Check for updates

RESEARCH ARTICLE

Borders, cross-border cooperation and depopulation: the case of the Spanish-Portuguese North-Central Border

[version 1; peer review: 2 approved, 1 approved with reservations]

PABLO PODADERA-RIVERA, FRANCISCO J. CALDERON-VAZQUEZ

Department of Applied Economics (Public Finance, Economic Policy and Political Economy), University of Malaga, Málaga, Andalusia, 29071, Spain

v1 **First published:** 20 Nov 2023, **3**:200
https://doi.org/10.12688/openreseurope.16319.1
Latest published: 20 Nov 2023, **3**:200
https://doi.org/10.12688/openreseurope.16319.1

Abstract

Background

Cross-border cooperation has been (and still is) one of the main assets of the acquis communitiare in everything that refers to cross-border development. In fact, development initiatives aimed at addressing the problems of intra-European border areas could have better results if they were concerted (horizontally coordinated) and executed jointly by the governments, national, and local actors from both border sides, to improve their populations' quality of life. The study goal is to provide new contributions that enrich critical reflection and debate on the issue of depopulation, in order to propose economic policy recommendations within a framework of cross-border institutional cooperation and inter- and intra-governmental coordination of political actors involved.

Methods

We prepared a descriptive analysis of its evolution during the period 1960-2020, with three essential variables: a) population evolution border based on the losses or gains verified with respect to 1960; b) critical population mass existing in 2020 based on the indicator of population density (inhabitants per square kilometer), and c) level of population aging based on the indicator percentage of population over 65 years of age over total population. Our descriptive analysis exclusively covers the border municipalities located along the both sides of the Spanish-Portuguese north-central border line, a total of 49 border municipalities (nine Portuguese and 40 spanish).

Open Peer Review

Approval Status ✓ ? ✓

	1	2	3
version 1 20 Nov 2023	✓ view	? view	✓ view

1. **Roberto Cippitani**, Universita degli Studi di Perugia, Perugia, Italy
2. **Mario Kölling**, Fundación Manuel Giménez Abad, Zaragoza, Spain
3. **Giovanni Ruggieri**, Universita degli Studi di Palermo, Palermo, Italy

Any reports and responses or comments on the article can be found at the end of the article.

Results

The results show the existence of this recessive demographic continuum, which extends to both sides of the border, causes the need to face the depopulating phenomenon from a transnational and European perspective, in the sense that 'national' solutions to the phenomenon will not be able to offer answers common and consistent to a phenomenon as complex as depopulation.

Conclusions

It is necessary to reinforce the existing cross-border cooperation, providing it with greater operability at the level of institutional and administrative coordination, deepening the multilevel governance of the territory.

Plain language summary

Among these imbalances that affect border areas, both depopulation and population aging appear as very current phenomena that affect many continental territories of the European Union and, in particular, border areas such as the Spanish-Portuguese Central-North border. Our work explores the relationships between the phenomenon of depopulation and the cross-border cooperation actions are carried out on the Spanish-Portuguese Central-North border.

Our work proposes a descriptive-evolutionary analysis of the situation of the border population in the period 1960–2020, taking as a territorial basis the border municipalities of the Spanish-Portuguese central-north border, covering a total of 49 border municipalities (nine Portuguese and 40 Spanish). The analysis considers three essential variables: population evolution depending on the border on the losses or gains verified with respect to 1960; critical mass of existing population in 2020 based on the indicator of population density (inhabitants per square kilometer), and level of population aging based on the indicator percentage of population over 65 years of the total population.

The final purpose of this work is to provide new materials that enrich reflection and critical debate on the issue of depopulation, in order to propose Economic Policy recommendations, within a framework of cross-border institutional cooperation and inter and intragovernmental coordination.

In this sense, the results show that the existence of a recessive demographic continuum, which extends to both sides of the Spanish-Portuguese central-north border, which causes the need to face the depopulation phenomenon from a transnational and, above all, European perspective. Since the 'national' solutions to the depopulating phenomenon will not be able to offer common and coherent answers to a problem as complex as depopulation. For this,

it is necessary to reinforce the existing cross-border cooperation, making it more operational at the level of institutional and administrative coordination, deepening the multilevel governance of the territory.

Keywords
institutional and administrative coordination, Borders, Cross-Border Cooperation, Depopulation, European Union

This article is included in the COST Actions gateway.

This article is included in the Migration collection.

Corresponding authors: PABLO PODADERA-RIVERA (ppodadera@uma.es), FRANCISCO J. CALDERON-VAZQUEZ (fjcalderon@uma.es)

Author roles: PODADERA-RIVERA P: Conceptualization, Data Curation, Investigation, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; **CALDERON-VAZQUEZ FJ**: Conceptualization, Data Curation, Investigation, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

Grant information: This project has received funding from the European Union's Framework Programme for Research & Innovation as part of the COST Action CA20123 - Intergovernmental Coordination from Local to European Governance (IGCOORD), as supported by the COST Association (European Cooperation in Science and Technology).

Copyright: © 2023 PODADERA-RIVERA P and CALDERON-VAZQUEZ FJ. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

How to cite this article: PODADERA-RIVERA P and CALDERON-VAZQUEZ FJ. **Borders, cross-border cooperation and depopulation: the case of the Spanish-Portuguese North-Central Border [version 1; peer review: 2 approved, 1 approved with reservations]** Open Research Europe 2023, **3**:200 https://doi.org/10.12688/openreseurope.16319.1

First published: 20 Nov 2023, **3**:200 https://doi.org/10.12688/openreseurope.16319.1

Introduction

The Spanish-Portuguese border, the Iberian 'Raya' (stripe) and, within it, the Central-Northern Stripe have encompassed throughout their profuse history each and every one of the border typologies, embodying both types of borders, whether 'opaque' or 'open', evolving through the centuries from a warlike and conflictual medieval past to the internal community border that it is today.

It is a secular border, since its essential demarcation is made with the Treaties of Zamora (1143), Badajoz (1267) and Alcañices (1297), if we take the latter as a reference, the Central-North Stripe has already exceeded the 725 years of existence, resulting in the oldest border in Europe.

Within the motley territorial set of the Iberian Stripe, the Central-North section of the Stripe runs along a 320km shared border, covering the Luso-Hispanic borderlands between the Autonomous Community of Castilla y Leon, the Central Region and the Portuguese North Region. At the NUTS III administrative level, the Reya Centro-Norte covers the Spanish Provinces of Salamanca and Zamora and the Portuguese Districts of Guarda[1] and Braganza[2]. At the Municipal level, from the Portuguese side, the Central-North Line runs from the Sabugal council (southern limit) to Vinhais (northern limit) and, from the Spanish side, from Navasfrias (SA) to Hermisende on the northern limit.

A common place in studies on the Central-North Raya is the problem of depopulation (Burillo, 2020; Cabero Diéguez, 1993; Cabero Diéguez, 1996; Hortelano & Mansvelt, 2017; Moreira & Rodrigues, 2000; Pascoal, 2000; Senabre, 2013), normally underlining the existence of important socio-demographic restrictions, restrictions that reach the category of "structural" (Bustos Gisbert, 2005). Given that these restrictions represent a substantive limit in the processes of territorial development (especially in the coordinates of Endogenous Development)[3], it seems opportune and significant to compare the current demographic situation of the Central-North Raya, three decades after the signing of the first agreements. of cross-border cooperation (1992), considering to what extent cross-border practices have influenced border population dynamics.

For their part, the integration processes, in general, and that of the European Union (EU), in particular, require large doses of (territorial) unity in favor of a growing economic, social and territorial cohesion, which entails major governance challenges multilevel (Podadera & Calderón, 2018), both within the different Member States and across national borders, particularly the Spanish-Portuguese North-Central border.

Study objectives

Therefore, the ultimate goal of this work is to provide new contributions that enrich critical reflection and debate on the issue of depopulation, in order to propose Economic Policy recommendations, within a framework of cross-border institutional cooperation and inter- and intra-governmental coordination. of political actors involved.

