POPULATION DYNAMICS DURING THE COVID-19 PANDEMIC

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Abstract

The year 2020 was marked by net migration dynamics in Spain that resulted in an increase in the rural population at the expense of the urban population, interrupting the secular trend towards greater urbanisation prevailing since the middle of the last century. According to the findings of this paper, the demographic momentum of rural areas was attributable both to higher population inflows from elsewhere in the country and, in particular, to a slowdown in outflows from rural areas. In addition, a regression analysis shows that the demographic dynamics during the rural exodus (1950-1990), the percentage of second homes and accessibility to services, both physical and digital, are explanatory factors when characterising municipal-level population changes during the pandemic. 2020 represents a unique period, marked by strict restrictions on movement and on activity, along with stringent social distancing measures. This setting, along with the modest levels of remote working, raise significant doubts and uncertainty as to the extent to which the slowdown in urbanisation observed in that year will continue over a longer time horizon.

Keywords: COVID-19, pandemic, population, migrations, Spanish municipalities.

JEL classification: J11, R10.

Resumen

El año 2020 se caracterizó por unas dinámicas de migración neta en España que desembocaron en un aumento de la población rural en detrimento de la población urbana, rompiendo la tendencia secular hacia una mayor urbanización vigente desde mediados del siglo pasado. De acuerdo con los resultados de este documento, el dinamismo poblacional de las áreas rurales obedeció tanto a un aumento de las llegadas de población procedentes del resto del país como —en mayor medida— a un freno de las salidas desde dichas áreas. Asimismo, un análisis de regresión muestra que las dinámicas demográficas durante el éxodo rural (1950-1990), el porcentaje de viviendas secundarias y la accesibilidad a servicios (tanto físicos como digitales) se revelan como factores explicativos a la hora de caracterizar los cambios poblacionales a nivel municipal durante la pandemia. Cabe señalar que el año 2020 constituye un período excepcional, caracterizado por importantes restricciones a la movilidad y a la actividad, así como por profundas medidas de distanciamiento social. Este contexto, así como los niveles modestos de implantación del teletrabajo, arroja notables dudas e incertidumbre a la hora de anticipar hasta qué punto el freno a la urbanización observado en dicho año tiene visos de permanecer en un horizonte temporal más amplio.

Palabras clave: COVID-19, pandemia, población, migraciones, municipios españoles.

Códigos JEL: J11, R10.

Contents

1 Introduction

Population dynamics in Spain over recent decades have been marked by the diminishing share of rural areas in favour of large urban areas (see Gutiérrez et al. (2020a)). However, the unprecedented shock on various fronts triggered by the pandemic may result in somewhat of a reversal of this trend. Specifically, factors such as the implementation of teleworking and the development of e-commerce may help make less populated areas more appealing as places of residence.

Indeed, on National Statistics Institute (INE) population data at 1 January 2021, the rural population rose by 0.7% in 2020, while at the same time the urban population declined by 0.3%. Specifically, despite deaths broadly exceeding births, rural areas were characterised by net internal migration equivalent to a net inflow of around 106,000 people (1.1% of the rural population at the start of the year), comprising 425,000 immigrants and 319,000 emigrants. This net migration was driven by inflows from other parts of the country rising by 33,000 people compared with the previous year, and outflows falling by 59,000. Moreover, the number of urban residents fell owing to the increase in internal outflows, together with the pronounced contraction in international migration and a negative contribution from natural population growth.

This paper sets out a detailed analysis of these developments according to the size of the municipality and the origin-destination of migratory movements, be they national or international, and inter-provincial or intra-provincial. The factors driving net migration at the municipal level in 2020 are also explored. According to the analysis conducted, the significant factors lying behind a more positive migration balance during the pandemic include the demographic dynamics during the rural exodus, the percentage of residential properties classified as second homes, greater digital services coverage, better access to physical services and proximity to the provincial capital. This is consistent with the evidence available for other countries (see, for example, OECD (2021)). It is especially significant in a setting in which the deficit in accessibility to such services in rural, as opposed to urban, municipalities is significantly more pronounced in Spain than in its European counterparts (see Alloza et al. (2021)).

It should, however, be pointed out that these findings refer to a very specific period marked by significant restrictions on mobility and social distancing measures. Consequently, consideration needs to be given to the notable uncertainty surrounding how long these developments will last over a broader timeframe. In this respect, the rise of teleworking and e-commerce, for instance, may help make rural areas more appealing to the detriment of large urban areas (see Glaeser (2021)), particularly in a setting in which rural areas will see their access to digital services bolstered.[1] In any event, despite the boost observed during the pandemic, teleworking has been implemented on a very modest scale and is

1 For example, the Recovery, Transformation and Resilience Plan envisages that the entire Spanish population will have internet access faster than 100 Mbps in 2025.

relatively uncommon, raising doubts as to the degree to which it can continue to be a driver of migratory movements as observed in 2020. Specifically, according to the Spanish Labour Force Survey, only 13.6% of workers reported having worked from home at least occasionally at end-2021.[2]

The remainder of this paper is structured as follows: Section 2 presents the data used, Section 3 analyses changes in the population of urban and rural areas in 2020 compared with previous years and Section 4 focuses on characterising the changes of residence during this period. Lastly, Section 5 explores the determinants of migratory flows during the pandemic as compared with the preceding five years.

2 Anghel et al. (2020) calculate that 30% of workers could potentially work from home.

2 Data

This paper uses three INE databases to explore recent dynamics in the rural and urban populations in Spain: the Continuous Register Statistics, births and deaths statistics and Residential Variation Statistics (RVS).

First, the Continuous Register Statistics record municipal registrations and deregistrations, thus providing information on changes in the population at the municipal level. The data used in the analysis cover the period from 1 January 2016 (referred to as 2015) to 1 January 2021 (referred to as 2020). Drawing on the population data at 1 January 2020, urban municipalities are considered to be those with over 10,000 inhabitants, while the remainder are classified as rural municipalities. The municipal data have also been harmonised, aggregating for each year the population of municipalities that were combined or separated during the period of analysis, such that the population series for each municipality are comparable over time.

The births and deaths data, which show natural population growth, are drawn from the INE's births and deaths statistics, which are available at the municipal level for the period 2015-2020.

The migration data by origin-destination are taken from the RVS, which presents migratory flows with information on the municipality of origin, municipality of destination and month of movement, enabling net internal and external migration to be characterised separately. However, the monthly information on municipalities with fewer than 10,000 inhabitants is only provided on an aggregate basis. For this reason, Section 4 describes the monthly changes in migration between January 2015 and December 2020 by municipality size. In addition, by harnessing the annual population, births and deaths data available, the foregoing information is supplemented with annual net migration (external and internal aggregated), obtained as the residual of the change in the population and natural population growth (see Gutiérrez et al. (2020a)). This database is used to investigate the factors driving migratory flows at the municipal level before and during the pandemic.

It should be noted that, beyond the three aforementioned databases, other characteristics at the municipal level have also been compiled. These include population density, unemployment rate, per capita income, access to digital and physical services, percentage of young adults, proportion of people born in the municipality and those born abroad, percentage of second homes, distance to the provincial capital, distance to the coast, temperature, rainfall, soil quality and altitude. For more details on these variables, see Gutiérrez et al. (2020b).

3 Recent trends in the urban and rural populations

Between 1996 and 2019, Spain's urban population (defined as those residing in municipalities of over 10,000 inhabitants) rose by 22% (7 million inhabitants). In the same period, the population of rural areas (i.e. those residing in municipalities with fewer than 10,000 inhabitants) not belonging to a functional urban area (FUA)[3] fell by 257,000, or 4% (see Chart 1.1). As the number of inhabitants in small municipalities linked to FUAs increased by close to 60% to 2019, the population in rural municipalities grew by 712,000, or 8%, between 1997 and 2019. However, 2020 saw a change in this trend and, for the first time since 1996, the urban population decreased (by 0.3%), and the rural population – both in municipalities linked to an FUA and those that are not – increased (0.7%). As a result, the percentage of the population residing in urban municipalities fell by 0.2 percentage points (pp) to 79.9%, a sharper decrease than in any previous year (see Chart 1.2).

