Journal of Rural Studies 92 (2022) 316–327

Contents lists available at ScienceDirect

Journal of Rural Studies

journal homepage: www.elsevier.com/locate/jrurstud

Nature in the showcase. Naturbanization keys in Chile and Spain

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ARTICLE INFO

JEL classification:
UNESCO 5400
5404
540401
540402

Keywords:
Counter urbanization
Green Capitalism
Protected natural areas
Naturbanization

ABSTRACT

Naturbanization relates protected natural areas (PNAs) to demographic and economic change, territorial impacts, and the residential function. The purpose of this paper is to identify the triggers of naturbanization. The methodological process examines real estate web sources that showcase offers in PNAs as a business strategy to capture clients and gauges its influence on environmentally aware populations in Chile and Spain through an analysis of data provided by a survey. Results indicate that the attraction of these natural areas also extends to other areas and that environmental awareness is part of a more public discourse that conceals the real estate value that the capitalist model places on nature. Thus, the current dynamics of the real estate market turn naturbanization into a stratagem for conceiving nature as a new commodity.

1. Introduction

Naturbanization describes the urbanization process in terms of the existence protected natural spaces of high nature value (Prados, 2012). Although the scientific literature (Prados, 2005; Chi and Marcouiller, 2013; Pallarès-Blanch et al., 2014; Jimenez et al., 2022) contextualises this process in counter urbanization studies (Berry, 1976; Champion, 1989), it clearly states that Naturbanization specifically analyses settlement adjacent to or inside Protected Natural Areas (PNAs) and the consequences of this for the preservation of their environmental and landscape values (Elbersen, 2001; Prados and Cunningham, 2002).

The reputation of naturbanization has grown in the post-productivism context, in which the new middle class places a specific, positive value on rurality and nature (Halfacree, 1997; Tulla et al., 2017). 'Green Capitalism' has forged the idea of nature and sustainability and established a new relationship between humans and the environment. Despite being protected, nature is no longer passive and unalterable but can be used and transformed for a variety of profitable ends (tourism, leisure, urbanization, etc.). Viewed from this perspective, the impact of individual actions (such as building a new home near a PNA) is minimised, while an ecological position is maintained based on intangible, shared and global responsibilities (Isla, 2016; Scales, 2017; Núñez et al., 2020). Natural resources have been fully integrated into the economy as a commodity, which, according to Castree (2003), can be problematic. In the capitalist context, this means the temptation of thinking about nature in individual rather than communal terms. Familiarisation with the idea of price as an indicator of the environment's importance is evidence of nature's commodification (Heal, 2000; Bergmann, 2017). It is likely that the commodification process will make further advances through naturbanization: the very notion of nature is calibrated economically and according to the profits it yields in order that a cost can then be put on some specific spaces and buildings.

Therefore, the new social and economic perspective of nature plays a core role in this migratory and transformative process. Studies show that the development of naturbanization is linked to leisure, health benefits and a new conception of spaces previously given over to production or, merely, conservation (Rudzitis et al., 2011; Dustin et al., 2009; Bijker et al., 2014; Gibbons et al., 2014). This attraction has triggered migration to spaces that are uninhabited or where demographic dynamism is very limited, resulting in mainly qualitative changes (Oliva, 2010; Trimano, 2015). The externalities are divided, with the literature differentiating between positive naturbanization and negative naturbanization (Gómez et al., 2019; Tulla et al., 2007) depending on its spatial, demographic, economic and environmental effects.

Since the mid-1970s, demographic flows have been taking place from urban to rural areas of North America and Central Europe (Antrop, 2004), places where the conservation of natural spaces dates to the end of the 19th and the beginning of the 20th century (Bocking, 2020;

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https://doi.org/10.1016/j.jrurstud.2022.04.006
Received 8 February 2021; Received in revised form 25 February 2022; Accepted 17 April 2022
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Meine, 2013; Estrada, 2010). These are large regions, where these processes have a very long and deep tradition, although new areas have also emerged more recently. This research explores new study areas and comparisons are made of two environments with some shared environmental, social, and economic characteristics. Chile and Spain, or, more specifically, the central area of Chile and the south of Spain, are both regions with a Mediterranean climate, capitalist political-economic systems and a history of synchronic nature conservation. Despite environmental protection in both countries being very limited at the end of the 19th century, some specific regulations and norms have been put in place since the first third of the 20th century (Casals, 1999; Tolón and Lastra, 2008). In terms of their political and ideological models, Spain is a welfare state, whereas Chile is an example of an advanced neoliberal model. This could be a determinant as some legal texts such as Decree 3516/1980 (Minagri - Ministerio de Agricultura, 1980) have been used to deregulate Chilean territory. This norm allows the subdivision of rural properties into plots of a minimum buildable size of 0.5 ha, resulting in large groups of so-called 'plots of pleasure' (Fuentes and Pezoa, 2018). There is a noticeably higher number of these plots in the peripheral areas to the north and south of the national capital, Santiago de Chile, where one of the study areas is located (Jiménez et al., 2020). So, this paper presents the consequences of naturbanization processes in a comparative study of areas in two countries at different stages of capitalism implementation and land use regulation with the purpose aim of identifying the potential commodification of nature through the real estate markets for two PNAs: Río Clarillo National Reserve (Chile) and Doñana National Park (Spain).

1.1. Naturbanization spaces

If space is understood in a dichotomous way, the dialectical relationship between rural and urban space means that as one expands, the other shrinks. Hyper-urbanization, a concept associated with the capitalist theory of permanent and unlimited growth (Gaja, 2008) and understood as the rapid and massive growth of urban surfaces (Awasthi, 2021), is the pinnacle of imbalance between the rural and the urban. However, the paradox is that urban expansion due to naturbanization compels discussing the rural-urban dichotomy from the material perspective as it generates hybrid spaces (Angelo, 2017; Brenner, 2014).

Naturbanization is proof that a connection exists between the environment and residential satisfaction (Kaplan, 1985); just as if this were a logic of supply and demand, the scarcer and the higher the quality of the environmental elements, the more desired and sought after they are. This exceptionality is exactly what is represented by PNAs. All around the world, these areas are part of a strategy to achieve the conservation goals that are representative of biodiversity and that used to be in remote spaces (Margules and Pressey, 2000). In recent decades, the distant location of large population centres has not translated into less accessibility, so some of the naturbanized areas are sited around mountain parks such as the Pyrenees, the Cantabrian range, the Sierra Nevada (Andalusia) and Northern Portugal (Serra et al., 2014; Prados and del Valle, 2010; Lourenço et al., 2009). Naturbanization has its own particularities in these different areas; for example, in the Pyrenees, the construction can be observed of infrastructure and buildings such as sports (skiing) and tourism facilities that put people in touch with nature.

It is likely that, in the first instance, the remote location of PNAs was a determinant of naturbanization being classified as a specific type of counter urbanization. Indeed, it fulfils two of its fundamental requisites: it entails a migratory movement based on discontent with the urban way of life (which is evident when urbanites occupy places away from urban areas) and satisfies the need to be in touch with nature (Berry, 1976; Champion, 1989; Arroyo, 2001; Gosnell and Abrams, 2011).