Likewise, as specific objectives, it is intended, on the one hand, to contrast the situation of the population in everything that refers to population critical mass (evolution, volume, density) and levels of aging (population over 65 years) in the Spanish-Portuguese North-Central border, and, on the other hand, verify the economic-demographic relations.

Methods

Our work could be framed in the category of research article (although it incorporates elements of review, reflection and recommendations), by proposing a descriptive analysis of the population situation in the municipalities of Spanish-Portuguese North-Central border, an analysis prepared from the collection of data from official statistical sources[4], relating the depopulation process with cross-border cooperation activities, contrasting the elements of institutional collaboration observed in the empirical evidence.

In order to contrast the situation of border population on both sides of Spanish-Portuguese North-Central border, we have prepared a descriptive analysis of its evolution during the period 1960–2020, taking into account three essential variables: a) population evolution border based on the losses or gains verified with respect to 1960; b) critical population mass existing in 2020 based on the indicator of population density (inhabitants per square kilometer) and c) level of population aging based on the indicator percentage of population over 65 years of age over total population. Our descriptive analysis covers only (and exclusively) the border municipalities located along the both sides of the Spanish-Portuguese north-central border line, a total of 49 border municipalities (nine Portuguese and 40 Spanish).

In the Spanish case, the demographic data used comes from the National Institute of Statistics (INE) specifically from each source as detailed below:

1) Official population figures from Spanish municipalities: Revision of the Municipal Register. Results: https://ine.es/dynt3/inebase/es/index.htm?padre=525; Specifically from border municipalities of Salamanca Province uni https://ine.es/jaxiT3/Tabla.htm?t=2891&L=0 and the ones from Zamora province https://ine.es/jaxiT3/Tabla.htm?t=2906&L=0.

Given the complexity of the analysis to be carried out, we have complemented the official data with the database of institutes

[1] Central Region, Beira Norte Subregion.

[2] Northern Region, subregion of Tierras de Trás-os-Montes level III (NUTS III)

[3] Recurring coordinates in the schemes of the European Regional and Cohesion Policy.

[4] The National Institute of Statistics of Spain (with data from the Censuses and Population Censuses) and the National Institute of Statistics-Statistics of Portugal (Recenseamento Geral da População and Censuses).

specialized in territorial statistics. In the specific case of the aging data of the Spanish border municipalities, we have supplemented the official data with those from the Matrix Foundation and its interactive territorial maps (https://fundacion-matrix.es/envejecimiento-poblacional-a-escala-municipal-de-spain-geographical-trends-and-associated-factors/)

In the Portuguese case, the demographic data used in the preparation of Table 1 and Table 2 come from the Statistics Portugal database of the Portuguese National Institute of Statistics (INE.pt). Specifically, for the Portuguese border municipalities the source of the original data is Population Census:

1) https://censos.ine.pt/xportal/xmain?xpgid=censos21_dados_finais&xpid=CENSOS21&xlang=pt

2) https://censos.ine.pt/xportal/xmain?xpgid=censos21_populacao&xpid=CENSOS21

As in the Spanish case, we have also complemented the official data related to population aging with data from territorially specialized statistical institutes and publications (Curbelo, 2020). The institutions involved are INE.pt and ISEG - Lisbon School of Economics & Management

Based on these sources, we have configured the generic population matrices for the period 1960–2020, including all the border municipalities (see Table 2 and Table 3) of the Central-North Raya. Given the large number of municipalities to be covered in our study, the individualized collection of data by municipality on both sides of the north-central border has required a great effort to collect data, not always as homogeneous as we would have liked, but which have allowed us to create this mosaic map encompasses a lot of information that could be improved and developed by further studies.

It is never easy to compare Spain and Portugal, even though there are so many similarities (EU members, shared past, joint future, etc.) given that both their administrative structures and their territorial organization are substantially different: While Spain today is a country Strongly decentralized, Portugal maintains high levels of centralization, with the 'Regiões' having an essentially statistical functionality (for EU statistical purposes). The axis of the Portuguese political-administrative organization is the municipality or concelho, an entity that is territorially and administratively subdivided into parishes. This term could be translated, depending on the case, as 'civil parish', 'district', 'district', or 'neighborhood'. The parish is governed by the parish council, equivalent to the Spanish town hall. As the parish is the administrative subdivision of the Portuguese municipality, it will necessarily have to be considered in any territorial analysis of Portugal. Parishes and municipalities are grouped into 'districts'.

In the Spanish case, the municipality constitutes the basic entity of the Spanish territorial organization. Municipalities can be associated in larger territorial entities with legal personality such as counties, associations, etc. There are also smaller local entities that, even presenting some similarities, would not be, in any case, equivalent to the Portuguese parishes. The municipalities are grouped into provinces (50 throughout the national territory). Each autonomous community (17 in total) is made up of one or several provinces. The set of autonomous communities (Comunidades Autonomas - CCAA) constitutes that peculiar regional unitary State or 'autonomous state' that we call Spain.

In order to carry out the Study effectively, we have taken advantage of the synergies derived from the Nomenclature of Territorial Units for Statistics (NUTS)[5] classification established by

[5] There would be three territorial levels that can be adapted to the specificities of the territorial units of each EU country: Level one (NUTS I) European Community Regions (RCE), which groups large Administrative Units; Level two (NUTS II) Basic administrative units defined by the administrative division of each community country and Level three (NUTS III) Subdivisions of the above aimed at providing detailed information for community projects and programs.

Table 1. Administrative-territorial scope of the study.

SPANISH-PORTUGUESE NORTH-CENTRAL BORDER					
Portuguese NUTS 2	NUTS 3 Number code	Portuguese NUTS 3	Spanish NUTS 3	NUTS 3 Number Code	Spanish NUTS 2
PT16 CENTRO	PT16J	Beiras e Serra da Estrela	Salamanca Province	ES415	CASTILLA-LEON ES41
PT11 NORTE	PT11D	Douro	Salamanca Province	ES415	CASTILLA-LEON ES41
PT11 NORTE	PT11E	Terras de Trás-os-Montes	Zamora Province	ES419	CASTILLA-LEON ES41

Source: authors based on Eurostat data[6]

[6] Eurostat (2022): *Statistical regions in the European Union and partner countries: NUTS and statistical regions 2021 2022.* Eurostat Manuals and guidelines. Luxembourg: Publications Office of the European Union, 2022. ISBN 978-92-76-55623-7

Table 2. CENTRAL-NORTHERN BORDER SECTION A: Portuguese districts of Guarda and Braganza / Province of Salamanca. (Autonomous Community of Castilla-Leon).

CENTRAL-NORTHERN SPANISH PORTUGESE BORDER							
DISTRICT OF GUARDA (PORTUGAL)				PROVINCE OF SALAMANCA (SPAIN)			
PORTUGUESE MUNICIPALITIES				SPANISH MUNICIPALITIES			
Municipality	Population Density[7] (H/Km²)	Evolution Population Amount (%) (1960 -2020)	Aging Level (%) > 65 (2019	Population Density (H/ Km²)	Evolution Population Amount (%) (1960 -2020	Aging Level (%) > 65 (2019	Municipality
Sabugal	12,8	-72%	37,13%	7,04	-77%	42.4	Navasfrias (SA)
				4,32	-78%	50.3	Casillas de Flores
				3.53	-85%	44.9	Alberguería Argañán
				6,10	-83%	45.7	Alamedilla
Almeida	11,2	-64%	36,14%				
				2,29	-76%	40.0	Espeja
				21,12	-12%	23.0	Fuentes de Oñoro
				2,11	-90%	57.0	Alameda de Gardón
				6,70	-65%	44.5	Aldea del Obispo
				4,77	-78%	47.2	Villar de Ciervo
Figueira Castel Rodrigo	11	-58%	31,02%	3,57	-73%	30.8	Bouza (La)
				2,11	-88%	53.2	Puerto Seguro
				4,51	-81%	44.4	Ahigal de Aceiteros
				4,37	-81%	45.3	Sobradillo
				8,04	-75%	48.2	La Fregeneda
BRAGANZA DISTRICT							
Freixo de Espada a Cinta	13.5	-55%	30,44%				
				7,43	-66%	39.8	Hinojosa de Duero
				6,41	-83%	42.0	Saucelle
				9,37	-69%	46.6	Vilvestre
				6,38	-83%	60.8	Mieza
				27,24	-64%	39.5	Aldeadávila
Mogadouro	11,1	-57%	35,5%				
				14.42	-74%	50.0	Masueco
				9,20	-71%	43.5	Pereña de la Ribera
				8,21	-47%	45.2	Villarino de los Aires
				18,2	-70%	43.4	Fermoselle (ZA)