The changes in the populations of rural and urban municipalities since 2015 are analysed below. Further, rural municipalities are classified between those at risk of depopulation,[4] those within the area of influence of an FUA and others. Urban municipalities are classified into three size-based groups: small (10,000-50,000 inhabitants), medium (50,000-500,000) and large (over 500,000).[5]

The population residing in rural municipalities fell by 1.7% between 2015 and 2017. It then held steady and began to rise, such that the growth rate accelerated considerably in 2020, climbing 0.7% in that year alone. However, the pandemic has had very different effects on the rural population, depending on whether the municipality is linked to an FUA or at risk of depopulation. In the case of those at risk of depopulation, after declining by close to 9% in 2015-2019, their population remained unchanged from pre-pandemic levels in 2020, despite the increase in deaths. Meanwhile, the population in the other rural municipalities not linked to urban areas fell by 2.2% in 2015-2018, levelled off in 2019 and increased by 23,000, or 0.4%, in 2020. Lastly, the year-on-year growth in the population of rural municipalities belonging to FUAs accelerated from an average of 0.7% in 2015-2019 to 1.4% in 2020 (see Chart 1.3).

The population of urban municipalities increased by around 2.5% in 2015-2019. However, on account of the pandemic, this growth reversed in both the medium-sized and

3 A functional urban area consists of a city and its commuting zone. Specifically, according to Eurostat, a municipality is considered to belong to a functional urban area if at least 15% of its employed population works in the main city and it borders other municipalities in the same area. In the case of municipalities with fewer than 2,000 inhabitants, the commuting-rate threshold is higher: from 1,000 to 2,000 inhabitants, 25% of the employed population; from 500 to 1,000, 35%; from 100 to 500, 45%; and from 0 to 100, 50%. Moreover, those municipalities completely surrounded by a functional urban area are also included in the FUA.

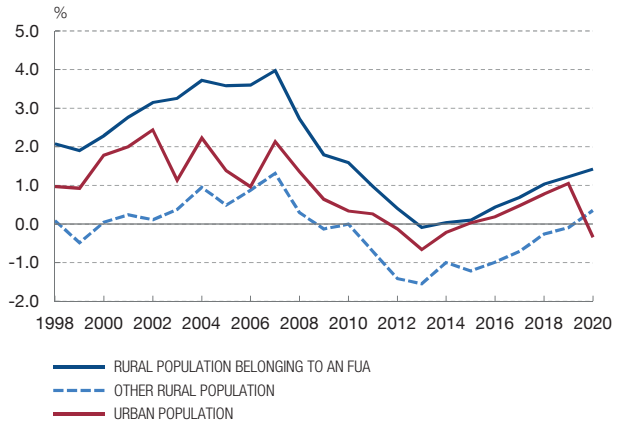
4 Defined as those municipalities with negative population growth between 2001 and 2018, a negative natural population balance since 2001 and a population density of below 12.5 inhabitants per km2. This definition is based on that considered in European Parliament Resolution P8_TA (2019)0303 on the European Regional Development Fund and on the Cohesion Fund to identify areas facing natural or demographic handicaps and challenges. The main difference is that here the period from 2001 to 2018, rather than from 2007 to 2017, is considered.

5 In 2020, 2% of the population resided in rural municipalities at risk of depopulation, 6% in those linked to an FUA and 12% in other rural municipalities. Turning to urban municipalities, 27% of the population resided in municipalities with fewer than 50,000 inhabitants, 37% in those with between 50,000 and 500,000 inhabitants and 16% in those with over 500,000 inhabitants.

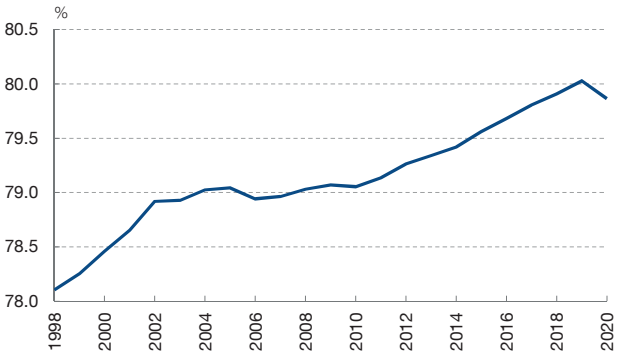
Chart 1

RECENT DYNAMICS IN RURAL AND URBAN POPULATIONS

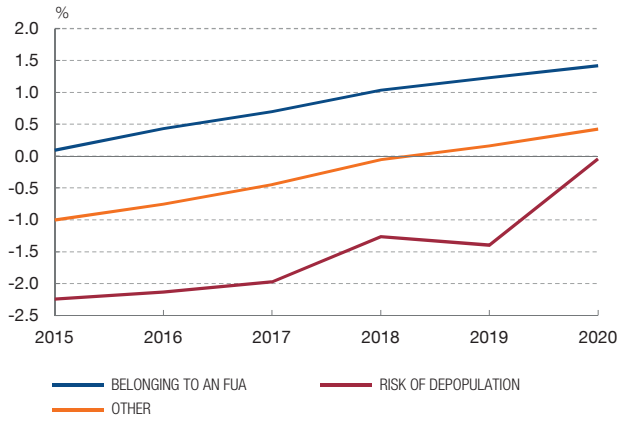
1 RURAL AND URBAN POPULATIONS



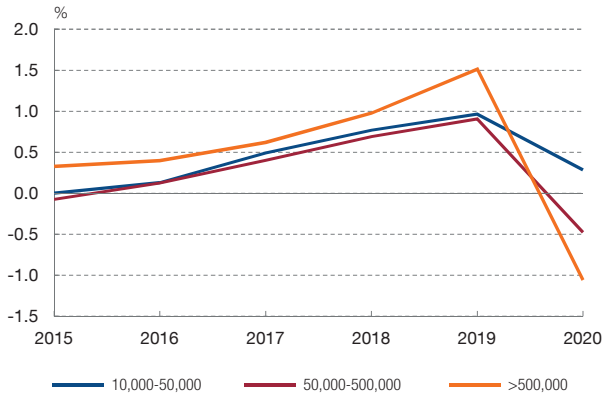
2 URBANISATION RATE



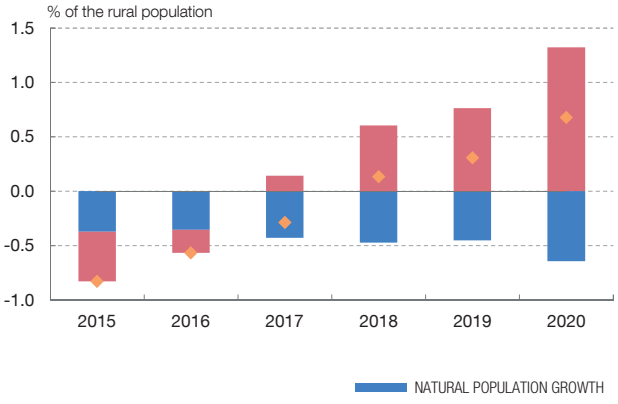
3 RURAL POPULATION



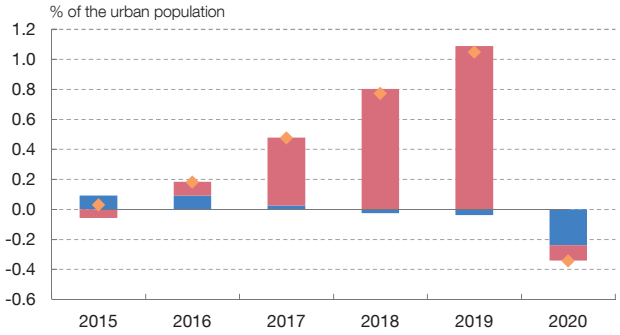
4 URBAN POPULATION



5 NET MIGRATION AND NATURAL POPULATION GROWTH IN RURAL MUNICIPALITIES



6 NET MIGRATION AND NATURAL POPULATION GROWTH IN URBAN MUNICIPALITIES



SOURCE: Banco de España.

large municipalities and slowed in small municipalities (where, before the pandemic, changes in the population were in step with those in medium-sized urban municipalities). Specifically, the population of small urban municipalities increased by 0.3% in 2020, in contrast to the 0.5% and 1.1% declines in medium-sized and large urban municipalities, respectively (see Chart 1.4).

