NICOLAUS COPERNICUS UNIVERSITY IN TORUŃ

Bulletin of Geography. Socio-economic Series, No. 61 (2023): 121-134
http://doi.org/10.12775/bgss-2023-0029

BULLETIN OF GEOGRAPHY. SOCIO–ECONOMIC SERIES

journal homepages:
https://apcz.umk.pl/BGSS/index
https://www.bulletinofgeography.umk.pl/

On household living conditions. A comparison between capital agglomerations and their popular neighborhoods in Northwestern Argentina

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How to cite:
Batista Zamora, A.E. & Natera Rivas, J.J. (2023). On household living conditions. A comparison between capital agglomerations and their popular neighborhoods in Northwestern Argentina. *Bulletin of Geography. Socio-economic Series,* 61(61): 121-134. DOI: http://doi.org/10.12775/bgss-2023-0029

Abstract. Access to basic facilities such as electricity, running water or sewerage is not homogeneous among households in the provincial capitals of Northwestern Argentina. Through the use of the National Registry of Popular Neighborhoods (RENABAP) and by calculating a Housing Sufficiency Index, we carried out a gradation in the levels of access to these basic facilities by households residing in these popular neighborhoods, identifying in which agglomeration the situation is more positive and in which the opposite situation is recorded. At the same time, using statistics from the Permanent Household Survey, we carried out the same procedure, but applied to the total number of households in each agglomeration. The comparison of both gradations shows significant differences in some of the capital cities, which reflects the existing urban fragmentation.

Article details:
Received: 14 February 2023
Revised: 12 May 2023
Accepted: 29 September 2023

Key words:
geography, planning & development, RENABAP, urban studies, household living conditions, Argentina

Contents:

1. Introduction

The Northwest Region of Argentina (hereinafter NOA) is made up of five provinces: Catamarca, Jujuy, Salta, Santiago del Estero and Tucumán, and was home to a population of 5,283,685 people in 2020, according to estimates by the National Geographic Institute – 11.64% of the national total. According to the Permanent Household Survey, that same year, 2,721,588 people lived in the five capital agglomerations, of which the most populated is Gran San Miguel de Tucumán-Tafí Viejo (898,402 inhabitants), and the least, Gran Catamarca (222,139 residents). The region has the worst statistics in terms of structural poverty and quality of life of the population (Bolsi & Paolasso, 2009; Velázquez et al., 2014), and some of the worst-performing provinces of the Republic in these aspects are located there, such as Santiago del Estero. The presence of significant contingents of rural population in some departments, in areas with little potential for exploitation and human occupation, are at the base of this situation.

Also in the urban context, the capitals of the NOA are in the worst positions in the ranking. Thus, Lucero et al. (2015) place four of the five provinces in the "very low" range of values of the Quality of Life Index for 2012, with Gran Catamarca in the "low" level. They also score in this same range in the so-called Well-being Index: the five capital agglomerations of the NOA are located in the last quartile of the Republic (Mikkelsen et al., 2020). This is the same conclusion reached by Arévalo and Paz (2015), who place the capitals of the region among those with the highest levels of multidimensional poverty in the country. It is obvious that residents of the NOA capitals are worse off than their counterparts in the Argentine average and much worse off than residents of the capitals of the southern provinces or the Cuyo.

On the other hand – and as in practically all Latin American cities – a portion of the urban fabric in the Argentinian cities has emerged as a result of land invasion processes. The most recent figures available indicate that the growth of the Argentine urban area from 2006 to 2016 was 8% due to this informal urbanization (Lanfranchi et al., 2018). These neighborhoods are referred to in the Argentine context as shantytowns (villas miseria) or slums, and all of them are characterized by a situation of irregular ownership – the difference lies in the fact that the population settles in a provisional manner in those "*villas miseria*", together with an absence of spatial planning. Conversely, settlements arise with street layout and even with land reservation for common services, with a spirit of permanence in the occupied space (Lizárraga, 2017). This irregularity in tenure hinders the obtention of a residence certificate, which is essential in order to get access to basic public services such as electricity or water and to demand basic infrastructures such as sewers. All of them fall into the recently created category of "popular neighborhood", understood as a neighborhood where eight or more families live, more than half of the population does not own the land where their home is built and, in addition, does not have regular access to two or more basic services – running water, electricity with electric meter and/or sewers.