Source: Authors based on data from INE.es and INE.pt (2022)

[7] people per sq. km of land area

Table 3. **CENTRAL-NORTHERN BORDER SECTION B: : Portuguese district of Braganza / Province of Zamora (Autonomous Community of Castilla-Leon).**

DISTRICT OF BRAGANZA (PORTUGAL)				PROVINCE OF ZAMORA (SPAIN)			
PORTUGUESE MUNICIPALITIES				SPANISH MUNICIPALITIES			
Municipality	Population Density (H/Km²)	Evolution Population Amount (%) (1960–2020)	Aging Level (%) > 65 (2019	Population Density[8] (H/Km²)	Evolution Population Amount (%) (1960–2020	Aging Level (%) > 65 (2019	Municipality
Miranda do Douro	14,0	-64%	33,47%	18,2	-70%	43.4	Fermoselle (ZA)
				4,5	-35%	49.0	Villar del Buey
				5,85	-49%	49.3	Fariza
				7,72	-64%	39.2	Torregamones
				4,64	-77%	49.3	Villardiegua la Ribera
				5,97	-57%	42.6	Fonfría
				19,65	-31%	33.7	Alcañices
Vimioso	8.4	-69%	34,63%				
				6,95	-77%	47.6	Rábano de Aliste
				9,77	-57%	40.4	Trabazos
Braganza	28,6	-11%	25,19%				
				2,33	-79%	59.4	Figueruela de Arriba
				2,81	-76%	49.7	Manzanal de Arriba
				17,59	+5%	25.0	Puebla de Sanabria
				2,48	-81%	47.5	Pedralba la Pradería
				3,01	-73%	38.1	Requejo
				2,33	-81%	49.4	Hermisende
Vinhais	11.5	-71%	42,19%				

Source: Authors based on data from INE.es and INE.pt (2022)

[8] people per sq. km of land area

the European Union for community territorial harmonization. Given that the Portuguese NUTSIII[9] would be equivalent to the Spanish provinces, the territorial map of the Study would be the following:

[9] In Portugal there are three NUTS I regions: (Continental Portugal, the Autonomous Region of the Azores and the Autonomous Region of Madeira), subdivided into seven NUTS II (North, Center, Lisbon, Alentejo, Algarve, Azores and Madeira), which in turn are subdivided into 30 NUTS III. While in Spain there are six NUTS I (groups of autonomous communities), 19 NUTSII (Autonomous Communities and Cities) and 59 NUTS III (Provinces, island councils and councils).

Analyzing economic-demographic relationships

For greater clarity and precision of the study, we have segmented the set of border territories of the Central-North Strip into two large sections. Section A (Table 2) that covers an extension of 170 km of shared border, where the border line winds along along the Portuguese-Hispanic border, separating, at the NUTS II level, the Community Autonomous Region of Castilla y Leon (ES41) from the neighboring Portuguese Central (PT16) and North (PT11) Regions, while at NUTS Level III the border separates the lands of the Spanish Province of Salamanca from the Portuguese Subregions of Beiras and Serra de Estrela (PT16J), and Douro (PT11D). Therefore, Section

A includes all the municipalities (and their Freguesías) of the Portuguese Districts of Faro and Beja, with the bordering municipalities of the Province of Huelva.

On the other side, Section B (Table 2) of the Raya Centro-Norte crosses longitudinally, along a 150 km shared border, the lands of the Autonomous Community of Castilla y Leon (ES41), bordering the North Region (PT11) Portuguese. While at NUTS III level, Section B includes the Spanish Province of Zamora (ES419), bordering the Portuguese Sub-region of Terras de Tras os Montes (PT11E). Therefore, Section B covers the Portuguese municipalities (and their parishes) of district of Braganza with the bordering municipalities of Zamora.

For an easy referenced reading of the data, we have arranged the information within the Tables in double entry format, so that each Portuguese municipality appears in a parallel line with its bordering Spanish municipalities, with which it shares the same border. The descriptive analysis follows a South-North orientation, from the municipality of Sabugal in Portugal, bordering the Hispanic municipality of Navasfrias, to the Portuguese municipality of Vinhais, bordering the municipality of Hermisende, already on the border with the Autonomous Community of Galicia. in Spain.

Results

The Spanish side of Spanish-Portuguese North-Central border

The following graphics do not seem to leave room for doubt; The collapse of the population in the Spanish border municipalities in the period 1960–2020 is very evident (Figure 1 and Figure 2), going from housing a population of almost 46,000 inhabitants to move around 16,000. For this reason, the Spanish border municipalities of the Central-North Raya face a situation of accelerated depopulation as we have verified in the descriptive analysis (Table 2 and Table 3). Within this generic people desertification panorama, we find few (or very few) exceptions; only the municipalities of Aldeadávila and Fuentes (due to their economic dynamics and their structural profiles, as we have contrasted in the analysis) show a certain resilience to the depopulating impact (Figure 3) with gains or stabilization in the period 1980–2011, although in the last decade its decline shows a worsening of the situation.

On the contrary, in the remaining municipalities the impact of depopulation is evident as traumatic. Thus, in the Figure 4 includes several border municipalities that in 1960 comfortably exceeded 1,300 inhabitants and that in 2020 move, almost all, below 500 inhabitants.

In the case of Raya Zamorana (Figure 5), the situation is similar, although we found three municipalities resilient to depopulation, as we contrasted in point 2.2, Puebla de Sanabria, Alcañices and Trabazos. Its resilience is based on its endowment of services, equipment, infrastructures and economies that make possible a certain quality of life that does not exist in other border towns, although in the last decade even the resilient ones have diminished. Figure 6 shows us the evolution of non-resilient municipalities, 5 municipalities with more than 1,000 inhabitants in 1960, which in 2020 are below 500 inhabitants, a less abrupt implosion than in the Salamanca case, but

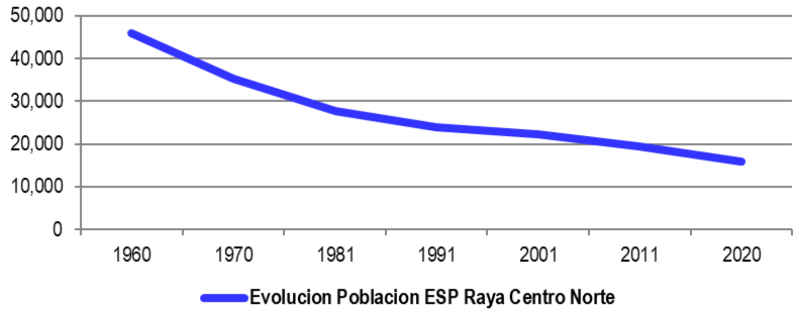

Figure 1. Evolution of the population in Spanish municipalities of the Central-North Raya (1960–202).