To explain recent population trends in detail, population changes are broken down between natural population growth and migration, the latter obtained as the residual of the change in the population and natural population growth (see Gutiérrez et al. (2020a)).[6] Charts 1.5 and 1.6 show these two components as a percentage of the populations in rural and urban municipalities, respectively, since 2015. According to the data, deaths strongly outstrip births in rural municipalities in the period as a whole. Conversely, natural population growth in urban municipalities was stable or positive until 2019 but turned negative in 2020. In terms of its contribution to population growth, between 2015 and 2019 natural population growth trimmed 0.4 pp from rural municipalities each year and added 0.1 pp to urban municipalities. In 2020, these contributions fell to -0.6 pp and -0.2 pp in rural and urban municipalities, respectively.

Migration contributed 0.2 pp and 0.5 pp each year to the rural and urban populations, respectively, between 2015 and 2019 (see Charts 1.5 and 1.6). The pandemic subsequently prompted an increase in migration towards less densely populated areas. Specifically, in 2020, rural municipalities received, in net terms, 125,000 migrants (17,000 in municipalities at risk of depopulation, 48,000 in those linked to FUAs and 60,000 in other municipalities), and urban municipalities lost 38,000 inhabitants. These figures stand in contrast to the net inflows of 78,000 and 886,000 migrants to rural and urban municipalities, respectively, in the period 2015-2019 as a whole. Thus, in 2020 net migration contributed 1.3 pp to population growth in rural municipalities and trimmed 0.1 pp from that of urban municipalities. The following section analyses in depth migration following the outbreak of the pandemic compared with previous years, to understand the substantial increase in net migratory inflows to small municipalities during this period.

6 Although the RVS draw on the municipal registrations reflected in the INE's database, net migration does not coincide with the residual of the change in the population and natural population growth. This difference is chiefly attributable to variations included after the close of the RVS and to adjustments in municipal registrations based on notifications of changes of residence (for more information, see https://www.ine.es/dyngs/INEbase/en/operacion.htm?c=Estadistica_C&cid=1254736177013&menu=metodologia&idp=1254734710990). This discrepancy may have been compounded during the pandemic as a result of the greater administrative difficulties in recording migration abroad and in renewing residency for foreign inhabitants. Indeed, according to the RVS, migration was negative in 20% of municipalities, whereas the residual suggests that the population decreased in 25% of municipalities for this reason. In line with Gutiérrez et al. (2020a), this section uses the migration balance that is consistent with the population, births and deaths registers.

4 Changes of residence

This section supplements the foregoing information with RVS data to describe recent migratory flows. Specifically, the data used in the previous section only allow for an approximation of total annual net migration, whereas, with the RVS, movements by origin-destination, as well as monthly changes, can be explored.[7] As might be expected, the pandemic has prompted a reduction in migration. Thus, in 2020, internal migratory flows fell by around 8%, and external migration plummeted 35%. In net terms, urban municipalities lost around 106,000 inhabitants as a result of internal migration and received 68,000 foreign migrants (422,000 in 2019). Rural municipalities received around 106,000 urban migrants, in addition to a further 19,000 inhabitants from abroad (58,000 in 2019). Consequently, barely 25% of municipalities saw their population decline as a result of net migration in 2020, compared with close to 40% in 2019 (see Charts 2.1 and 2.2). The demographic improvement was the result of the impetus of internal migrations for small municipalities, as international migration continued to contribute to populating the most demographically dynamic regions, even though it plummeted as a result of the pandemic (see Charts 2.3 and 2.4).

In order to conduct a more detailed analysis, rural municipalities are once again classified between those at risk of depopulation, those within the area of influence of an FUA and others. Urban municipalities are classified based on the three aforementioned sizes: small (10,000-50,000 inhabitants), medium (50,000-500,000) and large (over 500,000).

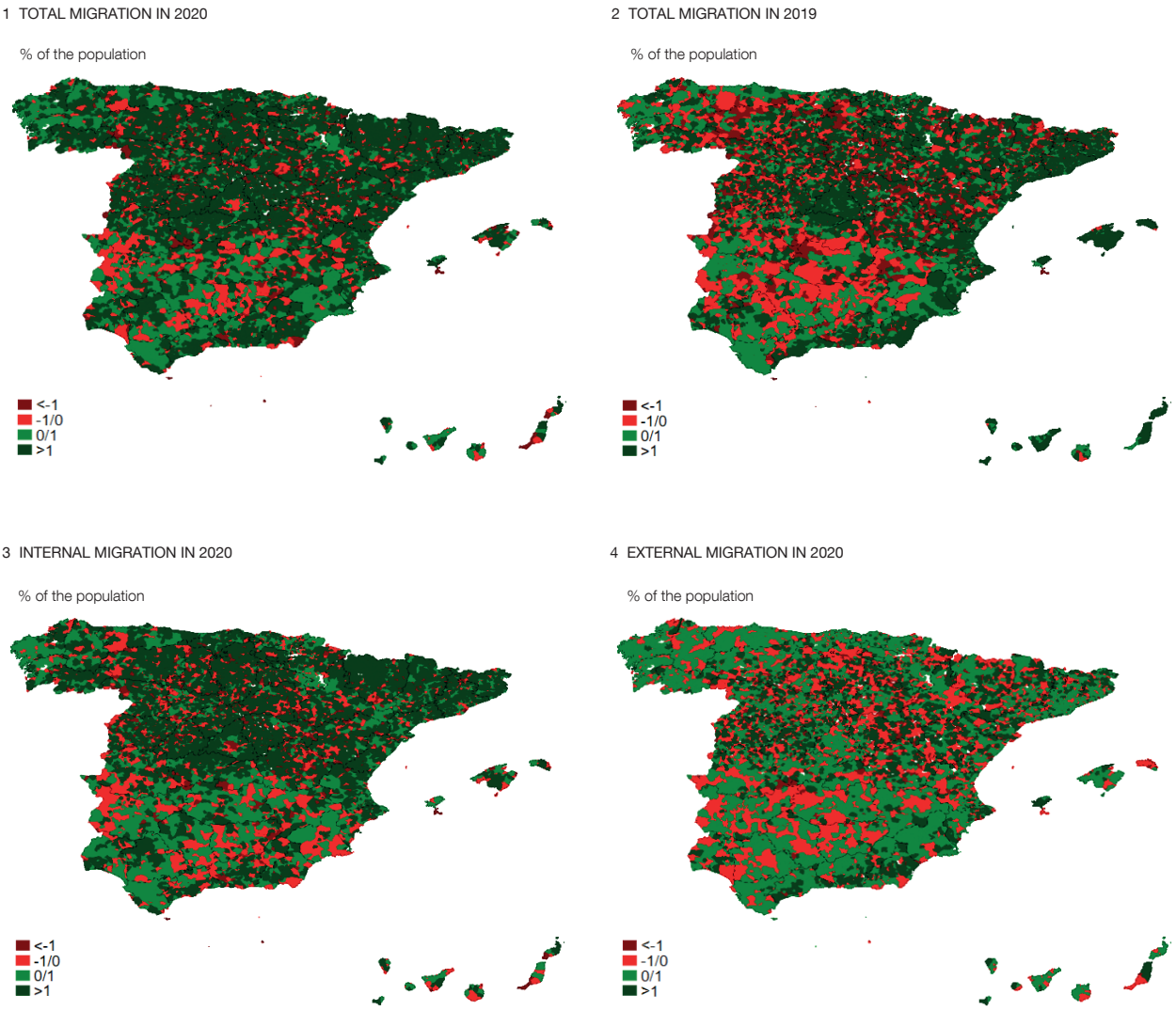
As regards rural municipalities, those forming part of an FUA benefited the most from migration in 2020. Specifically, the population in such municipalities increased by close to 1.7% as a result of net migration, mostly on account of internal migration (1.6%). The demographic momentum of these rural municipalities had already been observed in the past two decades. For example, their population grew by close to 60% in cumulative terms between 1998 and 2019 (see Gutiérrez et al. (2020a)). The population of municipalities at risk of depopulation, which had been marked by a notable decline in recent years (falling 27% between 1998 and 2019), increased in 2020, thanks to net internal migration (around 1.3%) and migration from abroad (0.3%). In third place are the other rural municipalities, where the population rose by 0.8% as a consequence of internal movements and 1.1% on account of the contribution of foreign migration (see Chart 3.1).