Given this definition, it seems logical to assume that households in popular neighborhoods must endure worse living conditions than those found in the rest of the households in the city. However, we can wonder whether these conditions are homogeneous among the popular neighborhoods in the different capitals of the NOA. That is, do the residents of popular neighborhoods in Santiago del Estero live worse than their counterparts in Tucumán? And we can also ponder whether the neighborhoods in the worst relative position belong to the agglomeration with the worst living conditions, or whether there are differences between both rankings. That is, does the provincial capital that shows the best conditions also contain the popular neighborhoods with the best conditions? And the other way around?

These questions are the backbone of our research objectives. Using a novel source, the National Registry of Popular Neighborhoods (hereinafter RENABAP), we will characterize the level of access to basic infrastructure in the popular neighborhoods existing in the capital agglomerations of the Argentine Northwest – one of the poorest regions in the country – comparing the levels of access among them and with the agglomerations where they are included. We will see how the situations are dissimilar – not necessarily in the sense that we would expect – and the strong differences that can be found in some cases, depending on whether the object of study is the popular neighborhood or the agglomeration as a whole.

2. Background

Poverty is a multidimensional concept (MacEwan, 2010; Spicker, 2013), and the multiple definitions that can be given of it have focused mainly on the concepts of need, standard of living and insufficient resources; regarding the indicators used to identi-

fy it, the most widely used have been the satisfaction of certain needs, the consumption of goods and disposable income (Feres & Mancero, 2001a). From here, there are two methods that allow us to identify and quantify the poor: the direct and the indirect methods. The first considers the capacity to consume, as measured through income. Poverty and indigence lines, grouping population – or households – into deciles, quintiles, or quantiles, are some of the strategies most used under this method. The second, the direct method, is based on actual consumption, measuring it from certain indicative variables: characteristics of the dwellings, educational level of the population, employment, etc. This direct method is widely used in Latin America in general, and in Argentina in particular, and has the advantage that the variables necessary for its implementation can be found in Population Censuses, complemented on some occasions by sources based on surveys – such as the Encuesta Permanente de Hogares in the Argentinean case.

Our contribution is related to poverty based on the concept of satisfaction of certain needs and quantified from the use of the direct method. However, it is not a study strictly on urban poverty, but on the comparison of the living conditions of the population residing in a group of neighborhoods against those of the population of the cities to which they belong. To achieve this goal the construction of indexes has been necessary, so it seems appropriate to review the set of indexes and indicators developed in Argentina with purposes similar to ours; a very comprehensive view of the issue, which covers the situation up to the first decade of this century, can be obtained in Álvarez et al. (2005).

One of the pioneering methods is that of Necesidades Básicas Insatisfechas (Unsatisfied Basic Needs). More than an index, it approximates the identification and quantification of the poor; it is a direct method, based on actual consumption, and it is a long-standing approximation in the region (Feres and Mancero, 2001b). Based on census information, households and individuals, with deficiencies in certain dimensions (education, housing, among others) are identified. A method whose calculation has been subjected to different variations (Eriz & Fernández, 2015) and limited to identify the so-called Universal Indicators (Gómez et al., 2000).

More directly related to our contribution, when it comes to quantifying the housing conditions of the urban population of the Argentine Republic, several indexes have been proposed. All of them have in common the use of statistics obtained from Population Censuses, at census tract scale when it is available – a fact that ensures a high degree of spatial resolution. One of them is the so-called Quality of Housing Materials (CALMAT), developed by the National Institute of Statistics and Censuses of Argentina (INDEC) (Olmos et al., 2003), with the aim of quantifying the material conditions of the dwellings based on census data. It is a synthetic indicator that uses three variables to build a typology with five categories and whose spatial resolution, coming from census data, reaches the census tract. This index has been used not only to characterize the housing stock, but also to estimate quantitative deficits (Natera & Batista, 2012), or estimate the impact of public policies (Gómez et al., 2013). Subsequently, and adding to this indicator variables corresponding to the availability of sanitary services and the economic capacity of households, INDEC developed the so-called Household Material Deprivation Index (Gómez et al., 2004). Another statistical source is the census, and it has been used not only to quantify poverty in Argentina at different spatial levels, but also, among other applications, to quantify levels of residential segregation between households affected by this type of deprivation (Mignone, 2009).