Naturbanized areas also include PNAs in other places such as wetlands, for example (Yuanbin et al., 2012). Here, competition for space is more evident and more intense due to the variety of uses, which is related to the greater availability of water and the more intense and earlier encroachment of residential urbanization (Chavez, 2005; Cai et al., 2015).

1.2. Demography and economy of naturbanization

Naturbanization processes can be said to contribute to slowing down and, to a lesser extent, reversing population loss in remote rural areas (Torres, 2006; García and Sánchez, 2005). These processes have been demonstrated to spark a degree of demographic recovery in environments badly affected by depopulation and with few opportunities for improvement (Elbersen and Prados, 1999; Prados, 2006; Guirado, 2008). This outcome can be considered an example of positive naturbanization and has occurred in several European countries (Halfacree and Boyle, 1998; Hoggart and Paniagua, 2001). Nature's appeal contributes to individuals taking notice and being attracted – a dynamic that, according to recent studies, seems to have been galvanised by the implications of the Covid-19 pandemic (Åberg and Tondelli, 2021; Fagerholm et al., 2021; Donaire et al., 2021). Depopulation is one of the leading threats to a territory, so this demographic gain brings sustainability (Sarmiento, 2011; Tulla et al., 2007). Naturbanization has shown itself to be effective in areas around some PNAs not only in demographic terms, but also economically and socially, without undermining the preservation of these spaces, probably since these processes are only in their infancy.

Several interesting points of view exist as to the relationship between humans, the economy, and the environment. For example, alerts have been given that landscapes and natural heritage run the risk of being 'musealised' -strictly protected by land regulation. This means that some traditional rural activities (agricultural and livestock farming, mainly) would be seriously compromised, with PNAs being mainly reserved for educational/tourism purposes (Martínez and Martínez-Carrasco, 2019; Bowen and De Master, 2011; Barham, 2003). Naturbanization has also been observed to contribute to economic diversification, albeit with some risks such as excessive servitisation and productive specialisation in rural tourism (Guirado, 2008). Lastly, but no less important, some of the studies developed analyse the role that individuals living in the vicinity of PNAs have as custodians of the natural capital (Ntassiou, 2021; Lazos, 2014) and state that this is compatible with a qualitative improvement to their economy.

The main actors of naturbanization have been recognised to have energised the local economy, in general terms, and even increased women's involvement in the economy (Pallarès-Blanch et al., 2015). However, there are still no certainties as to where naturbanization is really leading us and some of the different approaches may even turn out to be contradictory. Authors speak of both a loss of rural identity (Lorente, 2014) and the emergence of a 'heterolocal' identity (Halfacree, 2012), although the point of view of an emerging new rurality predominates (Prados, 2008; Belanche et al., 2021). Nonetheless, it does seem to be very clear that naturbanization creates a conflict of spatial interests that is manageable when the local community, newcomers and economic activities are integrated into the management of the natural space (Turzova et al., 2020). However, this relationship cannot be predefined as it depends on the degree of attachment that each group of individuals has to the place, their environmental attitudes (Gieling et al., 2017; Bonaiuto et al., 2002) and the specific regulations on nature conservation.

1.3. Environmental impact of naturbanization

Initially, the field of ecology used to study cities and natural spaces separately (Forman, 2016) and it is still difficult today to define some convergent or specific criteria to assess the environmental impact of naturbanization. Many works find evidence of negative naturbanization in environmental terms. They state some consequences of the advance of urbanization over the rural and natural environment: land use

fragmentation (Beal-Neves et al., 2020), disappearance of vegetation by unbridled building and land use changes on farms (Weaver et al., 2017), intensification of land exploitation and acceleration of erosion processes due to land use changes (Calvache et al., 2016; Barral et al., 2020), lack of protection measures to address densification and the secondary effects of tourism (Gómez et al., 2019), and high public costs in urban and environmental management for the construction and maintenance of public infrastructure, waste collection, and the urban management of dispersed settlements (Gielen, 2015). There is also a consensus on defining urbanization as a factor that increases PNAs' vulnerability to, for example, wildfires (Aretano et al., 2015; Semeraro et al., 2016). However, among other things, it does not seem clear that the effect of urbanization on the environment is always negative. Some studies are inclined to assimilate urbanization to an increase in biodiversity (Haverland and Veech, 2017) and state that it enables an increase in natural services (ecosystem services). Although there can be environmental benefits, this is not so much the case in environmentally privileged areas such as PNAs as in previously degraded or abandoned spaces (De la Barrera, 2012).

Other works relativise the environmental impact of urbanization, considering that sustainability is also built on social and economic foundations. So, the urbanization of rural and natural spaces has a positive side to it as it is an opportunity to achieve sustainability in peri urban spaces (Zimmerer et al., 2021). In this case, the environmental impacts are differentiated and evaluated according to the benefit that they bring to the local community (Ćurčić et al., 2019). Whether in relative or absolute terms, what is widely accepted is that urban sprawl broadens the ecological footprint (Anderson and West, 2006; Marshall, 2008; Ou et al., 2013). Specific compensation mechanisms are applied to atone for its effects, including actions to mitigate the impact on PNAs (Bothe, 2018) and to protect the periphery, including the 'buffer zones', which do not always successfully combine the society-economy-environment trinomial (Turzova et al., 2020; de Almeida-Rocha and Peres, 2021). Concern over naturbanization's environmental impact justifies a careful management and control strategy of the process (Del Valle and Prados, 2019), especially when urban sprawl over rural and natural areas is based on the real estate market.

1.4. The real estate approach to naturbanization

The naturbanization process can also result in an upsurge in the real estate market. As in the case of agriculture, residential urbanization is one of the most important vectors of the transformation of natural and rural spaces, due to technological advances (machinery and reduction in transport costs) having enabled these two activities to be relocated and resized (Walker, 2001; Canaz and Harun, 2017). The attraction of living in or in the area around a PNA cuts across all levels of society, even including the 'passive classes' with high investment capacity, such as the retired (Tulla et al., 2007).

The combination of disposable capital and unique appeal has triggered the emergence and development of a property market in rural spaces (especially for second homes), which has also been seen as a dual economic strategy: for investment and profit (holiday homes for rent) (Gómez et al., 2019). In this case, the studies associate the effects with negative naturbanization on account of the increase in temporary residents with no connection to the surrounding area, real estate inflation, damage to the countryside and the building of illegal housing (Canaz and Harun, 2017; Gómez et al., 2019; Tulla et al., 2007; Jiménez et al., 2017). Visions close to positive naturbanization also arise, but they are always contingent on a demographic benefit that is not environmentally harmful and motivations that are quite unrelated to sectoral and temporal use (Tulla et al., 2007).

Real estate market studies detect a correlation between environmental values (such as landscape diversity and proximity to PNAs) and property cost (Sylla et al., 2019). Some econometric studies (Gibbons et al., 2014; Anderson and West, 2006) have delved into the knock-on effect that landscape diversity and open spaces have on housing costs. These studies place the influence of proximity to natural spaces on the same level as the home's location and neighbourhood characteristics and 'suggest that planners and developers need to consider spatial context when providing or protecting open space public goods and designing zoning and land-use regulation policies' (Anderson and West, 2006: 787). Other studies give a more precise profile of owners and purchasers attracted by environmental values (Wang et al., 2012; Sohn et al., 2020) and conclude that the influence of natural spaces fundamentally depends on space useability (Jim and Chen, 2006). Therefore it is concerning that some countries' spatial planning legislation and economic models encourage investors to invest in urbanization outside city limits (Kocur-Bera and Pszenny, 2020).

