights about how some people have changed their minds regarding public transport after COVID-19 and are not returning to their previous behaviours, and this could be applied to residential choice. While some scholars argue for the continuity of trends (Whitaker, 2021), others see a return to the previous context

(Haslag and Weagly, 2022). There remains a need for empirical assessment that considers migration trends after the peak period of pandemic effects.

Thirdly, previous studies on dynamics of 'urban flight' have differed significantly on their definitions of what is urban and what is not. While some take an intuitive perspective to classify the administrative units they analyse (Fielding and Ishikawa, 2021; Whitaker, 2021), others take administrative criteria combined with classifications based on population thresholds (Stawarz, 2021; González-Leonardo et al., 2022). In this chapter we opt for a more empirical methodology that allows comparison with other contexts and also explicitly considers the potential increased decoupling of home and work location. Outside all significant urban centres themselves, we apply a classification based on the temporal commuting distance of municipalities to nearest core city. This method, described subsequently, allows for a consistent approximation of changes in residential preferences and a more accurate understanding of the magnitude and nature of a hypothetical "urban flight".

Turning to the salient case of Spain, this study aims to provide valuable insight into these debates through a detailed assessment of the national spatial patterns of residential migration over time. Our analysis untangles crucial variations between in- and out-migration and considers longer-term trends previous to the pandemic, over the peak year of its impacts (2020) and following a partial return to normality in the post-pandemic period (2021). To this end, we analysize the national dataset *Estadística de Variaciones Residenciales* (EVR) (or Statistics on Residential Changes), derived from the national register that inscribes all residential registrations and cancellations for each of the 8,131 Spanish municipalities. We thus present an exploratory analysis of internal migration over the period 2011-2021. Specifically, we address the following research questions:

1. How have net migration trends across Spanish municipalities changed in the face of the COVID-19 pandemic and how are these differentiated spatially and by commuting time to core-cities?
2. Is there evidence of a return to pre-pandemic migration patterns in 2021?
3. How do in- versus out-migration dynamics explain developments and to what extent do these support the narrative of a pandemic-associated 'urban flight'?

The impact of COVID-19 on internal migration patterns: What do we know?

To date, empirical evidence on the impact of COVID-19 on internal migration dynamics remains scarce and mostly focuses on data from 2020, an exceptional year due to the pandemic outbreak as well as reflecting the peak year of implementation of different disease control strategies across most Western countries. These involved a wide range of measures which, in many contexts, directly targeted residential mobility and commuting. In 2021, with the widespread implementation of novel vaccines across many countries, much of the shock effect of the pandemic subsided and a majority of control measures were, eventually, dropped or relaxed. Therefore, even while the disease remained present, 2021 already provides valuable insight into the beginning of a post-COVID scenario.

Media reports across many countries on the topic have presented dramatic headlines purporting, in the face of the COVID-19 pandemic, a mass flight from urban areas to suburban and even rural environments (Salar, 2020; Tarvenise, 2020; Tonar, 2020). This

topic has remained in discussion in the media, showing the disparity of opinions on trends that are still in process (Idealista, 2022; Jorrín, 2022; Lee, 2022).

Some academic researchers were quick to also delve into this topic. Existing scholarship on COVID-19 has highlighted common changes in residential migration across city regions and within countries across contexts as disparate as Japan, Germany, Australia, Sweden, the United States and Spain. In chronological order, the first published study on the topic was that of Fielding and Ishikawa (2021) examining the Japanese case. Using data on internal migration between prefectures, the researchers confirmed trends towards the loss of urban population to some suburban and rural regions within a context of declining mobility. However, the effect was more clearly visible in Tokyo than in the rest of the urban system (Fielding & Ishikawa, 2021). Similar evidence was found for Germany by Stawarz et al. (2021) using data on registrations and de-registrations across German municipalities. In their study, a net population loss was detected across several main German cities, including Berlin, Munich, Cologne, Hamburg and Frankfurt, but was not apparent in other smaller cities. The authors attribute declines in major cities to both changes in preferences related to the pandemic fuelling a process of urban flight, as well as delays in migration to cities for studies, work and young starter households following leaving the parental home. In Sweden, the work of Vogiazides and Kawalerowicz (2022) also detected similar patterns, however they did not attribute this to a reduction in mobility, and found such trends exclusively for the Swedish capital, Stockholm, and not in other major cities which did not experience significant population loss related to internal migration.

Outside the European context, Borsalino (2021; 2022) used health insurance data for Australia, identifying results highly consistent with the trends seen in Germany and Japan. They show a relative loss of population from cities to suburban and rural areas following the outbreak of the pandemic in 2020 and attribute such trends as primarily caused by a reduction in inflows rather than increasing outflows, with the exception of the city of Melbourne (Borsalino, 2021). However, subsequent 2021 data shows a new wave of migration to rural and suburban environments, appearing to stem largely from lifestyle rather than employment-related residential choices (Borsalino, 2022).