Finally, we must review two closely related indices that have reached a high degree of dissemination in recent years. We refer, first of all, to the Quality of Life Index (Velázquez, 2008; Velázquez et al., 2014; Velázquez & Celemín, 2019). For its elaboration, a set of variables (with some local variants) included in four dimensions are used: education, health and housing, to which the environmental dimension can be added (Velázquez & Celemín, 2009). Extremely similar is the so-called Well-being Index (Velázquez, 2009), an indicator based not only on census information but also on the Permanent Household Survey, and which uses variables corresponding to four dimensions: education, health, housing and equipment, environmental risks and attraction of the landscape. The set of variables used for its calculation is not homogeneous, and its specific choice, in the case of diachronic investigations, depends on their temporal comparability (Mikelsen et al., 2020). As in the previous cases, each of them is given a relative weight, from the sum of which the final value is obtained; a value that oscillates between 0 (worst relative situation) and 100 (best relative situation).

In any case, we must indicate that, due to the characteristics of the information collected in the source that we have used, it is not possible to replicate any of the former indexes, so it has been necessary to build ad-hoc ones.

As we have just indicated, all these indexes are exclusively, or mostly, fed by census information,

which gives them a high degree of spatial disaggregation. However, and beyond the problems related to the Modifiable Areal Unit Problem (MAUP) (Openshaw, 1984), if we try to carry out a diachronic study, these small census units do not necessarily contain homogeneous population and dwellings from the point of view of population socio-economic conditions and dwelling physical characteristics and available services (Krupka, 2007; Rodríguez, 2013). The reason for that is, unlike in other contexts such as the United States, in Argentina the delimitation of census tracts does not contemplate that they must have the maximum possible social homogeneity (Rodríguez, 2020). This is why the use of the RENABAP is very useful, since it takes into account only the population and households residing in popular neighborhoods, without including the population that could share with them the census tracts in which they fall. The statistical information refers, in this sense, to homogeneous spatial units in relation to population and dwellings.

3. Sources and methodology

The phenomenon of urban informality has three components: access to urban land, housing production and access to public services, and equipment and basic infrastructure (Duhau, 1998). Traditionally, characterizing the provision of services in shantytowns and slums, and the households and individuals inhabiting them, has been a complex task. The use of Population and Housing Censuses presents the difficulty that, even using the smallest spatial unit of reference (the census tract), these neighborhoods share space with others that cannot be considered informal. Therefore, the information on census tracts, in terms of both the population and the urban space on which they are drawn, is nothing more than the sum of different realities. The only way to overcome this drawback has been to obtain information through surveys and interviews, more or less extensive, carried out by individual researchers or institutions. The handicap of this information – very valuable in itself – lies firstly in the heterogeneous nature of the topics addressed in the surveys, and, secondly, in the fact that they refer to individual neighborhoods or, at best, to a small group of them. This raises the question of whether this information can be extrapolated to all the city's encroachment neighborhoods.

However, the availability of statistics associated with the National Registry of Popular Neighborhoods (RENABAP) has changed this situation. After a period of weakening of the State, the turn of the century saw the development of a scenario in Argentina, labeled "neo-developmentalist", in which the State plays an active role once again through housing provision programs combined with labor supply for the unemployed, as well as regularization strategies for irregular settlements (Boldrini & Malizia, 2017), among other examples. In this context, the RENABAP should be considered as an instrument that allows a Family Housing Certificate to be obtained in order to request access to basic services. The importance of this registry lies on the fact that it has an associated database – this implies that, for the first time, we have information referring exclusively to the so-called "popular neighborhoods" existing in the Argentine Republic, updated to 2021. The information corresponding to access to basic services is assigned to the neighborhood as a whole, not to individual dwellings, and provides information on tenure status, the existence and form of access to drinking water, electricity and sewage, and the type of fuel used for cooking and heating. These urban dimensions have varying importance, but all of them are significant. Since they are the same for all the popular neighborhoods, we can compare the housing situation of different sets of neighborhoods, in our case grouped by provincial capitals. For this purpose, we have designed an index called *Housing Sufficiency Index* (HSI), similar to the Quality of Life Indices that are widely spread in Argentina (Velázquez, 2008; Celemín et al., 2015; Velázquez & Celemín, 2019). The variables used in the calculation are shown in Table 1, together with the rest of the elements necessary for its replication.

To calculate the HSI, we have first transformed the values of the variables (percentages of the total number of households in the popular neighborhoods of each agglomeration) into partial index numbers using the following formula:

$$I = Max - a \,/\, Max - Min$$

With a range between 0 (minimum value, indicating the total absence of the dimension referred to) and 1 (maximum value, indicating the opposite situation), the lower the value of the partial index, the worse the situation to which it refers.