Turning to urban municipalities, net positive internal migration is only observed in small ones (net migrant inflow of 0.3% relative to the population). Meanwhile, internal migration trimmed 0.4% and around 1% of the populations of medium-sized and large urban municipalities, respectively (see Chart 3.1). Under normal circumstances, such urban municipalities attract international migration but, as noted previously, this component was

7 Given the greater administrative difficulties in recording foreign migration during the pandemic, this section uses the RVS to obtain net internal migration and estimates net external migration drawing on population, births, deaths and internal migration data. Nevertheless, when characterising the monthly changes in migration below, the RVS data referring to both internal and external migration are used, as monthly data on the population, births and deaths are not available. The RVS data on internal and external migration are also used to analyse the breakdown by age.

Chart 2

NET MIGRATION IN 2019 AND 2020



SOURCE: Banco de España.

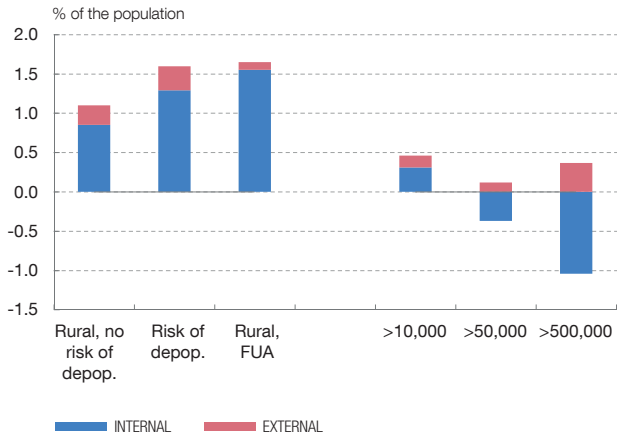
substantially less important in 2020 compared with the period 2015-2019. Thus, even taking international inflows into account, the increase in the number of inhabitants in small urban municipalities attributable to migration is small in comparison with the changes in rural territories, and the population of larger urban municipalities decreased. Specifically, the number of inhabitants in small urban areas increased by 0.5% thanks to the net inflow of residents. Meanwhile, in medium-sized and large urban municipalities, the overall migration balance is negative, standing at -0.3% and -0.7%, respectively (see Chart 3.2).

One feature characterising migration during the pandemic is the greater distance between the origin and destination of the movements to rural municipalities. Thus, in 2020, intra-provincial migration accounted for 60% of net migration to rural territories, compared

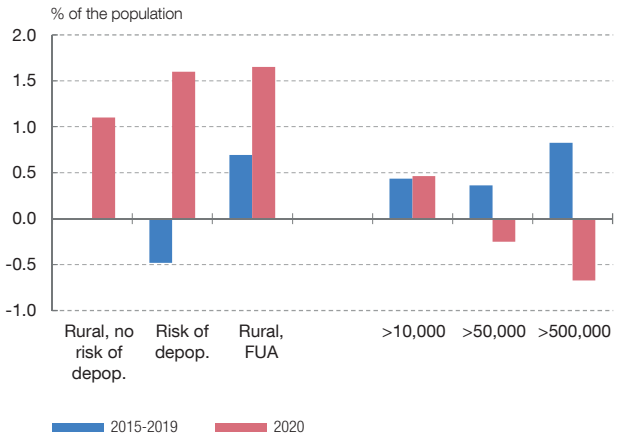
Chart 3

NET MIGRATION IN 2020

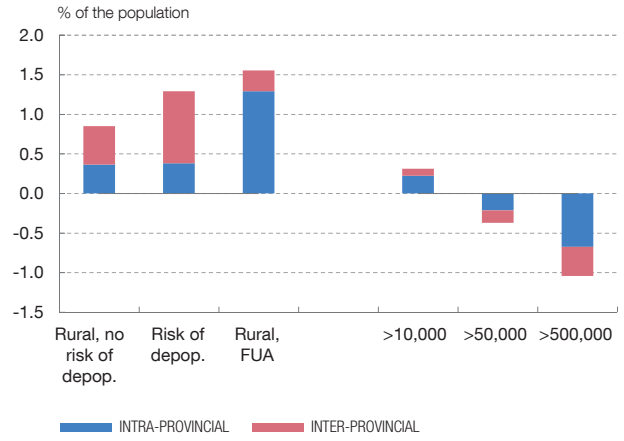
1 NET MIGRATION IN 2020



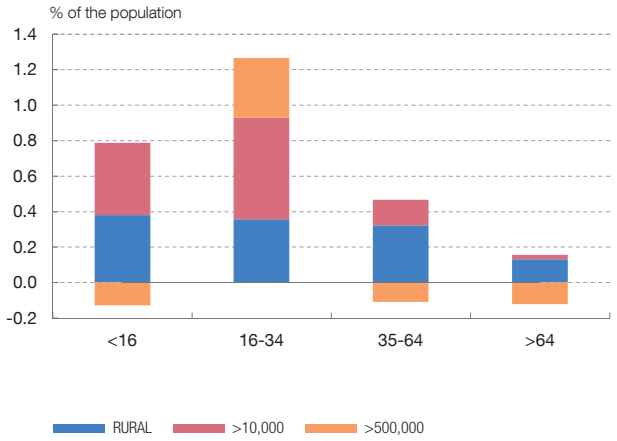
2 NET MIGRATION IN 2015-2019 AND IN 2020



3 NET INTERNAL MIGRATION IN 2020, BY ORIGIN/DESTINATION



4 NET MIGRATION IN 2020, BY AGE GROUP



SOURCE: Banco de España.

with 90% in 2018-2019 (it had been negative in previous years). Chart 3.3, however, shows that this pattern is heterogeneous according to the type of rural municipality. Specifically, in municipalities belonging to FUAs, 83% of the positive internal net migration is attributable to inflows from municipalities in the same province. That is to say, of the 1.6% population increase attributable to internal migration, 1.3 pp is due to intra-provincial movements. By contrast, in the other rural municipalities, inter-provincial migration is more significant, accounting for 60%. The population of both municipalities at risk of depopulation and those not in this category increased by 0.4% on account of intra-provincial migration and by 0.9% and 0.5%, respectively, owing to inter-provincial movements.[8]

8 At the regional level, intra-regional migration also lies behind 1.3 pp of the population growth in municipalities belonging to FUAs, 0.5 pp in municipalities at risk of depopulation and 0.5 pp in other rural municipalities.

Lastly, with regard to migrants' ages, the working-age population accounts for most of the net migration in both urban and rural municipalities, and movements tend to head in the same direction. In other words, the municipalities that receive young people also receive older people. However, in the case of large urban municipalities, net positive inflows of people aged 16-34 have been accompanied by a negative migration balance for other age groups (see Chart 3.4).

It should be noted that both higher inflows to rural areas (up 8% with respect to 2019) and, to a greater extent, lower outflows to urban municipalities (down 16% with respect to 2019) lie behind the marked improvement in net internal migration in rural areas in 2020. As documented by Díaz-Lanchas et al. (2022), if international migration flows are also factored in, total net inflows to rural areas barely changed compared with the previous year, as a result of the higher internal inflows having been offset by the 30% reduction in international immigration. Thus, taking internal and external migration as a whole, the increase in net migration in rural areas in 2020 is attributable to a fall in emigration of 15%. Turning to urban areas, internal immigration fell by 13% in 2020, while outflows to other municipalities declined by 6%. According to the RVS, international inflows and outflows decreased by 41% and 23%, respectively, in those areas.