The most studied context has undoubtedly been the United States, where researchers have focused on analysing changing spatial patterns of inward migration using private data – mostly changes in postal addresses reported by credit companies and postal services (Whitaker, 2021). Given their more up-to-date nature, such datasets have also allowed analyses of migration trends for 2021. Already from 2020, some researchers in the US questioned the idea that a widespread urban exodus was taking place. While net migration balances were found to be clearly negative in urban settings and positive in rural and suburban ones, in many cases, these balances were largely the result of declining urban inflows rather than increasing outflows (Whitaker, 2021). Explanations for these dynamics varied, some suggested that the migration flows over 2020 were temporary in nature (Chiumenti, 2021) while others considered such changes to be a continuation of some pre-existing trends towards dispersal (Brown & Tousey, 2021). Later studies, however, demonstrated how the impact of COVID-19 on migration trends depended on the city's position within the urban hierarchy. There was clear evidence of 'urban flight' in the country's major cities with residents moving to nearby suburban environments (Bloom & Ramani, 2022) and to a lesser extent to smaller metropolitan areas (Whitaker, 2021). Such mobility changes were also found to have a direct effect on bolstering housing and land prices in these suburban areas compared to core US cities which, in

2021, experienced a downward dynamic (Bloom & Ramani, 2022). Across US cities, researchers also pointed to correlations between COVID-19 mortality rates with home working and out-migration rates (Whitaker, 2021). Haslag and Weagly (2022) pointed to a further class dimension, with the pandemic promoting a change in the preferences and mobility particularly among the better-off US population who increasingly opted for residential choices guided more by lifestyle or family proximity – mainly in suburban settings – and less by work requirements.

Turning to the Spanish context, González-Leonardo et al. (2022) make use of data derived from the register (relying on the aforementioned EVR dataset) for the year 2020. The researchers show how trends described in the international context are also partially applicable to the Spanish case. They find a sharp decline in internal migration, especially strong after the declaration of a national lockdown in March 2020, which was followed by a partial recovery of migration when the more restrictive measures were lifted (González-Leonardo et al., 2022). The authors argue there has not been a substantial alteration in the migration system and that the data for the last months of 2020 hinted already to a return to pre-pandemic mobility patterns, and suggest that the changes may represent more of temporary blip in dynamics rather than a structural change in the Spanish migration system.

In explaining why mobility behaviour in Spain changed so much in 2020, it is worth understanding the particular strictness and duration of the legislative measures related to the pandemic. This is important also in situating Spain within international comparisons. Strict regulations were applied more quickly and maintained for a longer time than in many other countries (Moreira et al., 2022), followed by a period of de-scalation with gradually softer measures (Padilla-Pozo et al., 2023). This extensive set of interventions helped to control the spread of the disease, but also had consequences on physical and mental health (Torrado et al., 2022). Although changing residence was not directly forbidden, the difficulties to do so within the context of restrictions – including managing the searching phase, paperwork and logistics of relocation – reduced permanent moves to a minimum. In fact, if we compare the number of moves in the months of March, April and May 2020 in Spain with the same months the previous year (using EVR data), there is a striking decrease of -60%. At the same time, a substantial number of Spanish people moved temporarily – commonly to relatives' houses or second residences – either to improve their housing situation or to care for others during the lockdown. Duque-Calvache et al. (2021) estimated that close to 10% of the population was involved in this kind of temporary relocation, even though regulations were passed to avoid the practice. In this context of restrictions, there is evidence that internal migration in Spain didn't only undergo quantitative changes but also saw changing spatial dynamics. As noted above, González-Leonardo et al. (2022) found an increase in flows towards suburban and rural areas and a relative loss of population for the country's largest cities. Nonetheless, their work does not directly address our three main questions. First, due to the number of small and medium cities in the Spanish urban system (Feria and Martínez, 2016), it is necessary to include all cities, as the effects may differ across them. Second, data from the peak months of the pandemic and the subsequent aftermath were heavily affected by the legal restrictions to moving during spring and the correction of this anomaly later. To study changes in residential preferences and territorial balances we need a wider temporal scope. Third, even where major cities' saw net population decreases, it remains unclear to what extent this is due to 'urban flight', or is explained by a stagnation of inflows as Whitaker (2021) pointed out for the United States?

Data and methods

To address our research questions, we make use of a public dataset ranging from 2011 to 2021 (the most recent available year to date). The source is the Statistics on Residential Changes, or *Estadística de Variaciones Residenciales* (EVR): a dataset derived from the Spanish municipal register system. The EVR compiles annual registrations and de-registrations for each of the 8,131 Spanish municipalities and is made publicly available from the Spanish National Statistics Institute (INE). This dataset does not include exhaustive information on specific flows between all municipalities, so it is not possible to analyse origin-destination matrices. However, the data does allow for the separation of residential inflows, outflows and net balances. Compiling different years, a database has been constructed containing, for each municipality, data on annual in-migration, out-migration and net migration balances over the period 2011-2021. In order to take into consideration substantial variations in the size of municipalities, we calculate rates relative to the average population of each municipality. Specifically, net, in- and out-migration rates have been calculated as follows:

$$Net\ migration\ rate_{year\ t} = \frac{residential\ balance_t}{(population_t + population_{t+1}) * 0{,}5}\ x\ 1000$$

$$Out - migration\ rate_{year\ t} = \frac{out - migration_t}{(population_t + population_{t+1}) * 0{,}5}\ x\ 1000$$

$$In -\ migration\ rate_{year\ t} = \frac{in - migration_t}{(population_t + population_{t+1}) * 0{,}5}\ x\ 1000$$