Once the partial indexes were obtained, their values were weighted. As shown in Table 1, the tenure situation has the highest weighting – any improvement in housing, as well as the infrastructure and services associated, is strongly hindered when the ownership situation is irregular. A proof of this is the very existence of the RENABAP, which arises to allow the obtaining of a Family Housing Certificate and the requesting of public services

– so is the sanction of *Law 24,753 of 2018* that prevents evictions for a period of four years from its enactment. In this context, we have decided to exclude the possession of a sales contract from the list of irregular tenancy situations. A sales contract is an optional step prior to the transfer of ownership of real estate through a public deed. It is a private instrument by which the seller and buyer agree to execute a deed in the future. In accordance with this contract, the buyer gives a percentage of the value of the real estate to the seller, but its existence does not imply that the buyer is the owner – this condition is only fulfilled once the transfer is deeded. What is important is that the seller must show – among other documents – the ownership report and the title deed of the property in question. In view of the favorable situation against evictions framed by the aforementioned law, this operative decision seems reasonable.

We have weighted the values of the partial indexes corresponding to electricity, running water and sanitation by 20% – it is not necessary to insist on the importance of having a safe supply of drinking water and of having adequate sewerage. And, with regard to the availability of electricity, this has been proved to be essential in urban life: its presence enables the development and well-being of households, and its absence conditions their inclusion or exclusion with respect to other basic rights such as education, communication, or health (Durán & Condori, 2019). For all these reasons, we have given the same importance to these three dimensions.

Finally, the lowest weights correspond to heating fuel (5%) and cooking fuel (10%). The difference in weights is due to the importance of having hot water available, as this is essential not only for the proper cooking of food but also to maintain proper hygiene. In addition, in certain agglomerations, heating may not be considered necessary, as it is explicitly indicated in certain neighborhoods of Santiago del Estero-La Banda and Gran San Miguel de Tucumán-Tafí Viejo. On the other hand, it may be questioned why the supply of bottled gas has not been included as inadequate, both for cooking and heating. It is true that the most efficient – and cheapest – way to obtain gas for heating or cooking is piped gas. However, access to this infrastructure is not guaranteed in all urban areas of the five urban agglomerations, and there is an alternative way: the gas cylinder. It is, as we have just indicated, a more expensive option, but its use allows access to optimal fuel for both functions. As a side note, it is still widely used in cooking in developed countries, as is the case in Spain.

The final value of the index is obtained by adding the weighted values of the six dimensions considered: with a range between 0 as a minimum

Table 1. Basic elements of the construction of the Housing Sufficiency Index from RENABAP

Dimension	Variables	Weighting
Electric power Max. 64.44% Min. 8.7%	Irregular connection to the network No electrical connection	20%
Sewage effluents Max. 94.03% Min. 5.15%	Irregular connection to the sewage system Drainage only to cesspool/blind or pit	20%
Running water Max. 99.41% Min. 83.27%	Community well water pump House well water pump Tanker truck Community faucet in the neighborhood Irregular connection to the water mains	20%
Kitchen Max. 35.77% Min. 0.52%	Firewood or charcoal	10%
Heating Max. 50.95% Min. 22.44%	Firewood or charcoal	5%
Tenure Max. 100% Min. 5.81%	No security of tenure	25%

Source: RENABAP. Own elaboration

value and 1 as a maximum, low values indicate more unfavorable overall situations, while, as the values increase, the overall situation improves.

Our objectives also include comparing access to these basic services for all households in each capital city. To do so, we used the Permanent Household Survey (EPH), which provides us with information to calculate our Housing Sufficiency Index, referring to this territorial scope, and available for the same date as RENABAP: 2021. Table 2 shows the dimensions and variables used in its calculation, together with the rest of the elements necessary for its replication.

From the comparison of Tables 1 and 2, it can be inferred that neither the number of dimensions nor the variables used are exactly the same. This is because the information corresponding to the EPH is sparser than the data obtained from RENABAP – the former does not provide information on access to electricity or on the fuel used for heating; and the same sparseness can be applied to the variables referring to the rest of the dimensions, which are more numerous – and detailed – in RENABAP. Nevertheless, the variables corresponding to the dimensions referring to the origin of drinking water, sewerage, fuel used for cooking and the tenure situation from both sources are comparable, which allows for the construction of a modified index. At the same time, given that there are only four dimensions available in the EPH, the weights had to be modified (see Table 2).