This is of even greater interest due to the indirect evidence of tourism mobility after the pandemic broke out (Saladié et al., 2021), which shows an increase in the attraction of natural spaces with some possible consequences for the real estate market. According to some recent research (Pérès et al., 2021; Lõhmus et al., 2021), this attraction is based on natural spaces having demonstrated that they are beneficial to mental health and improve living conditions during and after lockdown. However, it is still too soon to draw any conclusions on the long-term significance of the pandemic in demographic and real-estate terms.

2. Methodological design

Quantitative and comparative analyses were carried out of the study areas. The methodological design consists of two consecutive and complementary sections (Fig. 1).

The first section builds on searches of real estate (RE) property offers that make a connection between the attraction of nature in the study area and dwellings. In other words, it is useful to study the commodification of nature. This process involved the leading RE websites (portal inmobiliario.com; idealista.com; fotocasa.es) during February 2020, with searches by PNA denomination (for example, 'Doñana' and 'Río Clarillo'). The Google search tool and other minority websites and social networks (milanuncios.com; mercadolibre.cl; Facebook ads) were also used to expand the database to a total of 200 records.

Preliminary results included properties not located in the study areas, such as streets and roads that included the names of the study areas (or some part of these) in their own names (e.g., Camino Río Clarillo, Plaza Doñana, etc.). Database debugging determined the group of offers located in the study areas in the context of naturbanization.

The main characteristics of the records were examined: total magnitude, location (at the municipal level and in relation to the nearest urban centre), property typology, price,[1] target audience (inferred from all the above) and visibility of natural value. The following have been considered for the latter: i) the way that PNAs are named and ii) the type of elements advertised and highlighted in each offer. This determined the role that institutional recognition plays in advertising the property and the vectors that usually promote sales (e.g., proximity to the PNA, connectivity, peaceful setting, etc.).

In the second methodological step, a survey was used to determine the future behaviour of potential demand. To select the respondents, this work considered the above-mentioned records and included two interconnected premises and one condition.

The first premise was that attraction to nature could raise the average price of homes or properties. If this were found to be the case, the second premise stated that this high cost could limit demand by way of income level. Next, based on some reports and studies (OECD, 2018; Cruz de Bustos, 2018; Tomul and Çelik, 2009), it was possible to determine that there is a positive correlation between educational level and future

[1] Standardised in euros (€) according to the official exchange rate between currencies on March 1, 2020 (1 € = 903.793 CLP).

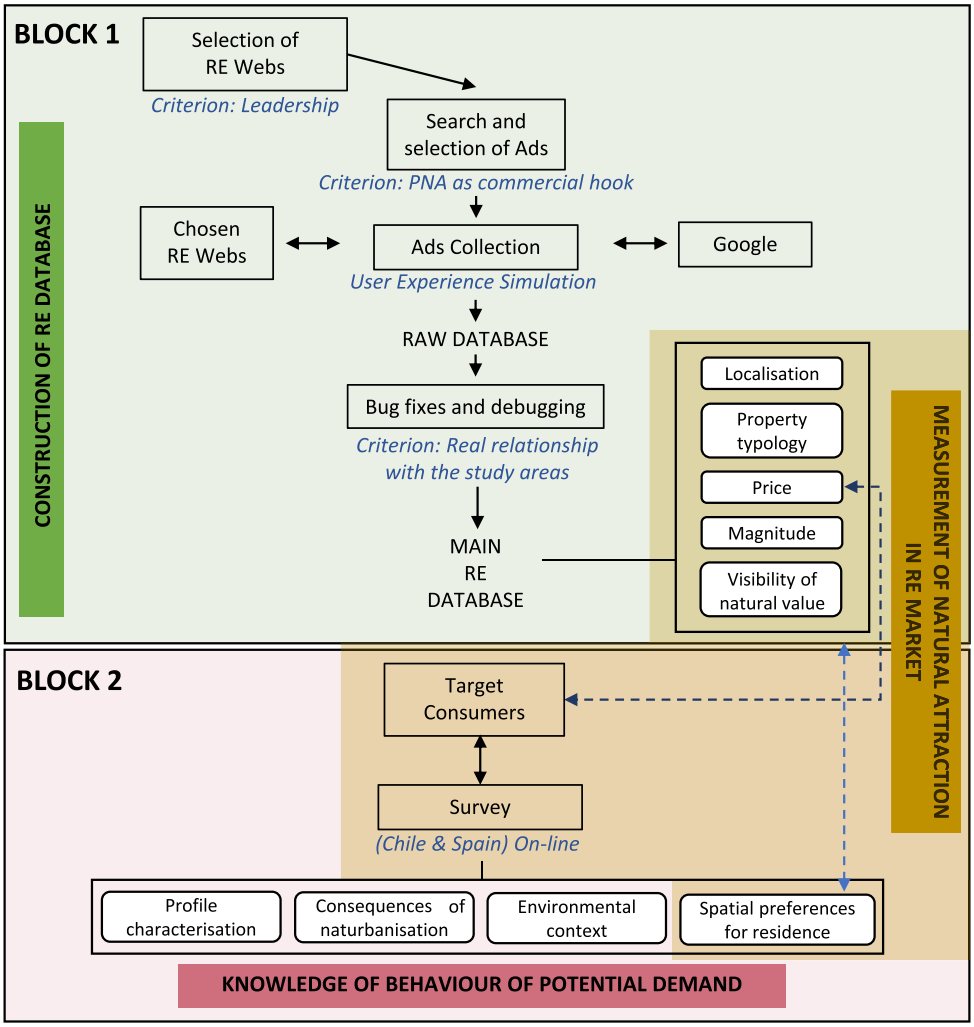

Fig. 1. Methodological design Source: Prepared by authors.

income level. The correspondence is not total, perfect, or applicable to all cases (García-Altés and Ortún, 2014; Diakova, 2021), but the relationship between the two exists. Therefore, the assumed condition is that if the social elevator works, individuals with a higher level of education are financially capable of purchasing these kinds of properties.

The selected target population was therefore higher education students, specifically students whose academic training indicated that they may be very interested in and/or aware of the environment. This served to mitigate the effect that the political/economic model may have on the choice of where to reside.

A selection was made of university programmes for various disciplines. This resulted in the selection of higher education students of geography and related subjects at universities near the study areas (the University of Seville and the Pontifical Catholic University of Chile). Their responses were used as calibrators of future urbanization trends in relation to the PNAs.

Due to the pandemic, the survey was conducted virtually between June and August 2020. The questionnaire was presented with no explanatory context so as not to condition the responses. It consisted of 26 questions organised into four sections: i) characterisation of the interviewee (profile); ii) spatial preferences for residence; iii) consequences of naturbanization, and iv) environmental context. These sections were sequential to prevent subsequent answers from having any influence on the previous responses.