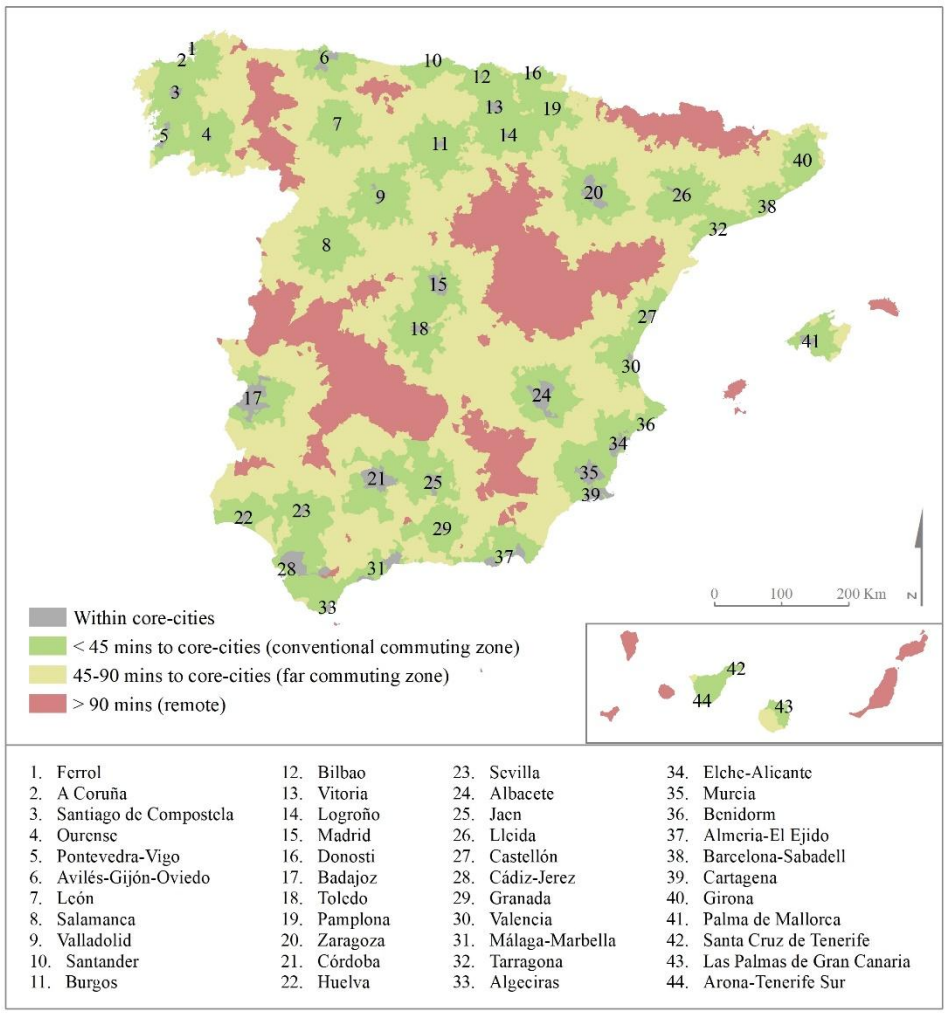
Subsequently, a classification of all municipalities has been generated according to commuting proximity of municipalities to their nearest 'core-city'. Our selection of Spanish 'core-cities' follows the definition of metropolitan core-cities classified by Feria and Martínez (2016). The core-cities are municipalities of substantial population (at least 100,000 inhabitants) that represent local/regional employment centres and attract commuters from the surrounding region. There is a total of 51 core-cities included which are distributed in 44 metropolitan areas. This is because some metropolitan areas present polycentric dynamics.[1]

We undertook a GIS analysis to assess commuting time to the nearest core-city. A network analysis was applied that included a detailed road network across Spain through the ESRI ArcGIS Online Network Dataset (ESRI, 2022). Using this network, an analysis was carried out for the entire country to determine average commuting times per municipality. As municipality boundaries include both built-up and undeveloped land, the point of origin for municipalities was based on a mean centre point within each municipality derived from a detailed layer of 1-kilometre grids of only built-up areas (INE, 2011). In other words, the assigned commuting time value represents a spatial mean for only the built-up area within the municipal territory. The classification according to commuting proximity allows us to identify four types of municipalities. (1) The *core-cities* themselves, representing the central municipality that structure metropolitan areas based on the classification mentioned above (Feria and Martínez, 2016). (2) The *conventional commuting* zone, representing the closest surrounding/suburban

[1] Polycentric metropolitan areas thus have multiple core-cities within them. Examples are Asturias (with three core-cities: Avilés, Gijón and Oviedo) or Bahía de Cádiz (with two core-cities: Cádiz and Jerez).

municipalities up to a limit of 45 minutes travel time to the centre-point of each core-city, echoing the common classification of the Functional Urban Areas and Regions (Milego et al., 2019).[2] (3) The *far commuting* zone, which represent municipalities located between 45 minutes and 90 minutes from the core-cities. While this is beyond the conventional acceptable commuting time for on-site employment, it represents an important category when considering home working that may only necessitate intermittent part-time commuting whereby longer travel times may be acceptable (Doling & Arundel, 2020). (4) Finally, we classify as *remote* all other municipalities beyond a full 90 minutes from any core-city, which can be considered the most representative of truly rural areas, where regular commuting seems very unlikely. Figure 1 below provides a map of the classification of all municipalities according to commuting proximity across Spain alongside situating all the core-cities.

Figure 1: Map of commuting proximity zones to core-cities in Spain



Source: Own calculations based on INE municipality data, core-city classifications by Feria and Martínez (2016) and the ESRI ArcGIS Online Network Dataset (ESRI, 2022).

[2] In our initial classification we separated this zone into two subcategories: a ring of very short commuting – at under 20 minutes – and then a 20-45 minutes classification. After checking the similarity of migration behavior between both types and also due to the limited number of municipalities in the closer ring (especially where the core-city is larger), we preferred to unite both into a single under 45 minutes category following the conventional commuting cut-off in other research (Milego et al., 2019).