The way of calculating this modified HSI is the same as the previous one; so too is its interpretation; so, we can identify which agglomeration is in a worse relative situation, and which is in a better one. And from here, we can compare the position of each agglomeration with respect to the others, thus identifying discrepancies between the two situations.

4. Results and discussion

The number of popular neighborhoods registered in RENABAP and located in the capital cities of the NOA amounts to 272 – these are home to 60,414 households. These figures represent 55.17% of the total number of popular neighborhoods and 68.07% of the total number of households in the capital. In relation to the figures corresponding to the individual agglomerations obtained from the EPH, Gran San Miguel de Tucumán has the highest proportion of households in popular neighborhoods: more than one in ten. In contrast, the 1,485 households identified in the 17 popular neighborhoods of Gran Catamarca are only 2.47%. The figures are shown in Table 3, which shows the great disparity in the volume of popular neighborhoods and households between the five provincial capitals.

As indicated in the introductory section, for a neighborhood to be considered popular – and therefore registered in RENABAP – it must have an inadequate supply of at least two of the services considered essential. Therefore, the housing situation of the households there is far from optimal. However, in view of this situation, we wonder whether these habitability conditions are equally negative depending on the particular agglomeration, or whether some differences can be detected between them. To answer this question, we have elaborated the Housing Sufficiency Index (HSI), whose value ranges from 0 (the worst relative

Table 2. Basic elements of the Housing Sufficiency Index based on the EPH

Dimension	Variables	Weighting
Water source Max. 1.73% Min. 0.13%	Hand pump drilling Motor pump drilling Other (Community; watershed)	26%
Bathroom drain Max. 9.31% Min. 0.48%	Cesspool only Hole/excavation in the ground	26%
Kitchen Max. 6.36% Min. 0.19%	Firewood, coal, kerosene No kitchen	13%
Tenure Max. 11.78% Min. 1.63%	Homeowner only Unlawful occupant without a permit In succession Another situation	35%

Source: EPH. Own elaboration

situation) to 1 (the best). The results are shown in Table 4.

Table 4 shows how the worst overall situation corresponds to the poor neighborhoods located in Gran Catamarca. This group of neighborhoods is in the worst relative position in terms of tenure, which is very important for the implementation of housing improvements (100% of households have no security in their homes); the availability of sewers, which play a crucial role in the sanitary conditions of households; and fuel for cooking (36% of households use firewood). Although it is true that this agglomeration is the one with the lowest representation of popular neighborhoods and households in them (Table 3), this does not mean that these Catamarca households are in the worst overall situation with respect to those located in the rest of the capitals of the NOA, in the general context of unsatisfied basic needs.

At the opposite end of the scale is the agglomeration of Salta, whose popular neighborhoods are in the best relative position, not only in terms of the overall value of the HSI, but also in terms of tenure, and well-positioned in terms of access to running water and electricity. The other three agglomerations have an intermediate position, with comparatively small differences among them. Thus, the housing conditions of popular neighborhoods differ according to the agglomeration to which we refer – these differences are also remarkable at the extremes of the scale.

What is the situation when we compare the totality of households located in each of the five capital cities? To answer this question, we have calculated a second Housing Sufficiency Index, based on the EPH, whose values are shown in Table 5. In this case, Gran Catamarca is the best placed – the value of its HSI is by far the highest of the five. Moreover, it obtains the highest score in all items, with the exception of cooking fuel. The capital of Catamarca also gets the highest value in the Well-being Index calculated by Velázquez et al. (2014), based on census information, and which places it as the capital with the highest level of well-being in the entire NOA. At the other end of the scale, and at a great distance from Gran Catamarca, is Gran San Miguel de Tucumán, with the worst results in all dimensions, the only exception being cooking fuel, in relation to which it falls in second place. This situation of the Tucumán agglomeration coincides with that found out by Actis (2017), which relegates it to the last place in the Republic in what the author calls the *Med Housing Quality Index,* which is also calculated from the EPH. Note that Gran San Miguel is the largest of the five agglomerations, and it contains not only the largest number of popular neighborhoods but also a significant portion of households with insufficient access to basic infrastructures (Boldrini et al., 2014).