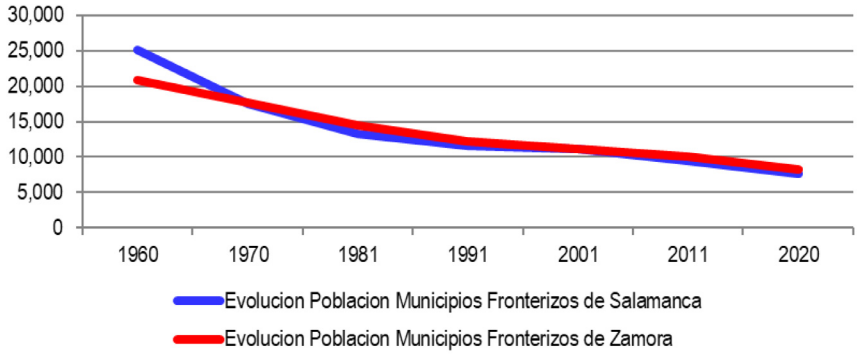

Figure 2. Evolution of the population in municipalities of Salamanca (1960–2020).

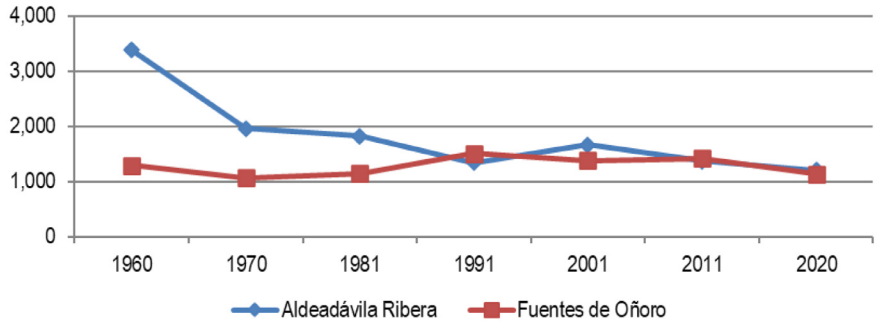

Figure 3. Evolution of the population in municipalities of Salamanca resilient to depopulation (1960–2020).

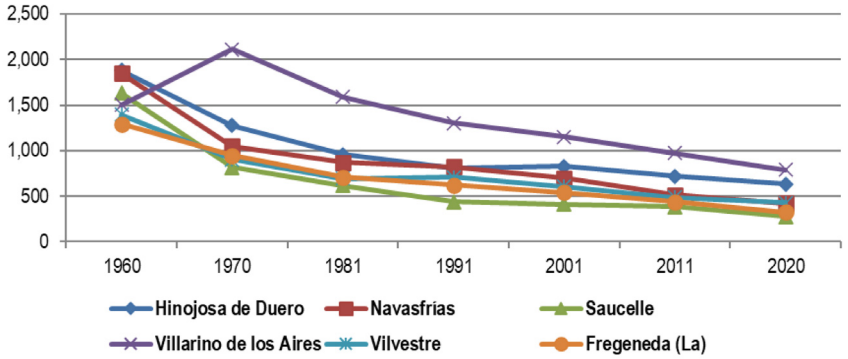

Figure 4. Evolution of the population in municipalities of Salamanca affected by depopulation (1960–2020).

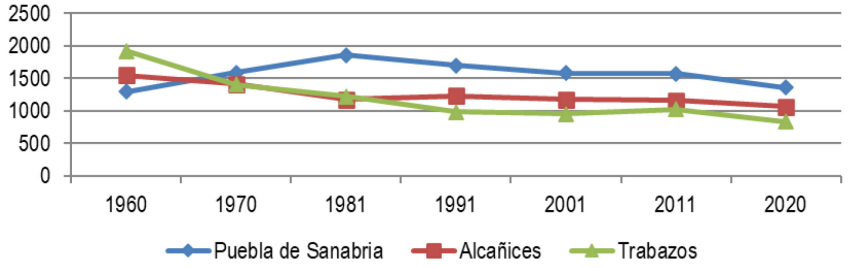

Figure 5. Evolution of the population in Zamora municipalities most resilient to depopulation (1960–2020). Source: Authors based on data from INE.es (2022).

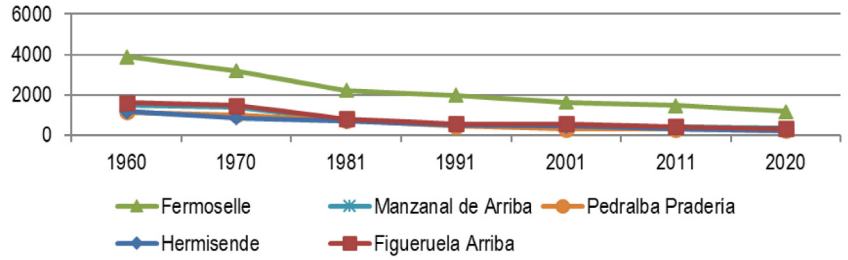

Figure 6. Evolution of the population in municipalities of Zamora affected by depopulation (1960–2020). Source: Authors based on data from INE.es (2022).

equally lethal. In addition, a certain stabilization is observed between 1991–2011, after which they slide down the slope again, leaving their population reduced to a few hundred and their uncertain future filling with shadows.

The Portuguese side of Spanish-Portuguese North-Central border

In line with the maximum, the Portuguese part of the Central-North Raya withstands depopulation pressure better than the Spanish one, although as we have verified in the descriptive analysis, the contractive trend becomes evident, as evidenced by the Figure 7, going from more than 190,000 inhabitants in 1960 to 85,000 in 2020. With the exception of Braganza, practically in all the municipalities, a reiterative pattern of more or less abrupt losses (1960–1981) as in the cases of sabugal and Vinhais, followed by a smooth and gradual decline.

Said decline is due, as evidenced by Table N. 4 (for the year 2020) to the constant erosion of population volume (via negative vegetative population growth), in all municipalities without exception. For this reason, although the Portuguese side resists the attacks of depopulation better than the Spanish one, it does not mean that it is exempt from said problems, depopulation being both a cause and an effect on the Portuguese side (Figure 8 and Figure 9).

The situation of population concentration in the municipal headquarters of the Portuguese Concelhos, which has been repeated in our analysis along the entire border line, indicates to us to what extent the current depopulation of the rural border territories (at least in the Portuguese side) seems to have a lot to do with the reassignment of the population from the most peripheral and lagging rural areas to urban centers (or with urban functions) endowed with public and private services, equipment and facilities (educational, health, administrative, financial, banks, pharmaceuticals, repair shops, shops, etc.) as well as economic activities other than agriculture. In short, the necessary cocktail for a 'better' life that, on the one hand, 'retains' the current residents, preventing them from abandoning the territory and, on the other, 'attracts' the older population to these 'urban functionality' areas. young and ready.

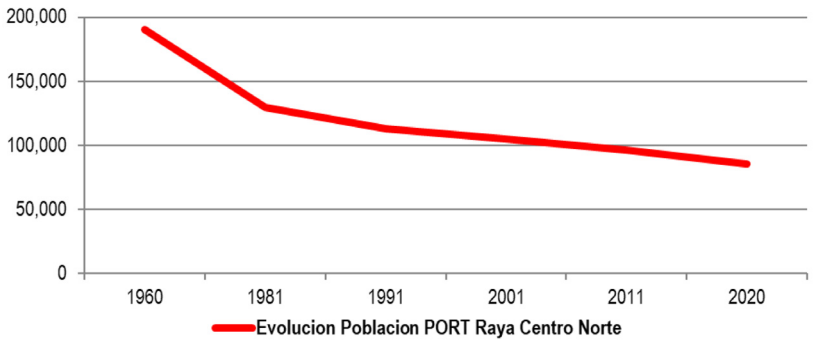

Figure 7. Evolution of the total population in Portuguese municipalities of the Central-North Line (1960–2020).

Table 4. Natural balance and migratory balance in Portuguese municipalities Raya Centro-Norte (1960–2020).