Following the data compilation and classification of municipalities, we carried out the analyses of internal migration dynamics. First, we examine net migration rates for municipalities over time. This was examined in two ways. We start by analysing their evolution within each of the four categories of commuting proximity, in order to compare the pre-COVID scenario (2011-2019) with the peak COVID period (2020) and initial post-COVID dynamics (2021). We then map out net migration rates across the national territory, in order to uncover the specific spatial patterns underlying the general trend. For our spatial analysis, here we focus on a comparison of the pre-COVID years (2011-2019) to the extended COVID period (2020-2021), however, additional mapping of separate years was carried out as robustness tests (available upon request). Secondly, in line with our literature discussion suggesting the importance of understanding the components which drive net internal migration dynamics, we decompose our data based on in- and out-migration rates. We thus analyse separately inflows and outflows across each municipality classification allowing us to untangle which is driving the changing migration patterns and the extent to which the data supports the popular narrative of 'urban flight'. We additionally map the out-migration and in-migration rates for the extended COVID period (2020-2021) in order to examine their spatial dynamics.

Results

Net migration dynamics over time and commuting proximity to core-cities

We first turn our attention to analysing the evolution of net migration rates over our study period. Figure 2 presents both the development in total municipal migration moves (the columns in the graph) thus representing overall internal mobility, as well as net migration rates across municipalities based on their classification by commuting proximity to core-cities. Regarding the total volume of internal migration, as we can see in Figure 2, internal migration shows two main stages before the outbreak of the pandemic. The first one takes place between 2011 and 2016 and is characterised by a generalised and continuous decline. The explanation for this decline is due to the confluence of this stage with a recessionary economic cycle, austerity policies and, especially, the decrease in international migration, which subsequently feeds internal mobility (Pujadas et al., 2012; Gil-Alonso et al., 2015). A period of recovery in internal migration began in 2016 and continues until 2019, coinciding with the economic recovery and the return of international migration. The outbreak of the pandemic in 2020 put a brake on this expansive trend, with a fall of -129,745 movements compared to 2019, the largest in the period studied. This sharp decline was largely due to the strict lockdown measures decreed by the Spanish government in March 2020 and the subsequent restrictions on mobility that followed. Additional monthly analysis we conducted with the data showed that over the months of March, April and May 2020 migrations fell drastically, being 60% lower than in the same months of 2019. However, in 2021, past the peak of the pandemic, migration appears to resume its upward trend. The unprecedented increase we find in 2021 (higher than any previous year in our sample) is likely explained by the lifting of restrictive mobility measures and to delayed movements that could not take place in 2020.

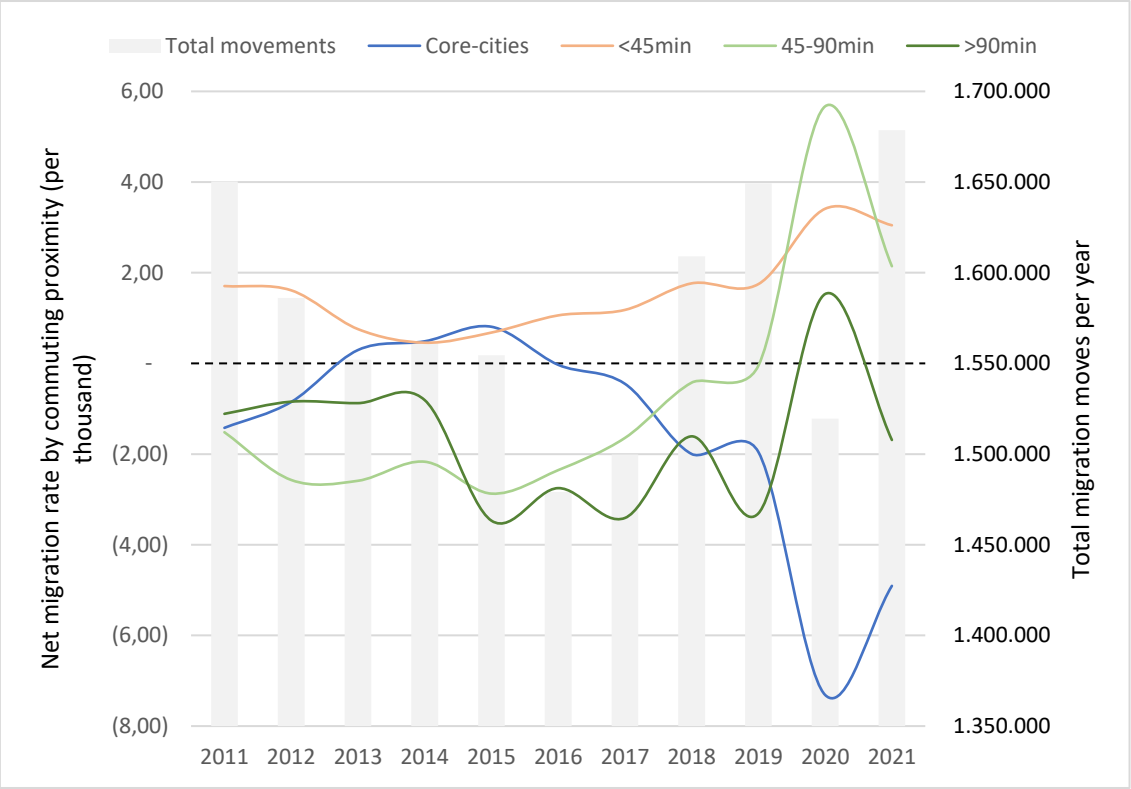
Figure 2 further reveals aggregated net migration trends across municipalities classified by commuting zone. The evolution of migration rates across these categories uncovers interesting spatial dynamics over the pre-COVID and COVID periods (visualized