2.1. Study areas

Río Clarillo and Doñana are emblematic, nationally recognised, protected PNAs in Chile and Spain, respectively (Fig. 2). The former occupies 10,185 ha and is part of the National System of State Protected Wildlife Areas. This reserve was created in 1982 and is in the second rank of PNAs, making it the most relevant PNA in the Santiago Metropolitan Region (SMR). It is in the Andean Mountain range and stands out for hosting species of endemic Andean flora and fauna, values that have motivated its future promotion to the highest state category, National Park. In the case of Spain, Doñana occupies an area of 54,252 ha and is the sixth oldest park (1969) in the Spanish Network of National Parks. Even though it is considered an island of biodiversity that uniquely represents the wetland ecosystem and similar areas on a European scale, it is threatened by severe ongoing anthropic pressure.

Both spaces are under the influence of metropolitan areas. Río Clarillo is near the national capital and Doñana is near Seville, the main city in the south of the Iberian Peninsula. The Chilean reserve is located entirely in the municipality of Pirque, in the Andes Mountains, where rugged mountainous terrain predominates (although on its western periphery the topography is flat and was traditionally occupied by agricultural uses). The Spanish enclave is divided into four municipalities (Almonte, Hinojos, Aznalcázar and La Puebla del Río). It is an area of flat topography close to the coast (certain agricultural uses can be found in the area, although only to a marginal extent).

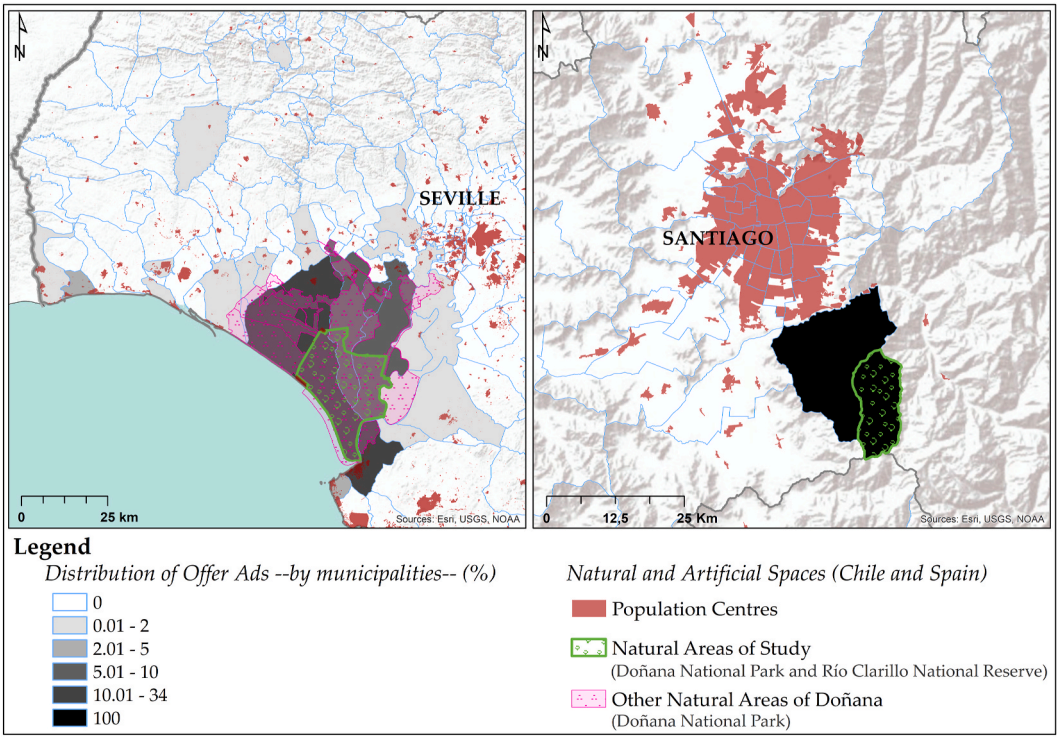

Fig. 2. Spatial influence of naturbanization. Doñana (left) and Río Clarillo (right) Source: Prepared by authors.

Also, both spaces are well known and visited by their local communities. However, according to up-to-date official data, there is a significant contrast between the two areas: Río Clarillo had 88,432 visitors in 2016 (Sernatur, 2017), while there were 288,637 visitors to Doñana during the same period (Miteco, 2017). Likewise, Río Clarillo yielded 38,600 search results through virtual channels (98,900 if only 'Río Clarillo' is considered in the search), while Doñana yielded 1,190,000 (2,750,000 when only 'Doñana' is considered in the search).

Taking the International Union for Conservation of Nature (IUCN) categories as a reference (that does not always coincide with the national hierarchy), the Chilean enclave has the tightest restrictions on land transformation. Río Clarillo is considered a 'Strict Nature Reserve', the highest level in the PNA management hierarchy, i.e., the level that guarantees the highest degree of protection. Despite this, the application of Decree 3516 in the surrounding area has driven the transition from agricultural to residential activity, which in turn has produced increasing urban sprawl, albeit illegally densified in several areas (as demonstrated by half of the ads offering plots of land under 0.5 ha). Doñana is two levels below in the ranking (II. Conservation and protection of the ecosystem; National Park). This means that human activity, although limited, is possible and not severely restricted. However, in residential-use terms the regulation of rural land in Spain restricts land-use changes and the subdivision of plots, particularly of those in protected areas. This does not mean that there are no infringements. Indeed, the Autonomous Community in which Doñana is located (Andalusia) is one of the Spanish regions with the highest rates of illegal parcelling and urbanization according to Andalusian ombudsman (Defensor del pueblo andaluz, 2000; Piñero et al., 2015).

3. Results

3.1. Key issues of the real estate offer based on the attractiveness of PNAs

The analysis results produced two subsamples of different magnitudes. In Chile, the total number of RE ads related to Río Clarillo was 44, while in the case of Doñana, it was 156. The origin of the Chilean subsample was mainly found in general search sources (29) where RE offers were one of a range of different products (buying & selling websites). The offers come from a wide variety of small RE companies managing the sale of their properties or from others (individual owners). As for the main sources in the Spanish case, although similar search origins can be found (12), those in the RE sector stand out (129). Although the channels are slightly different in Chile and Spain, the advertisers have the same profile as retail marketers. However, Doñana presents a differentiated luxury RE sector on elitist websites.

The PNAs' spatial influence differs greatly for RE purposes (Fig. 2). The Chilean offer is only found in the municipality where the PNA is located (Pirque), while in the Spanish case, offers are not limited to the municipalities where Doñana is located but can be found in some adjacent municipalities located inside other PNAs with a lower degree of protection or no protection at all.

There are also differences in property types. In the Chilean case, there is a clear predominance of the category 'land'. These are undeveloped plots of land. This 'land category' makes up 59.1% of the offers, with the remainder 'houses' (38.6%) or 'cabins' (2.3%). The undeveloped plots or land category does not exist in the Doñana offer.

The influence of Decree 3516 (which lays down regulations on rural property subdivision) is evident in the Chilean subsample, where 77.3% of the ads refer to properties in open or rural spaces (even though they are parcelled out), and the rest refer to properties in suburban spaces or spaces adjacent to urban centres (where buildings exist, they are single-story houses).

In comparison, the analysis results for the Spanish sample show a clear predominance of single-family house types (60.9%), followed by flats (22.4%) and townhouses (16.7%). This indicates that the commercial use of the attraction of nature is not limited to open and rural spaces but is compatible with urban centres and suburban developments. The property offers in these areas represent over two-thirds of the subsample (67.3%), a much greater proportion than for open or rural spaces (27.6%) and spaces on the periphery of urban centres (5.1%).