Municipality	born	Deceased	natural balance	Migratory balance	Totals
SABUGAL	48	308	-260	+200	-60
ALMEIDA	18	152	-134	+90	-44
FIGUEIRA CASTEL	36	105	-69	+72	+3
FREIXO	18	93	-75	+16	-59
MOGADOURO	36	154	-118	+12	-106
MIRANDA DO DOURO	30	124	-94	+27	-67
VIMIOSO	22	114	-92	+27	-65
BRAGANÇA	251	585	-334	+168	-166
VINHAIS	32	179	-147	+10	-137

Source: Authors. Data from https://ugeo.urbistat.com/AdminStat/en/pt/demografia/popolazione (2022)

Note: From the difference of the data of born and deceased (provided), the natural balance is obtained and from the difference of this with the migratory balance (provided) the totals are obtained.

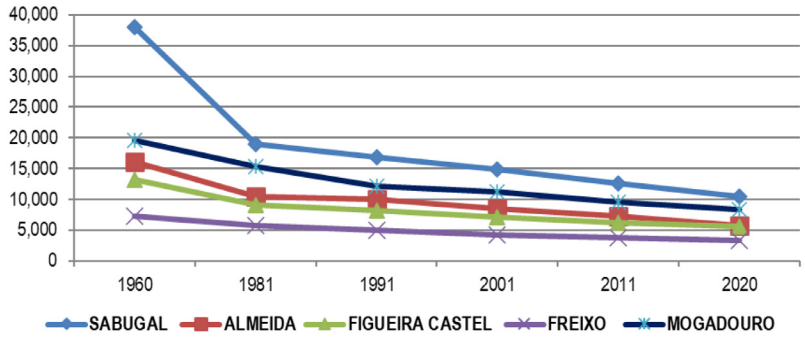

Figure 8. Population evolution of Portuguese municipalities section A Raya Center-North (1960–2020). Source: Authors based on data from INE.pt (2022).

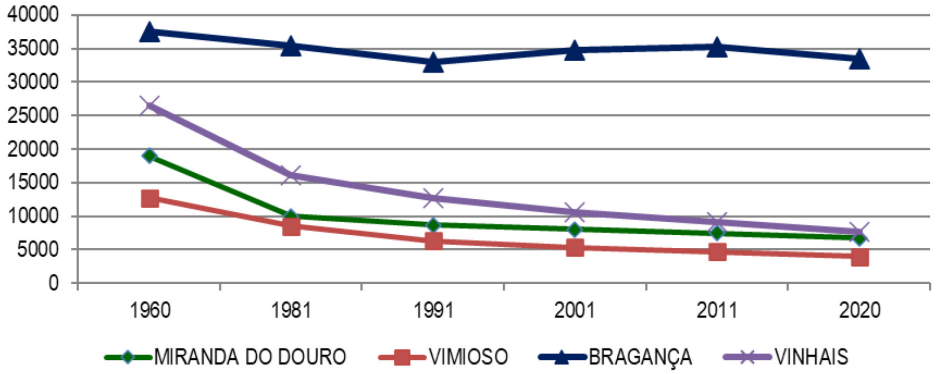

Figure 9. Population evolution of Portuguese municipalities section B Central-North line (1960–2020). Source: Authors based on data from INE.pt (2022).

This bet of the Portuguese State for the border urban or pseudo-urban areas used to either 'anchor' the population, or a significant part to the border territory, seems clear in the case of Braganza and the respective municipal headquarters. Certainly, said strategy omits rural areas and border parishes for which only cost-reducing administrative instruments (such as Unions of Parishes) seem to be considered. On the Spanish side, it does not seem that there is anything similar or close to a state strategy comparable to the Portuguese one (even with all its shadows). What we have verified in the descriptive analysis is a wide casuistry where municipalities, associations, counties and councils try to carry out territorial, cross-border or local development initiatives normally oriented towards territorial tourism development.

In fact, the turn towards tourist activities (with greater intensity and results on the Spanish side), quite contrasting in our analysis, seems to be consolidating along the entire border line, which has in its historical past and in its rich ecological context -natural great assets for the future. The accumulation of important natural, environmental, historical-artistic, eno-gastronomic, cultural and anthropological resources along the entire Central-North Stripe make it a tourist destination with high potential.

In this sense, the accumulation of environmental resources (Douro International Natural Park, Arribes do Duero Natural Park, Special Protection Areas for Birds (ZEPA), Special Conservation Areas (ZEC) of the Natura 2000 Network; Reserve of the Meseta Ibérica Cross-border Biosphere (Unesco; Malcata Natural Reserve, 'El Rebollar' Natural Area among others) is simply extraordinary, a natural, environmental and landscape treasure of great economic significance that enables the implementation of various tourist varieties (Rural Tourism, Environmental , Fluvial with nautical uses, fluvial beaches, etc.). Resources that, like powerful magnetic fields, can attract thousands of visitors, configuring the subsequent tourist demand whose needs have to be met by the offer (accommodation, gastronomy, restaurants, transport, personal services, etc.).

All this traffic of tertiary activities generates investment, employment and income that, at the local level, complements the primary agricultural activities, the traditional economic base, generating new horizons of activity. A different question is that this type of activity can offer the necessary productive base for population regeneration, which for the purposes of our study would be really interesting. It is still early to pronounce, but the data does not seem to indicate that the implementation of these activities per se is slowing down depopulation or enabling

the arrival of new residents to the border municipalities to offset their negative vegetative growth. However, it is necessary to say that they can help (and a lot) to change mentality and to get out of that emotional situation of "resignation" and "lethargy" that seems to have dominated the social climate on the Hispanic side until recently. The territorial implementation of Tourism also seems to show the commitment of local and regional institutions to a territory abandoned to its fate until very recently, which is an indication that "something" is changing.

In any case, the few Spanish municipalities with the greatest resilience present a very specific profile: Strategic location, with good road and communication infrastructures that allow for better comparative accessibility, together with good provisions of public and private services for the population (educational health, security, legal) and facilities (schools, health and care centers, business parks, supermarkets, shops, banks, pharmacies, etc.). Along with all this, a diversified local economy coexists with a range of activities beyond traditional agriculture and job creation. In short, the nuclei with the greatest resilience are those with the highest quality of life, the most economically active and the referents in the territorial hierarchy of reference, which is very important with a view to possible future projections of the border territory and the design of policies. and countercyclical interventions against depopulation.

Although, as we have seen, depopulation is a common phenomenon on both sides of the border, producing in many cases this 'recessive demographic continuity', its impact seems to be much more intense on the Spanish side, where it reaches extreme values, as evidenced in Table 5. For this reason, to be exact, rather than depopulation, we should talk about desertification: a territory submerged in an advanced desertification process that needs economic and social institutional responses, to try to address the challenges that go beyond beyond the depopulation evidenced in our analysis.

In this particularly difficult context, since depopulation is a structural problem that conditions all aspects of life in these border territories, the implementation of cross-border administrative and institutional collaboration acquires fundamental importance, providing a multilevel system that requires the communitarization of Intergovernmental Relations (RIG) of each national territory, as well as of the public management of interdependent actions at the border within the framework of intergovernmental management (GIG) (Agranoff, 1993; Elazar, 1987; Rose, 1984; Rose, 1985; Wright, 1981). In this way, it will be possible to respond to functional needs at community borders in a coordinated manner (both horizontally and vertically), effectively and legitimately.

Cross-border institutional and administrative coordination: The case of the border between Castilla-León (Spain) and the Central and North regions of Portugal

Cross border cooperation. We cannot omit the enormous relevance that cross border cooperation (CBC) has acquired today (About its definition, theoretical approach and role of individuals, see Table 6, Table 7, Table 8). As such a tool, aimed at overcoming border problems, the CBC has experienced great

Table 5. Summary Spanish Municipalities of Spanish-Portuguese North-Central border.