By type of rural municipality, gross inflows from other Spanish municipalities accounted for 5.6% of the population in rural municipalities linked to FUAs, 4.4% in those at risk of depopulation and 3.9% in other rural municipalities. Outflows totalled 4%, 3.1% and 3.1%, respectively. Inflows accounted for 3.6% of the population in small urban areas, 2.7% in medium-sized ones and 2.1% in large ones. Emigrations totalled 3.3%, 3.1% and 3.1%, respectively. Compared with prior periods, there was an across-the-board decline in emigrations from urban municipalities, except in large municipalities, where they rose. The number of inflows in the three types of urban municipality also fell (see Chart 4).

Next we will analyse the monthly change in migration flows. First, Chart 5 depicts, by municipality size, the change in net internal migration between January 2015 and December 2020.[9] Although net internal migration had already been positive in rural municipalities since 2018, it increased sevenfold during the pandemic (see Chart 5.1). Specifically, between January 2018 and December 2019, 29,000 people migrated from other areas of Spain to rural municipalities, compared with 106,000 in 2020. Indeed, in October 2020 alone more people migrated to rural areas than in any previous year.

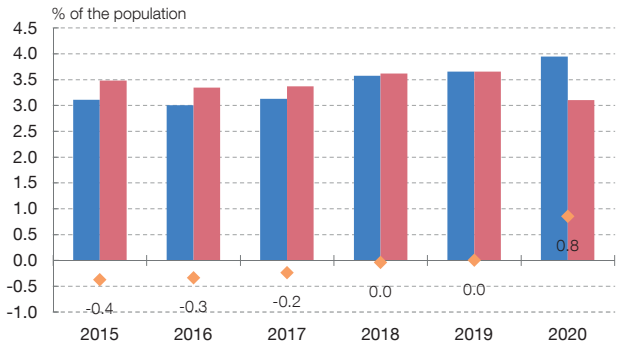
Charts 5.2, 5.3 and 5.4 depict the change in net internal migration in urban municipalities. The unevenness across municipality sizes is noticeable. First, in small urban municipalities the inflow of residents from larger municipalities intensified considerably. In 2018-2019 these municipalities recorded net inflows of around 40,000, and in 2020 alone

9 Note that, at monthly level, only RVS data, in which the identifier of rural municipalities is censored, are available. Therefore, aggregate data on all rural municipalities in each year must be used. This also means that the classification of rural municipalities is not constant over the entire period.