spatially in the maps presented in Figure 3). Before 2020, we find three main phases in the evolution of the migration system. In the years 2011-2012 the dominant trend is suburbanisation towards conventional commuting areas (under 45 minutes from the core-cities). From 2012 until 2016, coinciding with the hardest years of the economic crisis, a process of growth in the core-cities is observed, parallel to a stagnation of suburbanisation towards nearby areas. This phase was known as re-urbanisation, and particularly affected the biggest Spanish cities (López-Gay, 2016). Finally, from 2016 to 2019, a pattern of suburbanisation returned, with an increase in net migration rates towards conventional commuting areas fuelled by population loss in core-cities. However, beyond variations in net rates in core-cities and conventional commuting zones, long and remote commuting areas show little change before the pandemic – exhibiting a constant net loss.

The outbreak of the pandemic in 2020 represents a dramatic break from these previous trends. As shown in Figure 2, municipalities within the *far commuting* zones as well as *remote* areas experienced unprecedent net population gains in terms of internal migration. Municipalities within the *Conventional commuting* zone also accelerate their growth. While the migration dynamics within *core-cities* had appeared more variable over the previous period, with a few years of slight net gains and then a few years of slight losses, 2020 reveals a sharp acceleration of this net decline.

It is possible that the longer-term gradual upward trend across the far commuting zone can be partly explained by dynamics of expanding urban sprawl, especially in bigger metropolitan areas, stretching beyond the conventional commuting threshold. Nonetheless, the sharp acceleration during the pandemic (converting these areas into net gainers) does support the assumption that the pandemic and its associated measures encouraged some households to move further out from urban centres. When considering the potential locational flexibility with increased home working, these areas also represent those that maintain some relative proximity to the core-cities that may be reasonable when only intermittent commuting is needed or occasional travel to cities for other reasons. The net gain within *remote* municipalities in 2020, however, is an unmistakably unique event following consistent and quite stable rates of depopulation. The data thus seems to reveal a novel trend of 'back-to-the-rural' migration during the peak period of the pandemic which coexist alongside a generalized 'urban sprawl'.

Figure 2. Total municipal migration moves (bars) and net migration rates by commuting proximity to core-cities (lines) in Spain 2011-2021



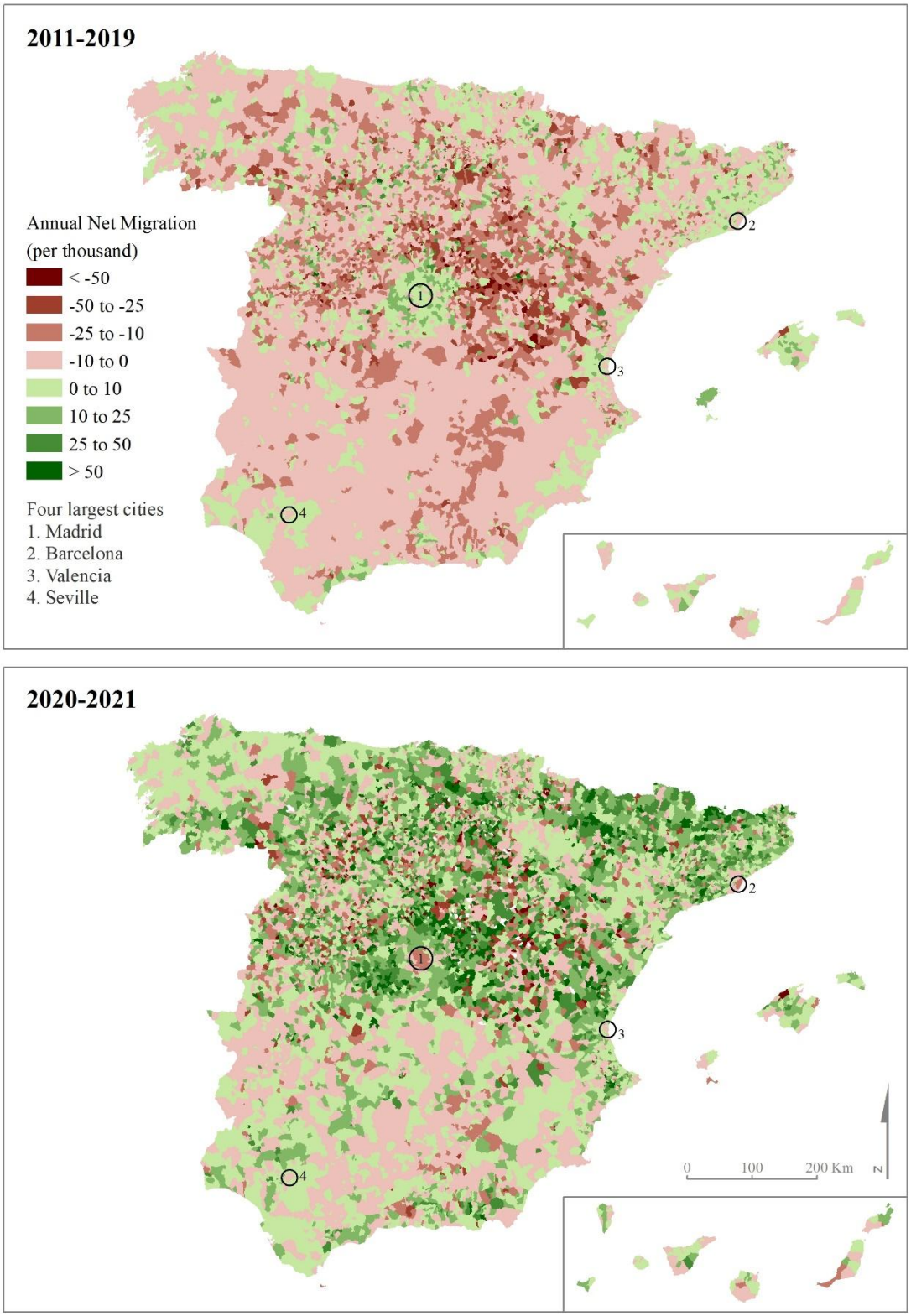
Source: Own elaboration using data from the *Estadística de Variaciones Residenciales* (EVR), 2011-2021