Densities h/km					
Province	**Municipalities**	**-5h/km**	**-10h/km**	**+10h/km**	**+20**
Salamanca	22	9	10	1	2
Zamora	15	7	5	3	0
TOTAL	**37**	**16**	**15**	**4**	**2**
Population losses compared to 1960 Census					
Province	**Municipalities**	**+70%**	**+80%**	**+50**	**-50**
Salamanca	22	8	8	4	2
Zamora	15	6	2	4	3
TOTAL	**37**	**14**	**10**	**8**	**5**
Percentage of population over 65 years of age as a total population					
Province	**Municipalities**	**+40%**	**+50**	**-40**	**-25**
Salamanca	22	11	5	4	1
Zamora	15	10	1	3	1
TOTAL	**37**	**21**	**6**	**7**	**2**

Source: Authors. Data from INE (2022)

Table 6. Definitions of cross border cooperation.

"European Framework Agreement on Cross-border Cooperation between Communities or Territorial Authorities" Art 2 (EOC-Tco, 1980)	"any concerted action aimed at reinforcing and developing neighborly relations between communities or territorial authorities[10] that belong to two or more contracting parties, as well as the celebration of agreements and appropriate arrangements for this purpose...".
Association of European Border Regions (AEBR and European Commission) (1997)	"direct neighborhood cooperation between regional and local institutions along a border, in all spheres of life and with the participation of all actors"
Perkmann (2003: 157)	"a collaboration between subnational authorities beyond national border limits"

Source: Podadera y Calderón (2018)

[10] "Communities or territorial authorities" are understood to be the organizations that perform local or regional functions and that are considered as such in the internal law of each State" (EOC-Tco, 1980).

Table 7. Theoretical approach.

Approach	Theoretical Context	Vision of the Border
CROSS-BORDER APPROACH	Institutionalism	Borders as walls or barriers on one side and as bridges or contact zones on the other, offering opportunities for mutual understanding and integration. cross-border cooperation is seen as a common virtue.
FLOW APPROACH	Rational Choice Theories and Neoclassical Economics	Borders as obstacles to economic efficiency. By generating obstacles of physical distance, borders increase interaction costs, interrupting or hindering activity flows (Nijkamp *et al.* (1990)
SOCIO-CULTURAL APPROACH (People Approach)	Social-Constructivismo	Borders (and border regions) are social constructions that are the result of processes of mental and symbolic creation carried out by different cross-border actors. The distinction between "us" and "them" or "others" is fundamental in the formation of the different border "identities", creating those "mental distances" that are constantly produced and reproduced (Boman, 2005).

Source: Podadera y Calderón (2018)

Table 8. Roles of individuals in cross border cooperation (CBC).

CROSS-BORDER APPROACH	"homo contractis" (Van Houtum, 2000: 64) individual or group that previously develops contacts that will lead them to conclude agreements and contracts aimed at satisfying their needs, later. Simultaneously, it is exploring new territories and opportunities in order to generate new contact and contract cycles.
FLOW APPROACH	"homo economicus", profit maximizer and cost minimizer, so it will only have a favorable attitude towards cross-border cooperation if there is a gain or advantage in adopting said collective behavior (Hernandez Ulate *et al.*, 2009).
SOCIO-CULTURAL APPROACH	"homo socialis" so that their group perceptions (positive or negative) about the CBC will be conditioned by the mutations that constantly take place in their changing "identity"

Source: Podadera y Calderón (2018)

expansion in recent decades (AEBR & EC, 1997), spreading both through the internal borders of the European Union[11] and through the external ones, reaching, based on the European experience, "those territories that had not spontaneously experienced this form of cooperation" (Coletti, 2010: 160), even reaching the point of expanding the CBC to other continents (Perkmann & Sum, 2002; Rhi-Sausi & Conato, 2009).

From a theoretical-conceptual perspective, Van Houtum (2000), places cross-border cooperation within the so-called cross-border

[11] Along the Union's internal and external borders, 185 cross-border cooperation structures have been created, most of them Euroregions and 22 Territorial Cooperation Groups (EC, 2000).

approach, a perspective that poses a dual or ambiguous vision of borders (either bridges or walls) for which positive management is essential. of them in the sense that they must be overcome: the borders "can be overcome and should be overcome" (Van Houtum, 2000: 64), since the effects of overcoming the barrier effect will be very positive, particularly within of the territory of the European Union.

This cross-border 'optimism' is not shared by the so-called Socio-Cultural Approach (Berg, 2000; Paasi, 1999; Wilson & Donnan, 1998) of border studies, an approach that does not consider borders as mere political lines of separation set by the state but rather "territorial markers" that delimit the physical space controlled by human groups of different identity and nationality (Van Houtum, 2000:68), emphasizing the "national identity" and the emotional ties of each community with "its" territory. Identity that conditions human and social perceptions (not necessarily positive), of each community in relation to interactions with human groups beyond the border and, obviously, of cross-border cooperation.

Nor could the rise of the cross-border current of thought and its current dominant position, within border studies, be separated from the process of European integration that has given rise to the current EU. In these coordinates, cross-border cooperation has proven to be a basic instrument in the construction of that Europe "without borders" and cohesive, narrative, more or less rhetorical (O'Dowd & Wilson, 1996), more or less romantic (Von Malchus, 1975) that has fueled the process of European integration. Therefore, it is not surprising that in the EU coordinates the CBC is considered a kind of "common good", by eliminating both physical discontinuities and economic-fiscal, legal and cultural disparities between the two sides of the same border.

Hence, the emphasis that from the cross-border approach is given to the role played by the political-economic initiatives of the EU and, very specifically, to the support of programs such as INTERREG or the emergence of the various cross-border entities such as the Euroregions (https://www.euroregio.eu/en/), a fundamental element of the so-called 'Europe of the regions' (another of the great narratives of the integration process) and to a greater or lesser extent referents to follow by cross-border initiatives (Scott & Collins, 1997). Through cross-border cooperation embodied in the Euroregions, the border regions they go from being "passive spaces" on the European economic map to "active spaces" "key areas for crossborder policy development" (Van Houtum, 2000: 64), integral parts of the resulting European economic transnational network (Nijkamp, 1993). In the Euroregions, the institutionalization of the CBC has been achieved, which has allowed an effective and long-term projection of the initiatives promoted (Coletti, 2010).

It should not be omitted from this 'success' story that the first experiences of cross-border cooperation in Europe arose in the mid-50s at the initiative of the municipal governments of the borders between the Netherlands and Germany, creating the so-called Euroregio Gronau-Emschede (1958), while at the initiative of economic and social agents, the cities of Basel (Switzerland), Mulhouse (France) and Friburg (Germany) led to the creation of the Regio Basilensis (1963). For this reason, institutionalized cross-border cooperation, as such "social innovation", arises in settled, peaceful, urbanized and populated border areas, that is, already "developed", where many elements of socioeconomic complementarity and cross-border continuity pre-existed, giving rise to a kind of cross-border regional awareness (CE, 2000, Op. Cit.). This was not the case with other European borders, such as the Iberian, Hellenic, Italian-Slovenian, Balkanic or other Central-Eastern European borders (Maya, 2007), asymmetric, rural, peripheral, unpopulated, heterogeneous or contested and insecure borders. Borders where that practical socio-economic homogeneity does not occur, nor that, to a greater or lesser extent, cultural continuity. Therefore, in principle, the preconditions did not exist to achieve smooth and successful cross-border cooperation.

The Institutional organization of cross-border cooperation between the Autonomous Community of Castilla-Leon and the Central and Northern Portuguese Regions

Coinciding with the incorporation of Spain to the Council of Europe, the Treaty of Friendship and Cooperation between Spain and Portugal was signed in 1977, aimed at strengthening the ties of friendship and solidarity between the two countries, based on common interests. Simultaneously, 'cross-border cooperation' begins to be seen, referring to closer cooperation between territorial entities of Spain and Portugal, located in the border area, and which do not have competences in foreign relations.

In order to articulate the relations between these entities, within the Council of Europe the European Framework Convention for Cross-border Cooperation between Communities or Territorial Authorities was drafted in 1980, which was ratified by Spain in 1990. Following its stipulations, in 2004 the Treaty of Kingdom of Spain and the Portuguese Republic on cross-border cooperation between entities and territorial instances, commonly known as the Treaty of Valencia[12].