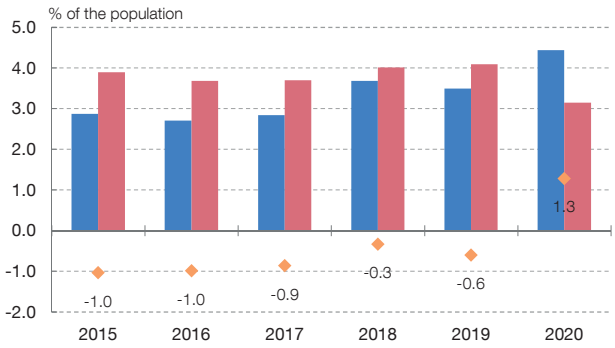
Chart 4

INTERNAL MIGRATION IN 2015-2020, BY MUNICIPALITY TYPE

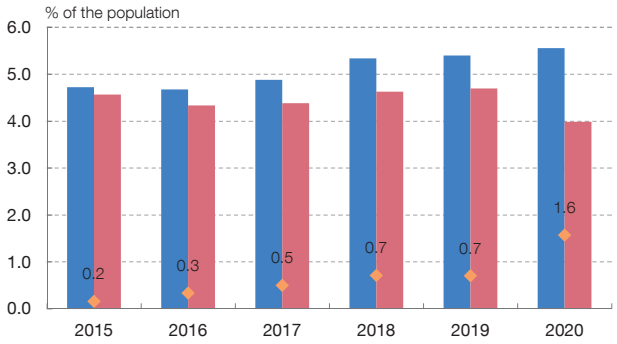
1 RURAL MUNICIPALITIES



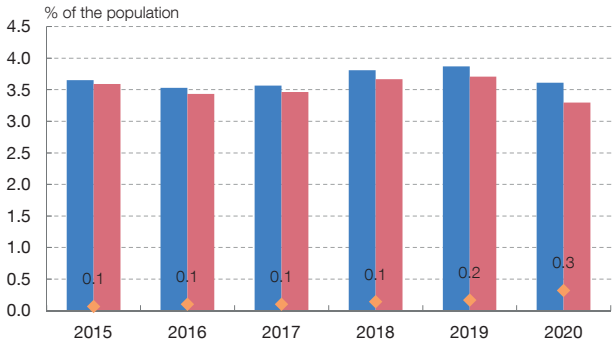
2 RURAL MUNICIPALITIES AT RISK OF DEPOPULATION



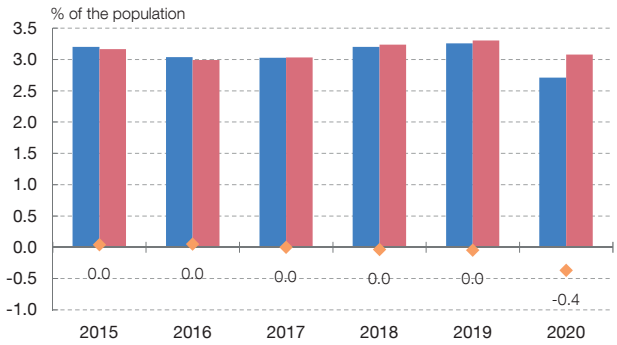
3 RURAL MUNICIPALITIES BELONGING TO AN FUA



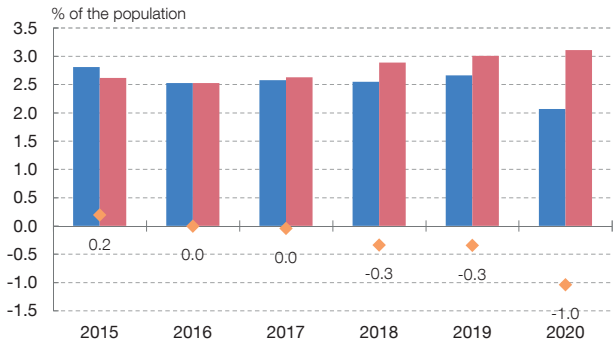
4 SMALL URBAN MUNICIPALITIES



5 MEDIUM-SIZED URBAN MUNICIPALITIES



6 LARGE URBAN MUNICIPALITIES

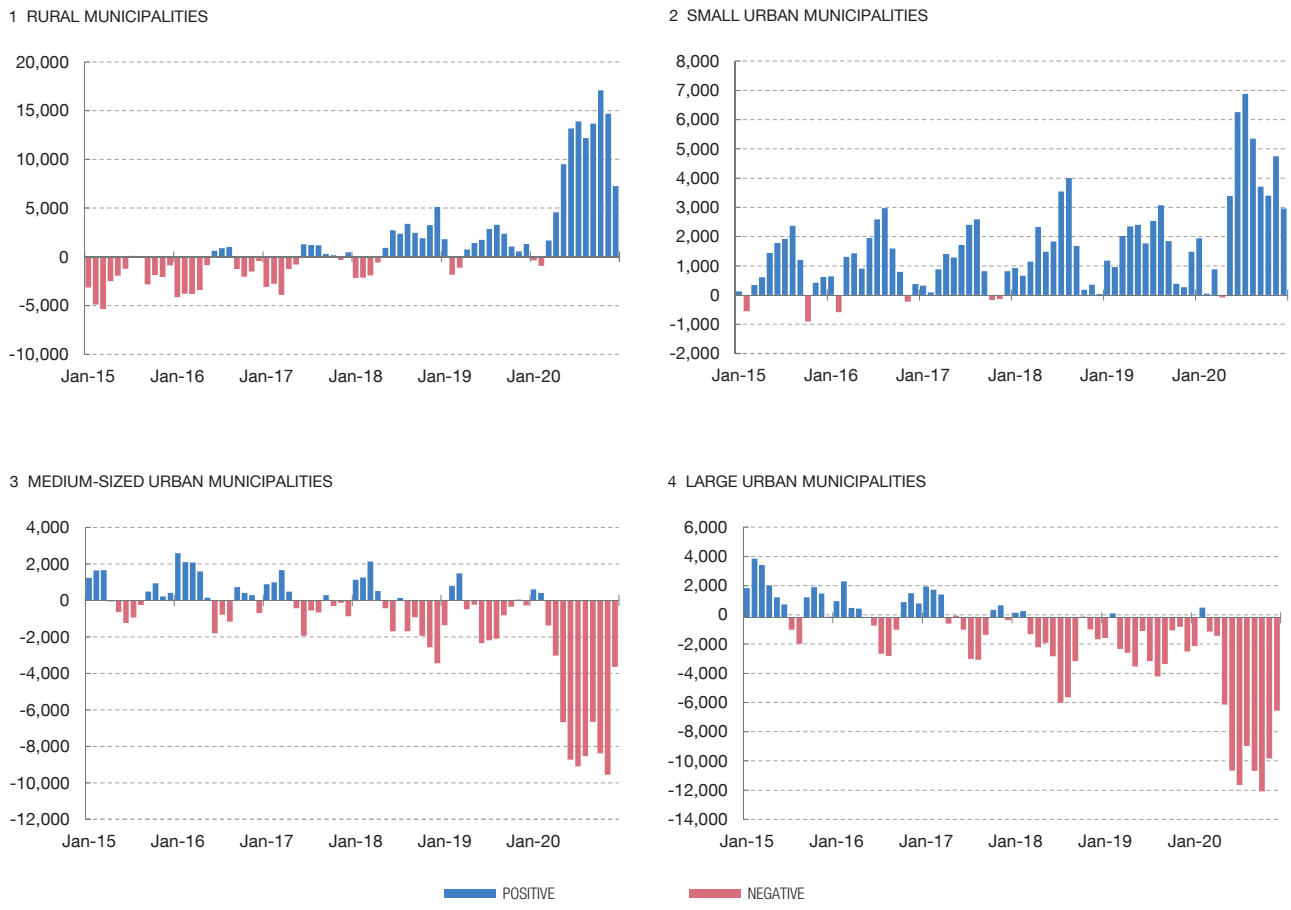


IMMIGRATION EMIGRATION NET

SOURCE: Banco de España.

Chart 5

MONTHLY NET INTERNAL MIGRATION IN 2015-2020, BY MUNICIPALITY SIZE



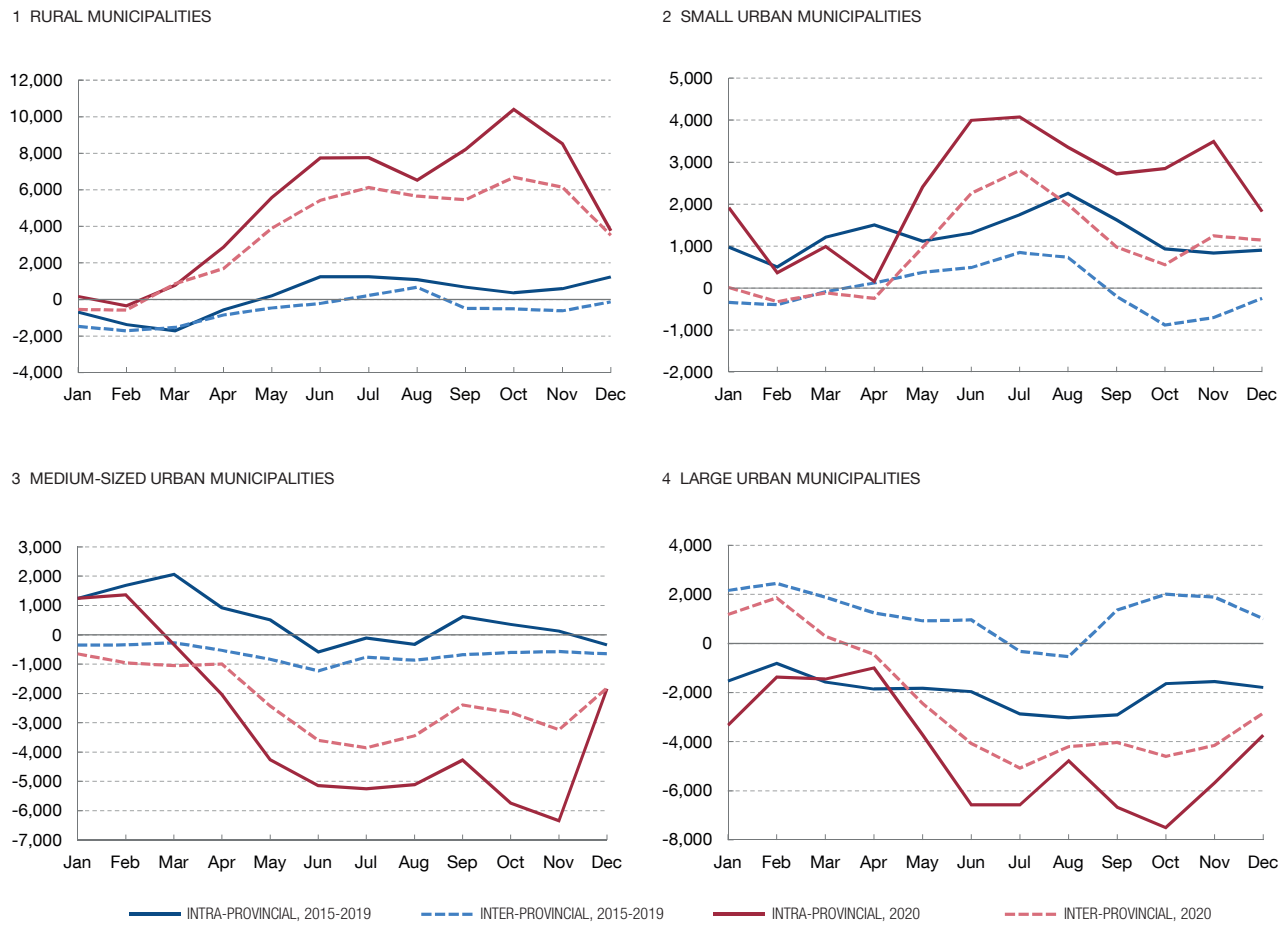
SOURCE: Banco de España.

they reached this figure again. Second, in medium-sized municipalities, population decline as a result of migration to other parts of Spain quickened in 2020. Specifically, these municipalities had undergone negative net internal migration since 2017 (16,000 net outflows between 2017 and 2019), but this negative balance quadrupled in 2020, their population declining by 65,000 people as a result of internal migration. Lastly, migration to smaller municipalities also escalated in large urban municipalities. Thus, while in 2017-2019 the population of these municipalities had decreased by 55,000 due to internal migration flows, in 2020 alone it fell by 81,000.