Nonetheless, these changes appear to reflect the temporary and exceptional nature of the situation that generated them. Looking at 2021 data, we see, in fact, a return towards pre-pandemic spatial patterns. Core-cities, while continuing to lose population, show signs of recovery towards their earlier net migration rates. Similarly, migration rates for those in the conventional commuting and remote zones exhibit declines in 2021 and a return towards pre-pandemic patterns, with remote areas once again experiencing net population loss. In other words, the respite in rural depopulation was short-lived. At the same time, it should be noted that 2021 is not a complete return to previous trends. The net loss of cities continues to be significant, and far commuting areas continue to gain population – even in a high mobility context. In sum, in terms of net migration dynamics, 2021 trends do point to a return towards pre-pandemic aggregated spatial patterns, however, it is unclear if these will fully recover or stabilize under a 'new normal' in between pre-pandemic dynamics and the 2020 extremes.

In Figure 3 we subsequently visualize spatially the shift in net migration for the pre-COVID period (2011-2019) and the COVID years (2020-2021). At first glance, the map of net balances of internal migrations in Spain clearly supports the hypothesis of a change in residential preferences and behaviours. The arrival of COVID-19 meant a respite in depopulation for rural areas which had been the consistent dynamic over the previous decade (González Leonardo et al., 2021) and, conversely, a halt or reversal in the growth that had characterized many metropolitan centres (for reference, we highlight the four largest cities in the map). Even when including the second year of the pandemic representing an initial return to normality (or a 'new normality'), the shift is still strongly visible, albeit this is even more remarkable when considering only 2020 (see González Leonardo et al., 2022). Overall, the maps show a population recovery in the north half of Spain and in inland territory, both of them being areas with long term depopulation

problems. In the four main cities (Madrid, Barcelona, Seville and Valencia), there is evidence of a donut effect (Bloom and Ramani, 2021), especially for the two largest cities. Overall, the maps show how the pandemic has resulted in many core-cities and their immediate surrounding municipalities seeing new dynamics of net population decline in parallel to a significant growth of many more distant municipalities, echoing the aggregated values shown in Figure 2 above and the findings by Feria in the first chapter of this book.

Figure 3. Evolution of migration rates over the pre-COVID and COVID periods



Source: Own elaboration using data from the Estadística de Variaciones Residenciales (EVR), 2011-2021

When considering both the map (Figure 3) and the evolution of net migration trends across aggregated municipal categories (Figure 2), our findings do appear coherent with the expectations described in the literature and some patterns reported on in other country

contexts. In other words, the developments in net migration appears to sustain the idea of substantial change in residential behaviour, particularly in 2020. These are in line with the expected drivers of the pandemic period of increased contagion fear in urban environments, diminished appeal and offerings of urban amenities, new opportunities for home working, and associated changes in housing and locational preferences. However, the overall image portrayed above relying on net trends may be hiding some crucial underlying developments. While at face value we do identify some dynamics of 'urban flight' insofar as larger cities experience net negative migration, we cannot come to a clear assessment without considering separately in- and out-migration dynamics. To what extent are declining net migration rates in larger urban centres caused by inhabitants moving out of these urban centres, as described by Stawarz et al. (2021) and Whitaker, (2021), or is the apparent 'urban flight' in fact a reflection of reduced in-migration to cities, as Borsalino (2021) point to in the case of Australia? In the subsequent section we therefore untangle developments for in- and out-migration across Spanish municipalities. To better understand the changes caused by COVID-19 is useful to depart from the pre-existing situation: chapter 3 by José Manuel Torrado and Joaquín Susino gives a useful general overview of the suburbanization and centralization dynamics in Spain.

Urban flight or stagnation? Separating in- and out-migration trends by commuting proximity

We subsequently unpack the underlying in- and out-migration dynamics obscured in net migration balances. The results (see Figure 4) reveal very different developments across each municipal category based on commuting proximity.