Santiago del Estero-La Banda appears in a better situation in terms of the HSI than cities such as San Salvador de Jujuy or San Miguel de Tucumán, when the Santiago agglomeration in particular – and the province in general – is one of the poorest in Argentina. However, it must be pointed out that our index measures a very specific aspect of the broad context of poverty and quality of life. That is, according to the dimensions we have selected, those compatible with RENABAP information, Santiago del Estero is indeed in a better relative situation in terms of tenure and availability of water and sewerage than Jujuy and Tucumán. Moreover, in their study on well-being in Argentine agglomerations, when calculating their Multidimensional Poverty Index, Arévalo and Paz (2015) show how the differences between Santiago del Estero and Río Gallegos (the agglomeration with

Table 3. Capital agglomerations of the NOA. Number of popular neighborhoods, households in them and percentage of total households (2021)

Agglomeration	No. of popular neighborhoods	Homes in popular neighborhoods -A-	Total households in the agglomerate (EPH) -B-	% A/B
G. Catamarca	17	1,485	60,022	2.47%
S. S. Jujuy-Palpalá	61	9,577	101,463	9.44%
G. Salta	46	8,367	182,081	4.60%
S. Estero-La Banda	35	10,745	117,534	9.14%
GSM Tucumán-T. Viejo	113	30,240	255,840	11.82%
Total	272	60,414	716,940	8.43%

Source: RENABAP and EPH. Own elaboration

Table 4. Capital agglomerations of the NOA. Values of the Housing Sufficiency Index calculated from RENABAP

	Gran Catamarca	Gran San Salvador de Jujuy / Palpalá	Gran Salta	Gran Santiago del Estero / La Banda	Gran San Miguel de Tucumán / Tafí Viejo
Electricity	0.008	0.000	0.128	0.043	0.200
Sewers	0.000	0.178	0.088	0.200	0.106
Water	0.133	0.200	0.136	0.019	0.000
Kitchen	0.000	0.086	0.100	0.063	0.096
Heating	0.005	0.050	0.048	0.025	0.000
Tenure	0.000	0.046	0.250	0.171	0.110
HSI value	0.145	0.560	0.750	0.520	0.511

Source: RENABAP. Own elaboration

Table 5. Capital agglomerations of the NOA. Values of the Housing Sufficiency Index from the EPH

	Gran Catamarca	Gran San Salvador de Jujuy / Palpalá	Gran Salta	Gran Santiago del Estero / La Banda	Gran San Miguel de Tucumán / Tafí Viejo
Sewers	0.260	0.199	0.240	0.237	0.000
Water	0.260	0.096	0.260	0.165	0.000
Kitchen	0.121	0.130	0.111	0.000	0.125
Tenure	0.350	0.093	0.253	0.270	0.000
HSI value	0.991	0.518	0.863	0.672	0.125

Source: RENABAP. Own elaboration

the highest index value) are comparatively scarce in relation to *water availability* and *sewerage*. These dimensions are an essential part of our calculations.

The differences in the values of the HSI applied to the capital cities (Table 5) are higher than those observed in the HSI of the popular neighborhoods (Table 4) – in the former, the difference between the best- and the worst-located is 0.866, whereas in the latter it is only 0.605. This shows that the access to basic services is more dissimilar in the capital cities than in the popular neighborhoods. The fact that the differences are smaller among the latter should not be surprising, since all of them start from a relatively homogeneous situation, with irregular access to at least two basic services, regardless of the agglomeration to which they belong. The values of the HSI calculated from the RENABAP are, therefore, indicative of different nuances – and depth – of the same situation of need. In contrast, when considering the total number of households in the agglomerations, the reality is considerably more heterogeneous; hence the HSI scores differ significantly more, even when the reduced number of equivalent variables between RENABAP and the EPH are taken into account.

On the other hand, a comparison of the relative positions derived from the HSI values in Tables 4 and 5 shows they are not equivalent when ordered from the best situation (highest HSI) to the worst (lowest HSI). There are differences between the relative position of the popular neighborhoods and the relative position of the agglomeration to which they belong. These differences can be seen more clearly in Fig. 1, where we have marked the positions in which the neighborhoods of each agglomeration (abscissa axis) and the agglomeration (ordinate axis) have been ranked in the ranking of values (value 1, the poorest position, lower HSI value; value 5, the most favorable position, higher HSI value).

Figure 1 highlights how, in fact, the greatest difference in values is registered in Gran Catamarca. The agglomeration as a whole is in the best relative position, while its popular neighborhoods are in the worst. At the other end of the graph is San Miguel de Tucumán, which obtains the worst rating as an agglomeration, and the fourth place in terms of its popular neighborhoods; i.e., there are not too many relative differences in the housing situation of both groups.