With the accession of Spain and Portugal to the European Union (1986) and the consequent disappearance of internal borders, relations between Spain and Portugal are intensifying from an institutional and socioeconomic point of view, contributing significantly to the emerging CBC that, little by little, is going to densify and deepen the Spanish-Portuguese relations at the regional, regional and local level. In this pro-cooperatio context with the Declarations, the Government of Castilla y León formally began its cooperation relations with the Northern Region of Portugal and the Central Region, respectively.

[12] The Treaty of Valencia establishes the purpose and territorial scope of cross-border cooperation with Portugal, the legal regime, the content and law applicable to cross-border cooperation agreements, as well as the regulations applicable to cooperation agencies.

The formalization of the first manifestations of the CBC between the Autonomous Community of Castilla y León and the bordering Portuguese regions of the North and Center of Portugal began in 1990 with the signing of the Declarations of intent in this regard. In 1995, these relations were institutionalized by signing the Collaboration Protocols between the Spanish CCAA of Castilla y León with the Northern and Central regions of Portugal, respectively, giving rise to the constitution of two stable structures for the CBC: the Castilla y León Work Community. León-Centro de Portugal (1995) and the Community of Castilla y León-Norte de Portugal in the year 2000.

The Castilla y León-Centro de Portugal and Castilla y León-Norte de Portugal Work Communities are stable cross-border cooperation structures that link both territories and promote neighborly relations, recognizing the important historical, cultural, economic and geographical ties that unite them. With it, it is intended to contribute to the sustainable development of the territory of the ray and to favor the improvement of the living conditions of the citizens.

The entry into force of the Treaty of Valencia in 2004 will require the adaptation of the legal instruments that to date supported the cooperation relations between Castilla y León and the Portuguese regions of the Center and North of Portugal, signing the adaptation agreements with both regions in 2008 and 2009, respectively.

In 2009, a qualitative step was taken in the relations between Castilla y León and Portugal with the signing of the Memorandum of Understanding on Cross-border Cooperation between the Ministry of the Environment, Territory Planning and Regional Development of the Government of Portugal and the Junta de Castilla y León. It is the first of these characteristics to be signed between the Government of Portugal and a Spanish Autonomous Community.

Organization and structure of work communities

A) Castilla y León-Central Portugal Work Community (CENCYL). The Castilla y León-Centro de Portugal Work Community is a body without legal personality, which is organized into (Source): Presidency (including the Vice-Presidency), Plenary Council, Board of Directors, Secretariat and Sectoral Committees.

The Presidency is alternative, corresponding either to the Coordination and Regional Development Commission of the Portuguese Center (CCDRC), or to the Junta de Castilla y León, exercising the Vice Presidency that entity that does not hold the Presidency.

The Plenary Council is the plenary body of the Work Community, integrating the Presidency and the representatives of the Sectoral Committees. Meeting in plenary session, they approve the general action program of the Work Community and the biannual activity report.

The Board of Directors ensures the continuity of the activities of the Work Community. It integrates the Presidency and the General Coordinators. For its part, the Secretariat is ensured by the Cabinet of Cross-Border Initiatives (GIT)[13], a technical structure that has antennas in the headquarters of both regional governments.

Finally, the Sectoral and Territorial Committees bring together the political and administrative managers of the two regions, and representatives of other public and private organizations and entities, so that they can work in an organized manner on cross-border cooperation projects in the following thematic areas:

- Transport and Territorial Planning
- Natural, Cultural and Tourism Heritage
- Competitiveness and Innovation
- Promotion and Social Development
- [Territorial Committee] Salamanca-Beira Interior North

Regarding the cross-border cooperation activities carried out in this Work Community, it is worth noting, according to CENCYL[14]:

➢ Cross-border cooperation micro-initiatives, which are those that have arisen in the eligible territory of both regions that, due to their financial dimension and the nature of their promoters, are not likely to submit an application for European territorial cooperation programs (language courses and other cultural events)

➢ Sectoral meetings. These are meetings of representatives of public administrations with competences in a specific matter, researchers, experts, agents and other representatives of civil society. Convened under the name of conferences, workshops, forums, their purpose is the coordination of initiatives, projects and action proposals for cooperation and exchange of experiences, as well as the increase in the number of cooperation projects, and the number of inhabitants of both regions benefited by these initiatives.

[13] In 1998, the Junta de Castilla y León created the GIT, a technical office for cross-border cooperation between Castilla y León and the neighboring regions of the Center and North of Portugal. Since its creation, the GIT has received financial support from the European Union through the ERDF, through the operational program for cross-border cooperation (INTERREG). The Castilla y León GIT works in coordination with the Divisão de Coordenação de Projetos e Redes Institucionais (Northern Portugal) and the Office of Cross-Border Initiatives (Central Portugal), to guarantee fluid relations in the field of cooperation cross-border Since 2019, the GIT is organically attached to the Ministry of Transparency, Territorial Planning and Foreign Action, of the Junta de Castilla y León. In Portugal, these cooperation offices depend on the headquarters of the respective regional governments.

[14] https://www.cencyl.eu/comunidad-trabajo-centro/la-comunidad-trabajo/

- Technical conferences, identification workshops, seminars or meetings on Cross-Border Context Costs or "those derived from the application of provisions established in regulations or other legal instruments, whose control corresponds exclusively to governmental or public entities or institutions and whose application includes the border territory between Spain and Portugal" (CENCYL 2020)[15].

- Publications and Exhibitions

The Castilla y León-Central Portugal Work Community has a catalog of publications on cross-border issues. It also has photographic collections that it gives out free of charge to entities that request it to be exhibited in towns in Castilla y León, North and Central Portugal, in order to disseminate landscape, ethnographic or other aspects of La Raya.

B) Castilla y León-North Portugal Work Community (NORCYL). The Castilla y León-North Portugal Work Community (NORCYL) is a body without legal personality, formally constituted in the year 2000 by both regions. Its structure and organization are quite similar to CENCYL.

The Work Community is structured in: Presidency (including the Vice Presidency), Plenary Council, Board of Directors, Secretariat and Sectoral Committees. The Presidency is, alternatively, falling either to the Commission for Coordination and Regional Development of the North (CCDRN), or to the Junta de Castilla y León, exercising the Vice Presidency that entity that does not hold the Presidency.

The Plenary Council is the plenary body of the Work Community, integrating the Presidency and the representatives of the Sectoral Committees. Meeting in plenary session, they approve the general action program of the Work Community and the biannual activity report.

The Board of Directors ensures the continuity of the activities of the Work Community. It integrates the Presidency and the General Coordinators. For its part, the Secretariat is ensured by the Cabinet of Cross-Border Initiatives (GIT) of Castilla y León, and the Divisão de Coordenação de Projetos e Redes Institucionalis del Norte de Portugal, whose mission is to support the functioning of the Work Community.

The Sectoral and Territorial Committees bring together the political and administrative managers of the two regions, and representatives of other agencies and public and private entities, so that they can work in an organized manner on cross-border cooperation projects in the following thematic areas:

- Competitiveness, Innovation, Employment and Training

- Natural Heritage, Cultural Heritage and Tourism

- Accessibility, Logistics and Territorial Planning

- Institutional cooperation and social policies

- Structuring project "Duero-Douro"

- [Territorial Committee] Braganza-Zamora, Salamanca-Douro Superior, Duero-Douro, Zasnet

The cross-border cooperation activities of this Work Community (NORCYL)[16] are very similar to those of CENCYL (Micro-initiatives, Meetings, Context Costs, Publications and Exhibitions).

Both Work Communities have promoted the Fronteira Project for the institutional strengthening of the work communities themselves. Finally, both Communities, Norcyl and Cencyl, have expressed their willingness to join REDCOT[17], along with some thirty entities with a similar vocation: Work Communities, European Groupings for Territorial Cooperation (EGTC), cross-border EURES, Eurocities, among others.