We first look at how the peak pandemic year disrupted in- and out-migration trends. As our results attest, *Core-cities* had a slight negative balance already before the pandemic, but the data for 2020 does not show any increase in out-migration. Instead, what we find is that the pandemic affected incoming migration, which saw a very sharp decline in 2020. This is likely explained by both the difficulties of relocation during this most restricted period, disrupting conventional movements to cities, alongside the loss of attractiveness of cities during this period (Conway et al., 2020). Turning to municipalities within the *conventional commuting* zone, we see a more minimal impact of the pandemic on in and out-migration. Both migration rates show relative stability in preceding years with 2020 showing some decline in both flows, however, the relationship between them is relatively stable with in-migration remaining slightly higher. In other words, there appears to be a continuation over the pandemic of a longer-term suburbanization process – ongoing in Spain since the 1980s (see Susino and Duque-Calvache, 2013) – albeit with slightly lower rates of mobility for both in and out migration.

Figure 4. Evolution of in- and out-migration rates by commuting proximity

Source: Own elaboration using data from the *Estadística de Variaciones Residenciales* (EVR), 2011-2021. Note: while axes have different min and max values, extent is the same to maintain scale comparability

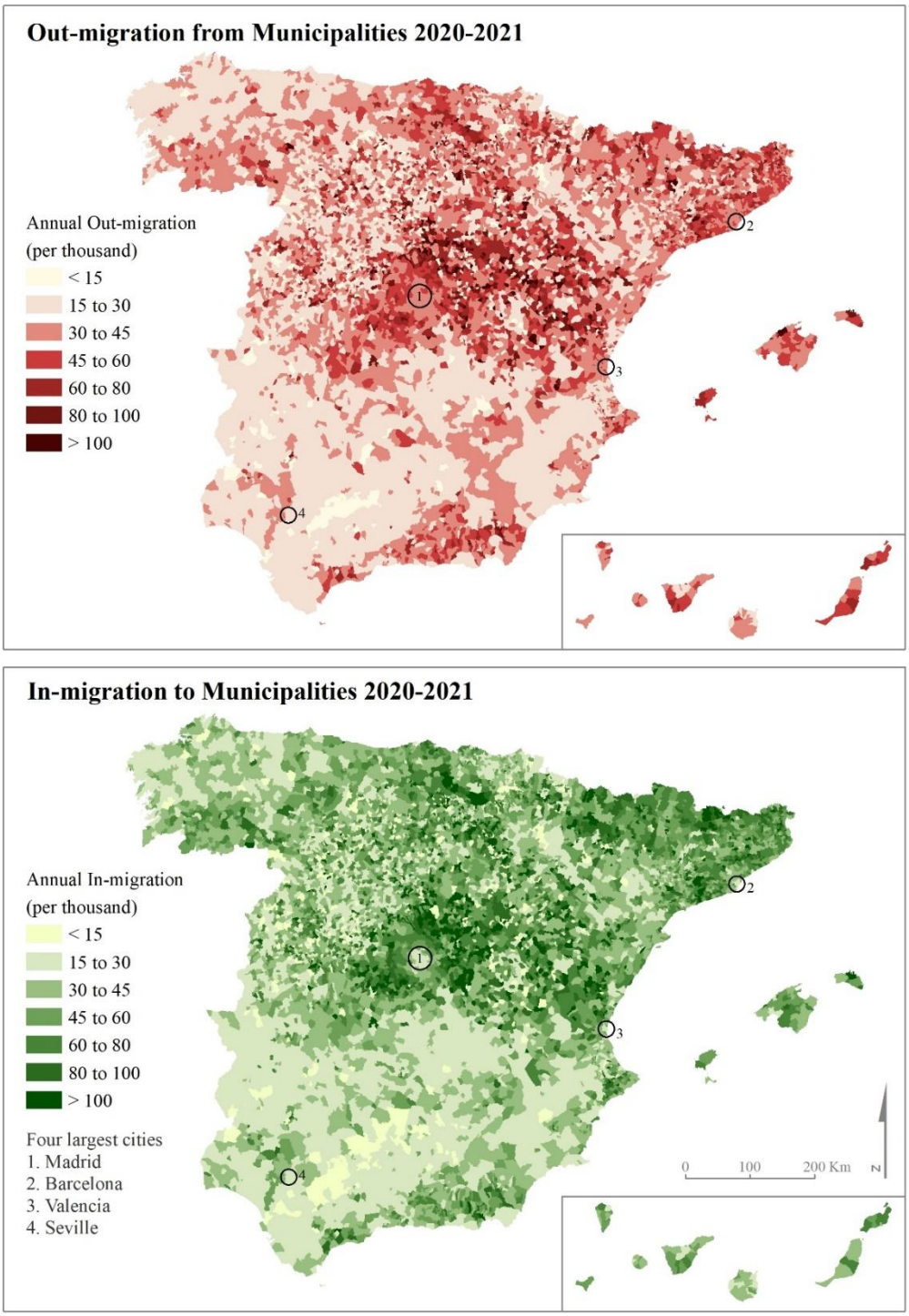
Far commuting municipalities, however, exhibit a reverse pattern of what is seen for core-cities. In these more peripheral areas, out-migration plummeted in 2020, whereas in-migration remained steady and gradually rose following a longer term increasing trend since about 2017. This continued growth in far commuting municipalities could be interpreted as either very distant urban sprawl or a process of counter-urbanisation. These areas do fall outside the range of acceptable daily commute but, as argued above, may match changing working patterns that allow only intermittent commuting given increasing working from home, a trend that predates COVID but was strongly catalysed by the pandemic (Doling & Arundel, 2020).