To dive deeper into these dynamics, we investigated the monthly change in intra-provincial migration compared with net inter-provincial flows in 2020 and the years before the outbreak of COVID-19. In 2020 intra-provincial migration was of greater significance than inter-provincial movements and tended to be from municipalities with more than

Chart 6

MONTHLY NET INTERNAL MIGRATION IN 2015-2020, BY MUNICIPALITY SIZE AND ORIGIN/DESTINATION



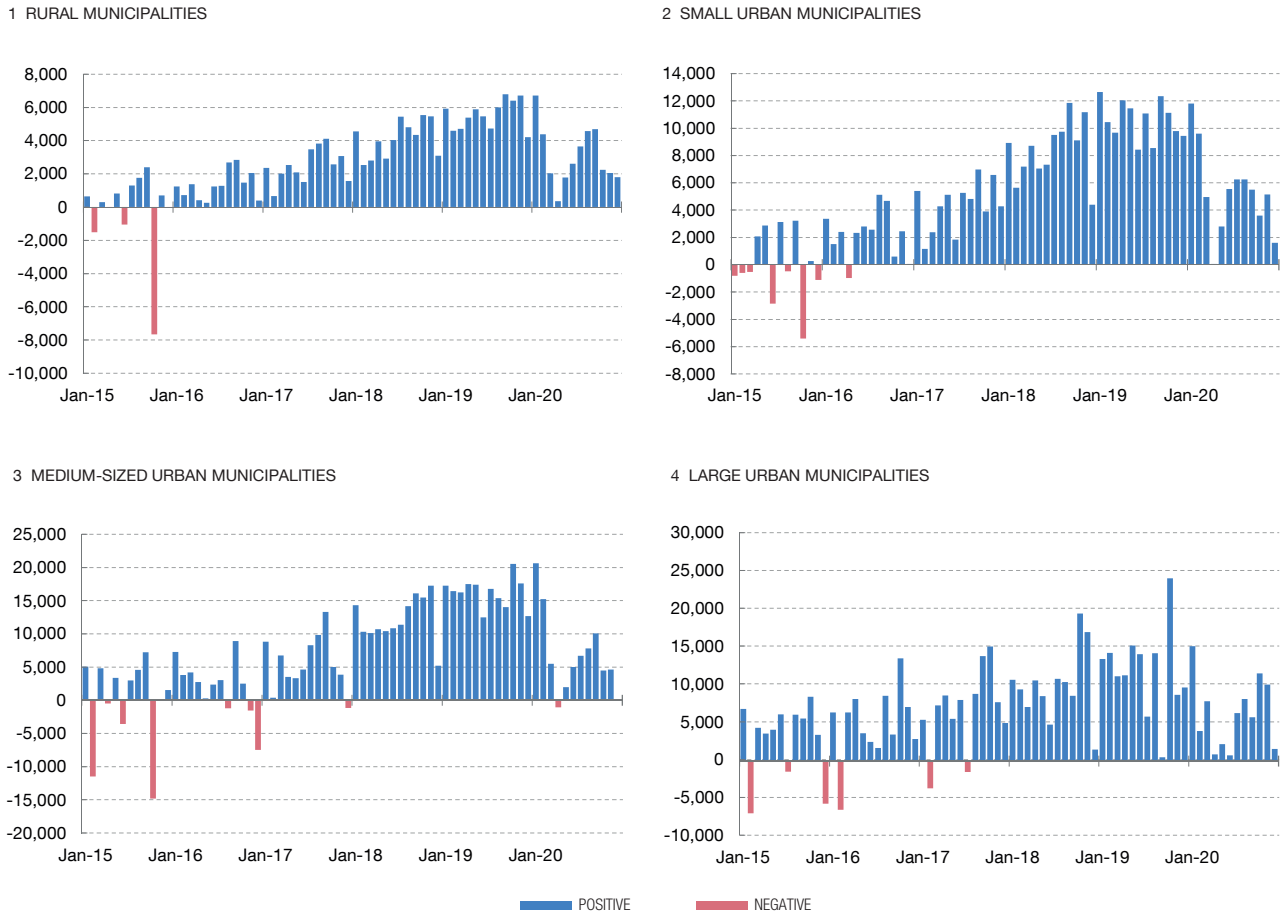
SOURCE: Banco de España.

50,000 inhabitants to smaller ones. Specifically, after rural municipalities recorded negative balances vis-à-vis larger municipalities in the same province and urban municipalities in other provinces in early 2020, the balances turned positive and gradually increased over the course of the year. As mentioned above, in 2020 as a whole, intra-provincial migration accounted for close to 60% of movements to these areas (see Chart 6.1). In addition, in small urban municipalities, which up to April had recorded lower net intra-provincial flows than in previous years, net inflows of intra- and inter-provincial migrants increased (see Chart 6.2). Here, intra-provincial migration accounted for 70% of the population increase (of close to 40,000 people) stemming from net internal migration. In previous years, intra-provincial migration had accounted for practically all the increase.

Conversely, negative net migration in larger municipalities intensified as from February 2020. While in previous years medium-sized municipalities had benefited from the inflow of residents from municipalities of other sizes in the same province, in 2020 net

Chart 7

MONTHLY NET EXTERNAL MIGRATION IN 2015-2020, BY MUNICIPALITY SIZE



SOURCE: Banco de España.

intra-provincial migration was negative and greater than the inter-provincial kind, which had already been negative in previous years (see Chart 6.3). Lastly, in large urban municipalities intra-provincial migration to smaller areas intensified. Specifically, between January 2015 and December 2019 they lost around 23,000 inhabitants per year who migrated to smaller municipalities. In 2020 their population fell by almost 52,000 people due to this component, more than double (see Chart 6.4). In addition, while these municipalities had been benefiting from inter-provincial inflows of migrants, in 2020 inter-provincial migration in large urban municipalities was negative and accounted for around 35% of the decline in their population attributable to internal migration.

Turning to international migration, Chart 7 depicts the monthly change in the net balance between January 2015 and December 2020 by municipality size using RVS data. Before the pandemic broke out, the external migration balance in rural municipalities was also positive, but it fell in 2020 due to the restrictions on movement (see Chart 7.1).

Specifically, in 2020 the inflows of inhabitants from abroad were down around 37% on the 2018-2019 average. Charts 7.2, 7.3 and 7.4 depict the change in net external migration in urban municipalities, where international inflows also fell. In 2020 net external migration in small and large urban municipalities were down around 45% on the 2018-2019 average. In medium-sized ones, it dropped by 53%. Overall, in 2020 net international inflows were down 46% on the 2018-2019 average, and this decline reached 75% between March and May.

5 Determinants of net migration during the pandemic

This section explores the determinants of net migration flows in Spanish municipalities in 2020. The economic literature has stressed that migratory movements are explained by the difference in expected real income between the origin and destination municipality, the job opportunities in the destination municipality and pre-existing relationships (see, for example, Rodríguez-Pose et al. (2015)). However, the extraordinary circumstances of 2020, characterised by, among other particularities, the stringent restrictions on activity, the implementation of teleworking, the rise in e-commerce, the shift in individual preferences as a result of the lockdown and the lesser importance of international migration, could have substantially changed the traditional determinants of migration dynamics.

To explore the main determinants of municipal migration balances during the pandemic, we considered the following regression at municipal level:

$$Mig_m = \alpha + \beta_1 PopGrowth\_5091_m + \beta_2 Past\_mig_m + \beta_3 PopDensity_m + \beta_4 Services_m + \\ + \beta_5 Sec\_res_m + \beta_6 Geoclim_m + \beta_7 Controls_m + \epsilon_m$$

where Mig_m refers to net migration in 2020 in the municipality m, expressed as the net flow per 1,000 inhabitants. $PopGrowth\_5091_m$ refers to population growth during the rural exodus (1950-1991), and $Past\_mig_m$ to net migration over the last ten years. Population density ($PopDensity_m$), calculated as thousands of inhabitants per square kilometre, is also added. We used three proxies for access to digital and physical services: a dichotomous variable taking the value 1 if at least 95% of the population has access to 100 Mb broadband or a 4G mobile network; a dichotomous variable taking the value 1 if the municipality does not have a bank branch; and the distance to other basic services ($Services_m$).[10] Since the population could have travelled to those areas where they have a second home, we also controlled for the percentage of second homes in each municipality (Sec_res_m). In addition, to control for the geographical and weather conditions, we included the following variables in a vector ($Geoclim_m$): distance to the provincial capital, distance to the coast, temperature, rainfall, soil quality, altitude and a dichotomous variable taking the value 1 if the municipality is rural.[11] We also added other controls that could influence inter-municipal movement, such as the 2019 unemployment rate, the percentage of the population aged 15-24, 2019 per capita income and the share of the population born in the municipality and those born abroad.