The most widespread type of housing in both cases is the isolated

single-family home. In the Chilean case, smaller residences are offered (~202 m^2) than in the Spanish case (~398 m^2). As for the number of rooms per dwelling, the average is 3.9 rooms in Río Clarillo and 4.6 rooms in Doñana. In the Spanish case, the influence of €500,000+ luxury properties can be identified, with 7.3 rooms on average. Fig. 3 shows the distribution of the offer price. To enable a comparison of the two study areas, this Figure focuses on the single-family house type as it is a housing segment found in both subsamples. This exercise has some limitations due to the lack of information on the offer in terms of housing quality, plot size and location. The results show similarities in the average price per m^2 of built plots in the Chilean (~1734 €) and Spanish (~1766 €) subsamples. However, these prices cannot be directly compared due to the immense gap between the average monthly salary of ~741 € in the SMR (INE, 2018) and ~1495 € in Andalusia (INE, 2019).

3.2. Commercial real estate status of the study areas

Institutional recognition through environmental protection is a quality standard for territories used in the analysis of naturbanization processes. The official designation distinguishes and safeguards spaces for their exceptional natural value while allowing them to be open to and recognised by society.

This extensive knowledge can be reoriented and used by private agents for purposes other than the original. The collected offers show that the institutional environmental distinction is used for a commercial purpose. References to Río Clarillo consider up to seven variants, while in reviews of Doñana, the number rises to nine (Fig. 4). Official designations are not always accurately adhered to and, in the case of Río Clarillo, the official designation -Reserva Nacional Río Clarillo-can only be found in 6.82% of ads. In contrast, the exact denomination of the Doñana PNA -Parque Nacional de Doñana-is the most frequent option (32.69%).

Another important element for this business analysis is the relationship between PNAs, other attractions and 'added values'. In quantitative terms, as many as 25 added values have been detected (Table 1), some of which have a strong subjective load. The offers for Río Clarillo include an average of 2.1 added values compared to 2.5 for Doñana. The most publicised added value is the proximity to the PNA, which occurs in 65.91% of the cases in Río Clarillo and 42.31% in Doñana (Fig. 5). Therefore, the proximity of homes to a PNA (whether real or not) is the most common business argument used in the two study areas. In both cases, slightly over half of the offers that only mention one added value refer to proximity to a PNA.

In the Río Clarillo subsample, where undeveloped land predominates, the added values that stand out are linked to the possibility of improving the property and refer to: i) urban integration or connectivity with urban areas (43.18%), and ii) access to basic services (36.36%). Elements related to a natural value such as vegetation and

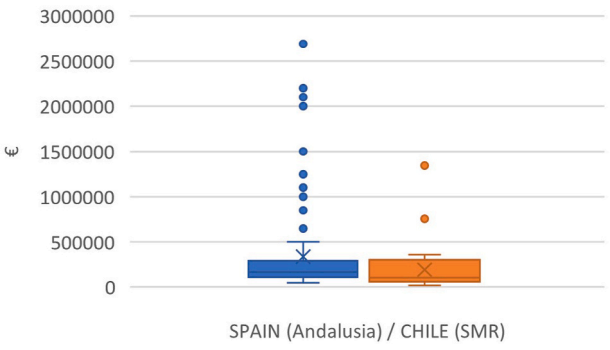

Fig. 3. Distribution of supply price of isolated family housing Source: Prepared by authors.

other more subjective elements such as luxury (which includes the exclusivity and uniqueness of the environment), peacefulness and security can also be observed (the last is not mentioned in the Doñana subsample).

In Doñana, there is a much broader variety of added values influenced by the presence of other digressive factors such as the beach (28.85%). This is the third most common added value found in the ads after proximity to the PNA and views over the PNA (32.05%).

The main differences between the study areas are the added values that do not appear in both ('access to basic services' and 'proximity to the beach'). In the shared added values, the data differ, specifically in 'views over the PNA' (difference - ↔ - of 25.23 percentage points), which is not very important in the case of Río Clarillo, and even in 'proximity of PNA'. The latter is much more common in Río Clarillo offers than Doñana offers (↔23.60), where it is also highlighted in the ads, but in conjunction with a wide variety of other added values. Also, in the Río Clarillo subsample, 'connectivity to urban centres' is much more advertised (↔22.03), while the presence of 'outdoor activities' (↔14.04) and 'peaceful setting' (↔13.00) are more relevant in the case of the Doñana ads.

3.3. Potential actors in naturbanization: demand in study areas

The demand study has been carried out on a sample of 90 responses equally distributed between the two study areas. Self-evaluation of environmental education and environmental awareness (with 1 = 'none' and 5 = 'very high') indicates medium-high values in the two study areas (Spain 3.6 and 3.9, respectively; Chile 3.2 and 3.6, respectively). It is important to note that the average value for environmental awareness is higher than for environmental education.

This environmental awareness level does not translate into the greater contact of surveyors with nature; even though they know of practically all the nearest PNAs in their area (97.8% in Spain, 91.1% in Chile), only a minority visit them periodically (17.8% in Spain, 6.7% in Chile).

Based on their specific considerations (with 1 = 'rural' and 5 = 'urban'), the Chilean subsample is predominantly urban (4.4), while the Spanish subsample is very balanced (2.8) with a slight tendency towards rural. In terms of spatial preferences for residence (within 10 years), both subsamples show similar behaviour, although the urban/rural origin parameter varies considerably between the subsamples (Fig. 6).

Intermediate spaces between rural and urban are the majority option (40.0%). The main differences are in the greater preference of Chileans for occupying central and urban areas (28.9% compared to 13.3% in the Spanish subsample), due especially to their urban origin and the wide urban-rural gap in access to services. The situation is reversed in the attractiveness of peripheral urbanization (20.0% in the Spanish subsample vs. 8.9% in the Chilean subsample), where the possibility of building single-story houses with good connections with urban centres is an option in the case of Spain but is less attractive in Chile due to the poor access to basic services. Finally, the rural world, represented by the countryside and towns, has an equivalent weight in each of the subsamples (13.3% in the Spanish subsample and 11.1% in the Chilean subsample).

These data present a lack of correspondence between the characteristics of the naturbanization supply in Spain, which is fundamentally urban, and the preferences of the potential demand, while the coincidences are greater in the Chilean case, as empty space predominates. The survey expressly included a question on COVID-19. The pandemic seems to have had a negligible impact since over three-quarters of the subsamples state that SARS-CoV-2 would not justify any alteration to their residential preferences in relation to naturbanization processes.