Finally, the separated migration data for *remote* municipalities interestingly does not tell a story of urban dwellers 'escaping to an idyllic countryside', as could have been concluded from an analysis of only net rates. In fact, the incoming population *decreased* in 2020. However, the out-migration also plummeted and to an even greater extent. It is this dynamic that then explains the net positive migration rate in 2020. This therefore does not match the narratives of 'urban flight', but instead represents a situation of 'rural stagnation' where people were unable or choose not to move out over the peak period of the pandemic. This thus disrupted the previous steady population flows out of these more remote regions and resulted in a net population growth.

Making use of the available data for 2021 provides again insight into where these trends are headed after the (peak) pandemic. For core-cities themselves, in-migration rates that had substantially dropped off during the peak pandemic year see a partial recovery towards close to pre-pandemic levels. Out-migration, however, was less affected by the pandemic in 2020, but clearly increased in 2021, pointing to a possible new cycle of suburbanization to farther municipalities. For the conventional commuting zone, 2021 shows a complete reversal of the decrease in both in and out mobility over 2020. The recovery does appear to marginally surpass pre-pandemic rates for both and again this may reflect compensation due to delayed moves during the peak pandemic year. For 2021,

far commuting municipalities once more exhibit nearly symmetrical but opposite patterns as found for core-cities. We see a partial recovery in terms of the substantial decline in out-migration that had occurred over 2020. In these municipalities it is the in-migration rates that appear to be largely unaffected by the pandemic with 2021 rates following a longer term gradual increase. Finally, the most remote municipalities also see a substantial reversal of the 2020 decline of out-migration with these areas once again returning to pre-pandemic dynamics of higher rates of out- versus in-migration.

Figure 5. Maps of out- and in-migration rates by municipalities over 2020-2021



Source: Own elaboration using data from the Estadística de Variaciones Residenciales (EVR), 2011-2021

The maps shown in Figure 5 visualize the spatial distribution of in and out-migration across the Spanish territory. Here we focus only on the pandemic period (2020-2021) for conciseness. The maps corroborate the results from the aggregate graphs (Figure 3). We can see on the maps that the more remote areas further from urban centres display more of a situation of overall stagnation with low rates of both in- and out migration. The maps also confirm the pattern in the largest metropolitan core-cities of a temporary decrease in incoming migration being more prominent than changes in out-migration, which underlies what we see as depopulation in our first analyses on net migration dynamics.

Conclusion

The results of our research reveal first of all that the effects of the pandemic on migration are far from universal spatial nor temporally. Looking across time, we find that 2020 was an exceptional year particularly in terms of very low mobility. However, it was precisely the different relative extents of mobility disruption across the territory that led to drastically altered migration patterns. Our analyses considered spatial variations in these changes based on commuting proximity to core urban centres. Net migration balances revealed a clear change in migration dynamics across the Spanish territory. Our findings were consistent with expectations outlined in the literature and trends reported on in other country contexts with a drastic reversal of the longer-term migration dynamics that had been apparent in Spain over the previous years (González-Leonardo et al., 2022). At the aggregate level, the pandemic period was characterised by a dramatic reversal of the depopulation of rural areas and growth of core urban areas that had characterized the pre-pandemic period.

However, by subsequently separating in- versus out-migration rates, we crucially revealed that population growth in more rural areas and municipalities far from major urban centres was, in fact, driven by the halting of outflows whereas inflow rates remained less affected. Conversely, a relatively strong reduction in inflows was the driving force behind net decline within larger cities with outflows in these contexts continuing at similar rates. As stated in chapter 1, the higher mortality rate by COVID-19 in bigger cities (tripling the national average in the case of Madrid) may explain these two trends.

Therefore, to describe the initial consequences of COVID-19 we must speak of stagnation, contrary to what was reported in the media during the first months. The sense of mass flight from large cities is possibly explained by the numerous temporary changes of residence that occurred in the period, most of which were not recorded in official sources, but which have been estimated at around 10% (Duque-Calvache et al., 2021).

But 2021 data show that not all pre-pandemic trends are subsequently recovered. In a context of very high mobility, and without restrictions of any kind, the process of metropolitan decentralisation continues and is accentuated. The change is not so spectacular in numerical terms, but it reveals a deeper change, an alteration of the residential preferences of a part of the population (at the level of individuals) and a redefinition of the boundaries of the metropolitan areas (at the aggregate level). It is therefore relevant to speak of an incipient urban flight, in terms of internal migration. Although international migrations can compensate for the population balances of large cities, they appear to have lost some of their attractiveness.

Our study additionally presents some valuable opportunities for further research beyond the scope of our focus. As future lines of research, it would be insightful to unravel the underlying reasons and motivations for changes in migration behaviour. Factors such as the consolidation of remote work, high housing prices in central cities (in a context of economic instability), health concerns or fear of outbreaks are certainly important, but measuring their direct relevance in household motivation would require individual data and particularly benefit from in-depth qualitative research. Within this, there is an opportunity for interesting work into understanding the motivations of specific groups, such as those that did not choose to relocate even while facing constrained living conditions, or indeed to follow-up on those that relocated to assess subsequent satisfaction – e.g. to what extent may we find 'regretful movers' within a post-pandemic context. As the authors of chapter 5 have pointed out, COVID-19 opens up the chance for a whole new urban research agenda.

More broadly, shifts in migration dynamics present crucial implications towards other societal questions. These involve exploring outcomes in terms of changing patterns of mobility and commuting, alongside related issues of environmental impacts and land conservation. Another key consideration is the intersection between changes in residential migration and dimensions of socio-economic inequality (Arundel, 2020). In other words, understanding to what extent the ability to 'escape' potential residential constraints and hardships, such as related to the pandemic, is mediated by socio-economic position.

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