Table 1 shows the results using net migration in 2020 as the dependent variable. Those municipalities with the steepest population declines during the rural exodus saw a bigger increase in population inflow during the pandemic (see column 1). Specifically, for each 1% decline in population during the rural exodus, the municipalities received eight

10 Kompil et al. (2019) measure the distance to basic services as the distance in kilometres that the average person living in a municipality has to travel to access basic services. These include, for example, health care, primary education and a supermarket.

11 Those municipalities that are part of an FUA are not included as rural municipalities since, as noted in previous sections, during recent decades they have behaved differently from other municipalities with under 10,000 inhabitants.

Table 1

DETERMINANTS OF NET MIGRATION IN 2020

	(1) Trend	(2) +Controls	(3) +Services	(4) +Geo-climatic	(5) +Fixed effects	(6) (5) Standardis.	(7) NIM 2015-2019
Population growth 1950-1991	-8.454***	-5.140***	-6.303***	-6.019***	-5.924***	-0.100***	-0.155
	(0.998)	(1.001)	(0.925)	(0.901)	(0.961)	(0.016)	(0.697)
Net migration in the 10 previous years	1.225	-0.049	-0.429	-0.407	-0.635	-0.017	0.939***
	(1.195)	(1.016)	(1.004)	(1.018)	(1.002)	(0.027)	(0.091)
Second homes (%)		0.326***	0.390***	0.405***	0.387***	0.174***	-0.009
		(0.045)	(0.051)	(0.050)	(0.055)	(0.025)	(0.019)
Population density		-1.407***	-1.227***	-1.369***	-1.301***	-0.026***	-0.225
		(0.376)	(0.337)	(0.393)	(0.405)	(0.008)	(0.161)
Dummy 100 Mbps or 4G coverage			3.807**	3.597**	3.625**	0.029**	1.650*
			(1.438)	(1.461)	(1.446)	(0.011)	(0.827)
Distance to basic services (km)			-0.211***	-0.191***	-0.190***	-0.074***	-0.109***
			(0.047)	(0.045)	(0.050)	(0.019)	(0.023)
Dummy no bank branch			1.091	1.103	1.779	0.019	-0.023
			(1,310)	(1.374)	(1.287)	(0.014)	(0.559)
Distance to the provincial capital (km)				-0.063**	-0.087***	-0.046***	-0.027*
				(0.026)	(0.032)	(0.017)	(0.014)
Distance to the coast (km)				-0.006	0.018	0.036	0.011
				(0.009)	(0.025)	(0.051)	(0.011)
Temperature				1.332	-0.416	-0.022	0.299
				(0.998)	(2.466)	(0.128)	(1.014)
Rainfall				0.938**	0.324	0.016	0.306
				(0.450)	(0.744)	(0.036)	(0.361)
Soil quality				0.947	-0.379	-0.005	-0.131
				(0.868)	(0.884)	(0.013)	(0.357)
Altitude				0.009	0.002	0.018	0.001
				(0.006)	(0.013)	(0.102)	(0.006)
Rural				1.395	0.158	0.001	-2.529***
				(1.278)	(1.456)	(0.013)	(0.515)
Observations	6,039	6,039	6,039	6,039	6,039	6,039	6.101
R^2	0.033	0.123	0.131	0.135	0.165	0.165	0.165
Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Provincial fixed effects	No	No	No	No	Yes	Yes	Yes

SOURCE: Banco de España.
NOTE: *** p<0.01, ** p<0.05, * p<0.1. In columns 2-7 the unemployment rate, the percentage of the young adult population, the percentage of the population born in the municipality and the percentage born abroad are controlled for.

migrants per 100,000 capita in 2020. Conversely, the relationship between net migration in 2020 and migration in the previous ten years is not statistically significant.

The increase in migration to municipalities whose populations declined as a result of the industrialisation of the Spanish economy could be explained by various factors, such as the availability of second homes and their lower population density. These and other

variables are included in column 2 as additional controls.[12] While the percentage of second homes in the municipalities is found to be an important factor when explaining net migration in 2020, the effect of the incidence of the rural exodus remains significant. In addition, and as might be expected, during the pandemic a higher population density seems to have disincentivised migration-based population growth.

Next we will explore the potential role of accessibility to digital services as a determinant of net migration in 2020. According to the results in column 3, extensive internet coverage is related to higher net migration. Thus, internet access has been conducive to remote working and fostered the growth of other services, such as e-commerce. This has driven population movements towards areas with better digital infrastructure. For example, according to a survey conducted by the Banco de España, the week after non-essential activities were suspended on 29 March 2020, close to 80% of firms increased working from home (see Anghel et al. (2020)). Also, the COVID-19 pandemic has sped up the implementation of e-commerce in Spain. While it accounted for 14% of sales in 2016, in March 2020 it represented more than 20% (see Lacuesta et al. (2020)).

It is also important to measure the relationship between the proximity to physical services and net migration, as in the case of Spain there is evidence that accessing services is more arduous for rural area residents than for urban area ones. Specifically, in Spain local services in rural areas are 20 km farther away than in urban centres (see Alloza et al. (2021)). This lower accessibility to services in certain rural areas could have hindered migration to such locations. Indeed, based on the results in column 3 of Table 1, municipalities with poorer access to basic services received less population. However, the availability of bank branches in the destination municipality does not appear to have played a decisive role in migration decisions.

Column 4 adds geographical and weather factors to the foregoing specification. In particular, distance to the provincial capital, distance to the coast, temperature, rainfall, soil quality, altitude and a dummy variable for rurality. Municipalities closer to the provincial capital recorded lower net migration. Conversely, none of the other factors are significantly related to migration in 2020. The variable capturing the rural exodus retains the value of the associated coefficient and its statistical significance. In addition, the results remain robust if provincial fixed effects are added (column 5).

To quantitatively assess the importance of the aforementioned factors, column 6 of Table 1 shows that the most important factors lying behind population gains due to migration in 2020 are the population decline during the rural exodus and the percentage of second homes. In this regard, the urban population's existing ties to a given rural area could have favoured such areas' demographic momentum in 2020. From a medium-term perspective, the extraordinary circumstances that surrounded working activity in 2020 generate a very

12 In addition to the share of second homes and population density, we included as control variables the unemployment rate, the share of young people and the share of foreign-born population.

high level of uncertainty when assessing the extent to which 2020 migration flows could take hold, such that they give impetus to the locations that experienced demographic decline in the second half of the 20th century. In this sense, it should be noted that, according to the Spanish Labour Force Survey, the percentage of workers that reported having worked from home at least occasionally fell from 19.1% to 13.6% between 2020 Q2 and 2021 Q4.

The determinants of the above-mentioned migratory movements differ substantially when pre-pandemic (2015-2019) migration is used as the dependent variable, as can be seen in column 7. For example, population growth during the rural exodus and the share of second homes are not related to net migration in the pre-coronavirus years. Contrariwise, as in 2020, access to physical and digital services fostered pre-pandemic migrant inflows. However, the relationship between services and net migration is stronger in 2020 than in prior years. Between 2015 and 2019, the rurality dummy variable shows that small municipalities performed worse than other regions in terms of migration balances, unlike in 2020, when the coefficient is not statistically significant.

Conclusions

For the first time in decades, in 2020 the internal migration dynamics led to an increase in the rural population as people moved away from urban areas. According to this paper's findings, those municipalities that underwent steeper population declines during the rural exodus (1950-1990) and those with a higher share of second homes are associated with a larger inflow of migrants from other areas of Spain. However, other characteristics, such as accessibility to physical and digital services, also prove to be significant factors when explaining the allure of rural municipalities as places of residence.

From a longer-term perspective, the idiosyncratic characteristics of 2020 pose an enormous obstacle to anticipating the extent to which the changes in the population dynamics observed over the course of that year will endure. Furthermore, aside from epidemiological developments, demographic dynamics in rural and urban areas will be shaped by numerous structural changes, such as technological developments, new working arrangements, how preferences evolve, population ageing and the green transition. Analysing those trends will certainly help understand demographic dynamics at present and in the future.

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