Similarities can be observed in respondents' favourite building typologies (for 10 years from now). While 86.7% of the Spanish subsample would prefer to live in single-family homes (53.3%) or townhouses (33.3%), in the Chilean case this percentage is 71.1% (62.2% in single-

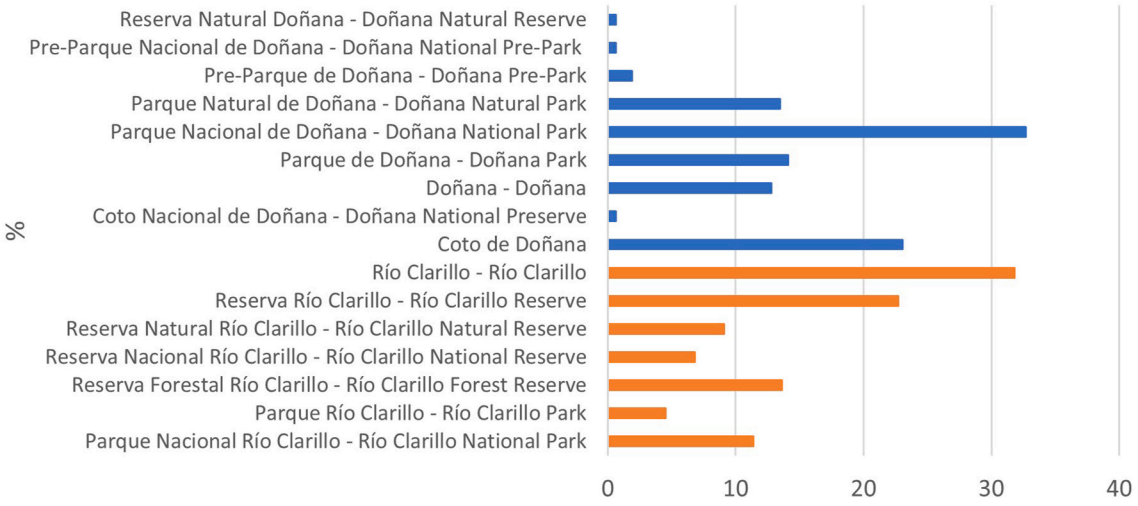

Fig. 4. Terminology used in PNA offers. Source: Prepared by authors.

Table 1
Added values in offers linked to naturbanization.

Río Clarillo	Doñana	Both PNAs
•Access to basic services •Security	•Beauty of the environment •Close to the beach •Tourist or holiday use •Investment •Existence of large land property •Lifestyle change •Nature •Legal status •Traditional values •Climate comfort •Family use •Other institutional recognition •Presence in rural areas •Privacy	•Luxury •Proximity to PNA •Vegetation •Connectivity (to urban centres) •Peaceful setting •Outdoor activities •Quality of housing •Landscape •Views (over PNA)

Source: Prepared by authors.

family homes and 8.9% in townhouses). In this case, the supply corresponds to the demand since houses or isolated land plots on which single-family homes can be built predominate. In the case of Spain, the correspondence between supply and demand data is very closely related. In Chile, a higher number of individuals who prefer to live in urban centres would opt for apartment blocks (up to 28.9%). However, the Chilean sample does not contain any offers for apartment blocks, which makes that choice impossible. Nevertheless, both subsamples show a trend towards increasingly dispersed urbanization, either in rural or entirely urban environments.

Furthermore, according to the main tenancy model preferences near a PNA (second homes), this type of urbanization would generate a larger environmental footprint (as it would multiply the ratio of land artificialisation per person and increase the number of commuters). Based on this preference, the data support the interrelationship between the concepts of nature and leisure/free time. In the Spanish case, 64.4% of the answers prefer this option (33.3% second home for weekends; 31.1% second home for holiday periods), which is 40 percentage points above the first home option (24.4%). This difference is much smaller in the

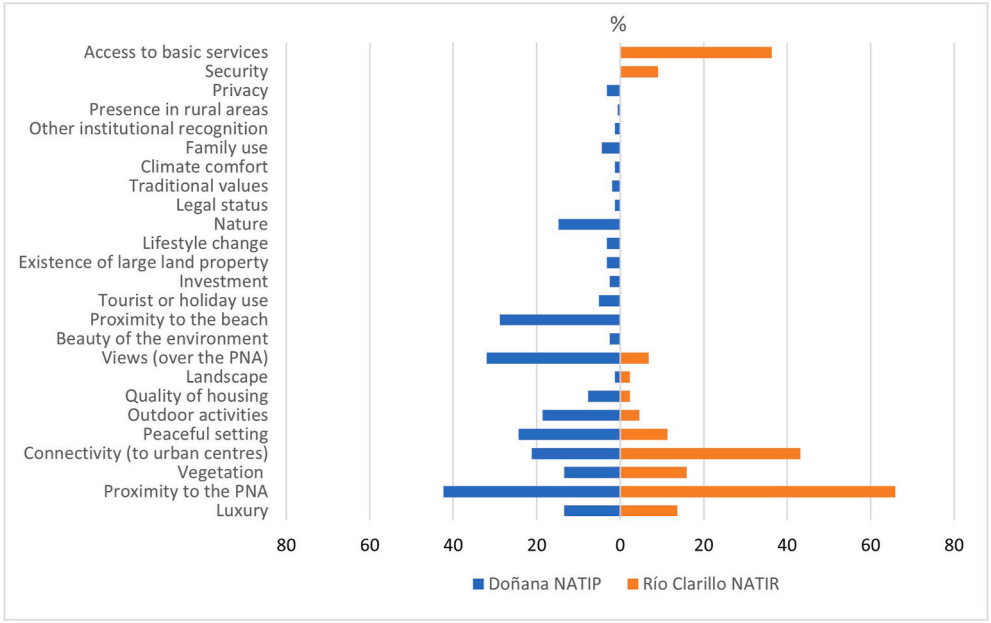

Fig. 5. Presence of added value over total no. of ads (percentage). Source: Prepared by authors.

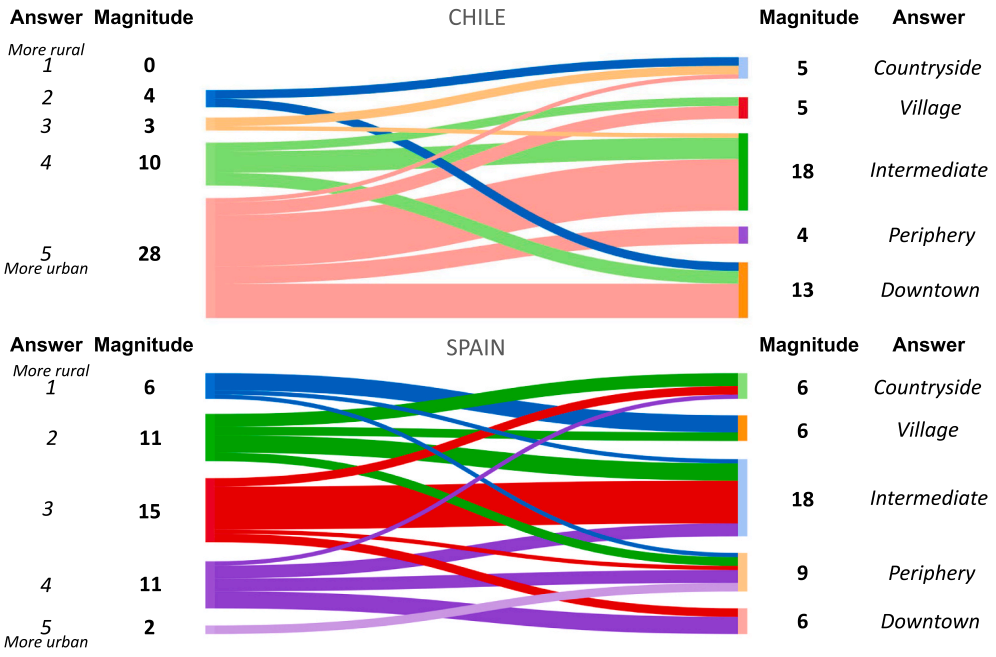

Fig. 6. Correlation between sample type and preferred living spaces. Source: Prepared by authors.