Santiago del Estero is in the same position considering both the agglomeration as a whole and the popular neighborhoods, while in Greater Salta and San Salvador de Jujuy the relative position of the former is better.

These differences between the position of the neighborhoods and the position of the agglomerations are considered very important. Gran Catamarca scores very well when taken as a whole – moreover, it is above the average of the set of Argentine agglomerations according to different research on poverty and quality of life (Velázquez et al., 2014; Actis, 2017). However, in our case, its popular neighborhoods are at the tail end in terms of access to basic services in the NOA. This could be interpreted as an effect of the existing polarization between the inhabitants of these neighborhoods and the rest of the population of the agglomeration. Suffice it to say that 99.98% of the population in the agglomeration has access to drinking water from the public supply, while the percentage of households in the neighborhoods with a formal connection to it is only 11.32%, and 6% must resort to tanker trucks.

In the case of Gran San Miguel de Tucumán, there are not too many differences in its position among the capital agglomerations (4th) and the popular neighborhoods (5th) – both are indicative that the group of Tucumán households, as well as those located in its popular neighborhoods, must endure worse conditions of access to basic infrastructures than the rest of the agglomerations. This similarity in the rankings can be explained from two perspectives: first, according to Malizia et al. (2021), no less than 18% of the urban area of the existing agglomeration in 2020 corresponds to what the authors call "popular urbanization", similar to the neighborhoods included in the RENABAP. Secondly, Castañeda and Gómez (2020) indicate that public works aimed at providing basic services are concentrated in Gran San Miguel, in middle-class areas. The rest of the population must pay for this access privately, which leaves a significant part of the population – which does not necessarily reside in popular neighborhoods –