Chilean case (6.7 percentage points), where those who prefer second homes represent 37.8% of the subsample (22.2% for weekends; 15.6% for holiday periods). This would cause the demographic and economic benefits of naturbanization to be limited and seasonal, especially in the Spanish case. Finally, housing near a PNA as an investment is a minority option (2.2%).

'Housing typology' is not observed to be one of the main triggers for choosing a home (Fig. 7). In both subsamples, 'proximity to services' and 'price' are the preferred reasons, and 'heritage values of surrounding areas' and 'environmental footprint generated' lag far behind, with these preferences over the type of housing and tenure in the surrounding area or within the PNA also demonstrated.

In both Chile and Spain 'proximity to natural environment and green areas' and 'quality and beauty of landscapes' are ranked above 'environmental impact produced'. This is more marked in Spain, where the perception of nature as a consumer good can be demonstrated: in other words, the aim of the respondents is to obtain a personal gain (enjoying nature while living there), with no (or minimal) consideration given to human impact.

The capitalist perspective is found to exist in both cases with respect to the relationship between a PNA and the attractiveness of a residence, although it is more marked in the Spanish case. Nearly two-thirds of the Spanish subsample state that proximity to a PNA would enhance the beauty of a residence (64.4%), while 17.8% of individuals indicate that they are indifferent and a further 17.8% mark this aspect as negative. This attraction element also exists in Chile and is widespread (51.1%), although compared to Spain, a higher percentage consider that proximity to a PNA reduces the value of the residence (33.3%).

The direct relationship between PNAs and quality of life may be the reason behind RE interest and could be rooted in the capitalist point of view. The majority of the two population subsamples believe that living near Río Clarillo/Doñana will afford them positive personal benefits (55.0%), although it does not correlate with the idea of making a more significant financial effort to obtain a dwelling (housing cost outweighs

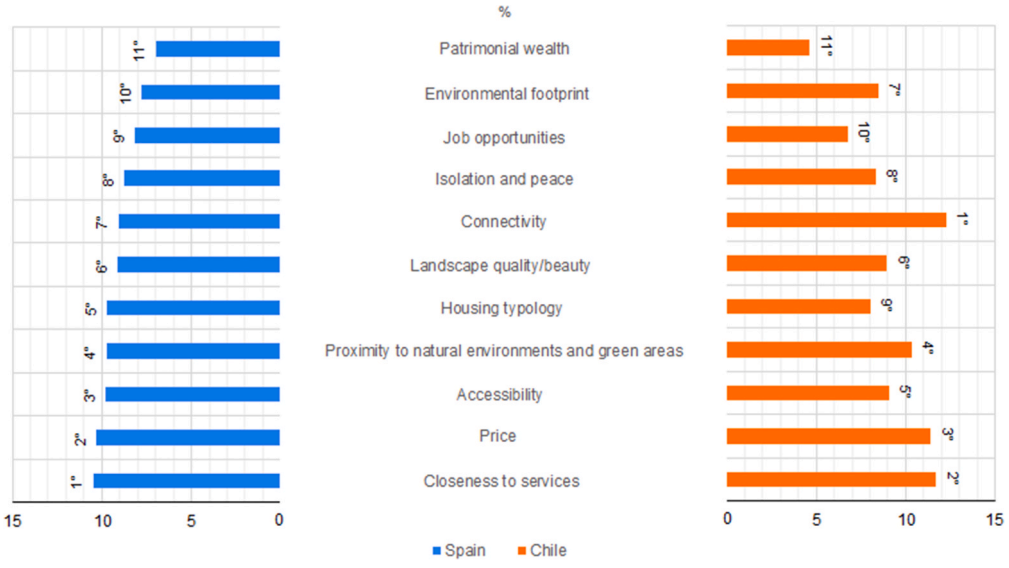

Fig. 7. Conditions for choosing a home. Source: Prepared by authors.

'proximity to natural environment'). Responses are negative in 40.0% of Chilean and 35.6% of Spanish cases; and only 26.7% and 17.8%, respectively, would be willing to pay more. These numbers are even more important when it is considered that housing costs are the second and third triggers when choosing a residence in Spain and Chile, respectively (above 'proximity to natural environment' and 'landscape beauty' in both cases).

However, no correlation was observed between environmental importance or institutional recognition and residential attractiveness. Even though living in the proximity of or in a PNA is considered a plus, in both study areas over three-quarters of the subsamples indicate that this attraction would not increase according to the PNA category.

Respondents' positions on the risks and effects of urbanization for the PNAs and their areas of influence are well-defined. This agrees with the view held by most respondents that the reason to create a PNA is biodiversity conservation (86.7% in Spain and 88.9% in Chile). In the Chilean case, urbanization in the proximity of a PNA is widely considered negative (93.3%), while the remaining 6.7% regard it as a mix of both negative and positive. In the case of Spain, the figures are 68.9% and 15.6%, respectively, while some respondents exist who do not observe any pros or cons (6.7%) and even some who only observe pros (8.9%). The fact that rural depopulation and PNAs are seen as obstacles to economic development, which is currently a subject of public discussion, may have influenced the responses in the Spanish case.

Values for the closest PNA change slightly but are equally significant. For most of the Chilean and Spanish subsamples (86.7% and 75.6%), living in the proximity of or inside Río Clarillo/Doñana would not benefit the PNA. All the Spanish and 97.8% of the Chilean subsample answers indicate that urbanization would have a negative impact on the PNA (Fig. 8), while 60.0% and 51.1%, respectively, consider that some benefits could be derived. The greatest damage would be to the environment. However, benefits would focus on financial issues first and on social matters second.

Both negative and positive aspects would presumably be linked to the degree of urbanization in the proximity of Río Clarillo and Doñana, which is considered low to intermediate. On a scale from 1 to 5 (the highest value indicating a very high magnitude), the magnitude of urbanization in the Chilean PNA and surrounding area is 2.5, while it is 2.8 in the case of Spain.

Even though the institutional body does not guide spatial preferences through hierarchy parameters (understood as the level or degree of protection), it does affect the consideration of urbanization close to PNAs. When asked about the urbanization of the countryside where no PNA is present, the general trend in both the answers and the literature review showed that this process is seen as generating both positive and negative consequences. Thus, while the negative option is not the preferred choice, it is in this case, when a PNA is present. The option that observes both processes (naturbanization and urbanization of the countryside) as exclusively negative diverges by 31.1 points in Spain and by 71.1 points in Chile. It can, therefore, be inferred that the effects caused by the institutional body and the official natural protection are much more intense in the latter. In contrast, the choice that includes some degree of positive effects derived from naturbanization (alone or coupled with negative effects) represents only 6.7% in Chile, while in Spain it is 24.4%.

Finally, it is important to note that three-quarters of the subsamples (75.5% in Spain and 73.3% in Chile) believe that the responsibility for the impacts and other negative effects of naturbanization can be ascribed to the sum of individual, collective and institutional actions. Respondents attribute a similar percentage to these factors for mitigating and solving these effects (77.8% in Spain and 62.2% in Chile). Even though individual responsibility stands at 15.6% in the case of the Chilean subsample, over a quarter (26.7%) believe that the sole responsibility for mitigating and solving environmental problems should be assigned to the institutions. In the case of Spain, the difference is lower (6.7% points), although the trend indicates that responsibilities are placed less on individuals and rather on groups and collectively. From the problem-solving perspective, the option considering individual responsibility is the least important in both subsamples and, in the case of Spain, inexistent.

4. Discussion

Supply data from the study areas demonstrate that nature enjoys a

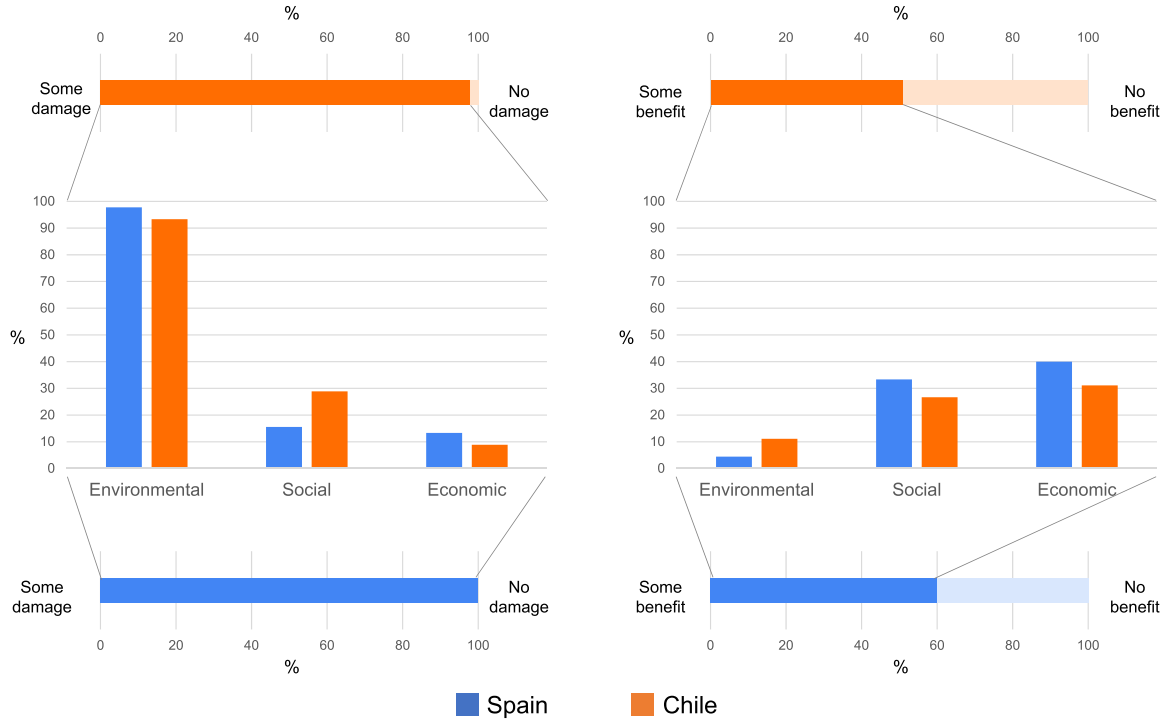

Fig. 8. Values for the impact of urbanization on the studied PNAs. Source: Prepared by authors.

particular status in the RE market. Offerors have turned PNAs into brands and drive demand through offer differentiation. While the PNA denomination is influential as a 'commercial hook', demand data show that the PNA's level or degree of natural protection is not. Consequently, the graded relationship between price and quality indicated in the literature (Sylla et al., 2019; Gibbons et al., 2014; Anderson and West, 2006) is not transferred to the relationship between attractiveness and the PNA category in this case.

Results show that naturbanization processes do not occupy a small niche market in Río Clarillo and Doñana, even though the limiting factor is purchasing power, as is demonstrated by the high offer prices and their relevance for housing selection. Thus, in the final analysis, this specific negative social and economic aspect has an environmentally positive impact.

Demand data in the study area indicate that there is no interest in speculation for the future, so one negative real estate consequence can be ruled out: inflation. However, the current model already restricts demand and segregates the space, which indicates a negative social consequence.

Data for supply and demand both indicate that the commodification of nature implies the importation of urban real estate market criteria (price per unit of built surface area, location preferences, building typology, etc.) that even exceed the criteria for interest in a PNA's nature value.

This coexists with a declared environmental awareness, which raises the possibility of developing a strategic framework of sustainable practices in the rural environment (Tulla et al., 2017). Despite this, urbanization of the countryside is not regarded as problematic when there is no PNA and it is disassociated from any possible adverse environmental effects. This places us in a situation of negative naturbanization in environmental terms in the study areas, as the studied local communities perceive that the PNAs perform a radical separation between what is environmentally valuable and what is not. This creates yet another reason to believe that the buffer zones are ineffective (Turzova et al., 2020; de Almeida-Rocha and Peres, 2021).

Both the survey and the literature (Gómez et al., 2019; Tulla et al., 2007) indicate that the local communities believe that nature brings benefits to humans and that humans generate a negative and, to a lesser degree, positive impact on nature. Dispersed urbanization in the proximity of nature is very attractive as, according to the data, it contributes to individuals achieving their expectations. However, at the same time, respondents also consider this type of urbanization to have a negative environmental impact in the study areas. Notwithstanding, the economic effects (and the perceived social effects) are seen to be positive. There are indications of potentially positive naturbanization in both study areas, particularly in Chile, where this process is more associated with establishing a stable residence than in Spain.

So, it could be inferred that land change processes are not discouraged by environmental awareness. According to the survey, the environmental footprint generated is one of the least important reasons for individuals' housing choices, with their decisions mostly guided by price and individual benefits. This clearly shows that Chile and Spain are going through a *naturbanalization* process (naturbanization + banalisation). This means that individuals' actions are driven by a superfluous, iconised and perhaps distorted conception of environmental value, on which one's personal impact is not considered.

In environmental terms, this could result in a contradiction between the discourse and the actions on the environment. The detected preferences for residential location (greater dispersion near the PNAs) augur potential negative naturbanization in environmental terms.

Hence, territorial policies must include mechanisms to sustainably control the extant urbanization model, not only in the countryside but also in areas adjacent to PNAs. Given that RE interest in nature will continue in the form that has already been explained, it is essential to integrate the environmental planning element into territorial planning by promoting new and more compatible forms of land use that do not necessarily challenge social, economic, and environmental aspects.

Lastly, no conclusions can be drawn from the results of this research regarding the effects of the pandemic on PNA-related residential mobility due to changing health regulations and the characteristics of the surveyed demand. Although some studies foresee increased interest in these areas (Åberg and Tondelli, 2021; Donaire et al., 2021), the respondents of this survey are young individuals and mostly asymptomatic, so they may only have a partial vision (also due to the time when the survey was administered), and their vision may also be different in the future. Further studies should consider this aspect.

Authorship statement

Víctor JIMÉNEZ BARRADO: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Supervision; Validation; Visualization; Roles/Writing - original draft; Writing - review & editing. María-José PRADOS VELASCO: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Supervision; Validation; Visualization; Roles/Writing - original draft; Writing - review & editing.

Acknowledgements

This research was funded by FONDECYT Project No. 11190058, Research and Development Agency, Government of Chile (ANID-FONDECYT).

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