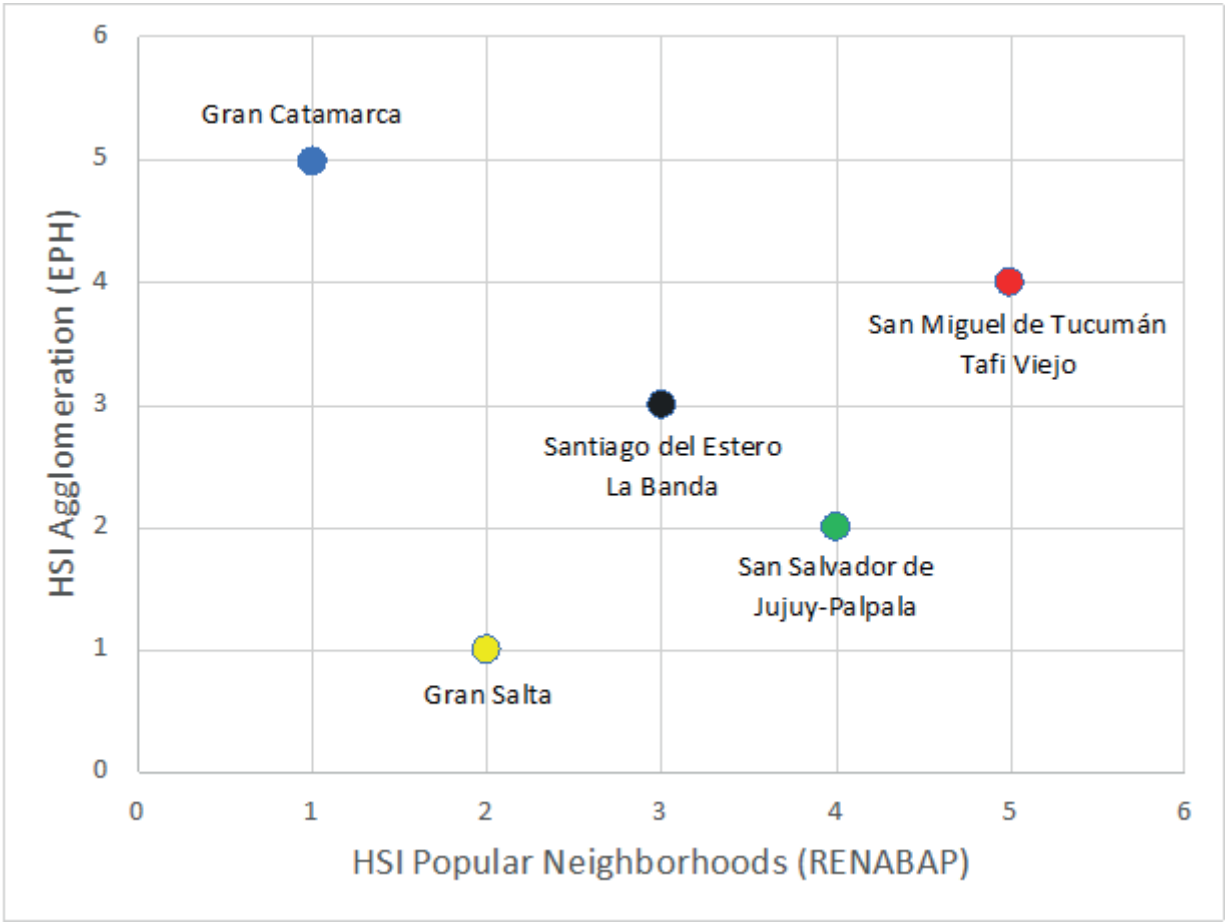

Fig. 1. Agglomeration positions in the HSI and modified HSI rankings
Source: RENABAP and EPH. Own elaboration

without them, in an agglomeration with high rates of economic poverty. The combination of both elements (the importance of informal urbanization and difficulties of the poorest strata to access basic services) explains the low position of Gran San Miguel as a whole, so close to that of its popular neighborhoods.

5. Conclusions

As we have just verified through the calculation of the HSI from the EPH statistics, access to basic services by households is far from homogeneous in the provincial capitals of the NOA. This reality is in line with other research pointing to the fact that, indeed, the levels of well-being (Mikeksen et al., 2020) or quality of life (Lucero et al., 2015; Gómez & Tarabella, 2021) differ among Argentine agglomerations, in general, and in our region in particular, based on the same sources and including access to basic services in their calculations. However, we need to consider that both the urban fabric of the provincial capitals of the NOA and the population residing there are very heterogeneous, from the point of view of infrastructure provision and housing quality, and also in the socio-economic aspect (cf. Boldrini & Malizia, 2017; Malizia et al., 2019; del Castillo, 2020). Consequently, as adequately indicated by Velázquez and Celemín (2019), the reality that emerges when the spatial unit of reference is a city as a whole is nothing but an "average", which masks very high levels of variation. This is not a new problem – it was already pointed out in the 1960s by authors such as Hagget (1965). The information is presented to us in "bundles", in administrative areas where the researcher has little room for action and which can conceal the underlying reality. However, even if this is the case, we believe the availability of measurements informing us about the average situation in each of our cities (such as our HSI, for example) is an essential tool to compare them.

Nevertheless, when the objective is to characterize households in a certain type of habitat, such as urban neighborhoods, this approach is not entirely adequate. As indicated above, even using the smallest spatial unit of reference (i.e., the census tract), there are many occasions in which two or more types of urban fabrics – and, therefore, of households – share this tract. This disadvantage can be overcome by using RENABAP, from which we can construct indicators allowing us to compare the situation of working-class neighborhoods in each of the capitals of the NOA with each other. In our case, it has been used to calculate the HSI, the results of which have allowed us to verify that, in fact, the levels of access to basic facilities are not homogeneous among the poor neighborhoods located in the regional capitals. Also, the differences in the scores are smaller than those corresponding to the agglomerations as a whole – a reality that is explained by a more homogeneous starting situation among the popular neighborhoods.

Finally, there have been found very dissimilar situations between the relative position of the agglomerations when the HSI is calculated for the total number of households and when it is calculated only for those located in popular neighborhoods. The most extreme case is that of Gran Catamarca, where the households with the best relative conditions of access to basic infrastructures can be found, but whose households located in popular neighborhoods are placed at the bottom. This finding highlights, on the one hand, the urban fragmentation referred to in the previous paragraphs – there are remarkable differences between households in our agglomerations, in this case in terms of access to basic services, which are masked when working with the totals. On the other hand, it shows that this situation becomes more pronounced the smaller the number of the most disadvantaged households is. In this sense, it should be noted that the differences in both relative positions of Gran San Miguel de Tucumán are the least sharp – this is the agglomeration where the levels of poverty, both material and economic, are the highest.

But, in any case, we believe that the use of RENABAP has proven to be a useful tool not only to characterize a type of urban fabric that, until now, was masked when traditional sources were used, but also to show that the average values – resulting from applying indices of well-being, quality of life, or housing sufficiency – effectively hide strong variations that can be now identified by using this new source.

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