Discussion

As we have been able to verify, the CBC of the Central and Northern Regions of Portugal with the Autonomous Community of Castilla y León appears clearly oriented towards the connection between local administrations, at the regional and municipal level, to their daily joint work, to the forum, to the debate, to the cultural approximation (in all its senses, linguistic, literary, gastronomic, landscape, anthropological, etc.) to the other side of the Border, to the knowledge of the environment and of the resources of the territory, the culture and identity of the 'other'. In short, a CBC basically oriented towards contact (and meeting) between administrations and border populations (regional, provincial and municipal) and to the revitalization of the border context, but very little oriented towards solving specific problems; and if we put it in relation to a structural, difficult and complex problem such as depopulation, the CBC is simply overwhelmed.

It is interesting and significant the effort of territorial diffusion that with respect to the theme of depopulation has been carried out from the local instances (local administrations, territorial associations, etc.) in the cross-border area. In this sense, numerous initiatives and proposals come from the Castilian-Leonese-central-northern cross-border area, from the Vilar Formoso-Fuentes de Oñoro Eurocity (García, 2019), to the 'Memorandum of understanding to adopt an Iberian strategy against depopulation and aging in the border area

[15] https://www.cencyl.eu/actividades-cooperacion/encuentros-sectoriales/

[16] https://www.norcyl.eu

[17] Spain and Portugal have formalized on February 1 the creation of the Cross-Border Cooperation Network (REDCOT) to strengthen the articulation and collaboration of entities on both sides of the Raya. In this way, the commitment assumed by both countries at the XXXIII Iberian Summit held in Viana do Castelo on November 4, 2022 was formalized. In it, the need to strengthen cross-border cooperation to respond and solve specific problems in border regions in various fields.

(Martínez, 2020) resulting from the 2018 Hispano-Lusa summit, or the "Declaration of Urgency of the Celtic Strip" (Zamora News, 2021), promoted by cross-border associations such as Viriatos and La Raya- To Raia, claiming, given the magnitude of the demographic problem, an Integrated Territorial Investment[18], so that all European funds can be brought together, promoting participatory local development and the prominence of local action groups. For the execution of this Integrated Territorial Investment, each State should organize a multilevel governance system based on four pillars: public, regional and local authorities; economic and social partners; civil society organizations and research organizations and universities.

For its part, considering the limits of the study carried out, It is never easy to compare Spain and Portugal, even though there are so many similarities (EU members, shared past, joint future, etc.) given that both their administrative structures and their territorial organization are substantially different: While Spain today is a country Strongly decentralized, Portugal maintains high levels of centralization, with the 'Regiões' having an essentially statistical functionality (for EU statistical purposes).

For this reason, in order to carry out the Study effectively, we have taken advantage of the synergies derived from the Nomenclature of Territorial Units for Statistics (NUTS), which allows us to harmonize the territory under study, given that the Portuguese NUTSIII would be equivalent to the Spanish provinces (see Table 1)

In this particularly difficult context, since depopulation is a structural problem that conditions all aspects of life in these border territories, the implementation of cross-border administrative and institutional collaboration acquires fundamental importance, providing a multilevel system (Faludi, 2012) that requires the communitarization of Intergovernmental Relations (RIG) (Agranoff, 2010; Phillimore, 2013) of each national territory, as well as of the public management of interdependent actions at the border within the framework of intergovernmental management (GIG). In this way, it will be possible to respond to functional needs at community borders in a coordinated manner (both horizontally and vertically), effectively and legitimately.

Conclusions

The analysis of the empirical evidence of institutional coordination in the cross-border area of the Castilian-Leonese borders with the Central and North regions of Portugal, shows a preferably relational and contact orientation, but little oriented to the resolution of the structural problems that affect to the cross-border territory, as the case of depopulation.

In this sense, cross-border cooperation between both sides of the border has been generating a network of joint institutional interactions (Working Communities, Initiative Groups, Joint Municipal Associations...) between the territorial administrations, aimed fundamentally at mutual understanding and facilitation of daily cross-border contacts, where intergovernance is still very incipient, lacking the operational dimension so necessary in modern management schemes in territories as complicated as borders.

The results of the study carried out show a very complicated demographic situation in terms of the loss of population with respect to the base year of 1960, wich tends to exceed, in many cases, 60% of the entire population, evidenced in the low population densities observed along the entire border line and also observing in high levels of aging.

Likewise, the study evidences the existence of a recessive continuum on both sides of the border with sparsely populated territories with a scarce and aged population critical mass, a situation derived both from both: the serious population losses observed since 1960, and the net predominance of deaths over births. All of the above is mainly related to sectoral economic specialization and, therefore, to the economic progression of the territory.

The existence of this recessive demographic continuum, which extends to both sides of the border, causes the need to face the depopulating phenomenon from a transnational (and European) perspective, in the sense that 'national' solutions to borderland depopulation will not be able to offer consistent answers to a phenomenon as complex as depopulation. For this, it is necessary to reinforce the existing cross-border cooperation, providing it with greater operability at the level of institutional and administrative coordination, deepening the multilevel governance of the territory.

So far, only territorial dissemination and awareness actions have been observed regarding the issue of depopulation, carried out from local authorities (City Halls, Chambers, business associations...). But such suggestive initiatives must have operational continuity: knowledge of the problems that affect the territory is very important, but it is equally important to offer concrete solutions.

Data availability

The data used in this study was obtained from public databases including the National Institute of Statistics (INE) and the Statistics Portugal database of the Portuguese National Institute of Statistics (INE.pt) as outlined in the methods section.

The References section specifies the source of information for these data based on the publication of Curvelo (2020): https://www.jornaldenegocios.pt/economia and within this go to: https://www.jornaldenegocios.pt/economia/detalhe/em-quase-metade-dos-concelhos-25-da-populacao-e-idosa-veja-no-mapa-a-situacao-no-seu

The institutions involved are INE.pt and ISEG - Lisbon School of Economics & Management

[18] Regulation (EU) 2021/1060 where very sparsely populated areas are established as those with less than 8 inhabitants/km, applying only in outermost regions and Lapland according to Protocol number 6 of the 1994 Act of Accession.

References

AEBR and European Commission: **Practical Guide to Cross-Border Cooperation**. Enschede: AEBR, 1997.
Reference Source

Agranoff R: **Las relaciones intergubernamentales y el Estado de las Autonomías.** *Política y Sociedad.* 1993; **13**: 87–106.
Reference Source

Agranoff R: **Toward an emergent theory of IGR governance at the drawn of the network era**. En: ONGARO, E., MASSEY, A. *et al., Governance and Intergovernmental Relations in the European Union and United States. Theoretical Perspectives*. Edward Elgar. Cheltenham, UK- Northampton, MA USA, 2010.

Berg E: **'Border Crossing' in Manifest Perceptions and Actual Needs**. In: M. van der Velde and H. van Houtum (Eds.), *Borders, Regions, and People*. London: Pion, 2000; 154–65.

Boman J: **Identity and institutions shaping cross-border cooperation: A comparativestudy of cross-border cooperation in the Estonian-Russian and Romanian-Moldovan bor-derlands (Tesis)**. University of Tartu, Estonia, 2005.

Burillo Mozota F: **Un Trato Justo para la España Despoblada.** *Argumentos Socialistas.* 2020; **37**.
Reference Source

Bustos Gisbert ML: **Envejecimiento Y despoblación. Dos Problemas básicos para la revitalización De La Sierra De Francia (Salamanca).** In: *Boletín de la Asociación de Geógrafos Españoles.* n.º 40 (1). Madrid, Spain. 2005; 135–151.
Reference Source

Cabero Dieguez V: **Estudio Regional de la zona fronteriza de Salamanca con Portugal**. En: Sánchez López, F. (Ed.), *El Programa transfronterizo de España y Portugal*. Jornadas de Estudio, Salamanca 28-30 de enero de 1993, Salamanca, Desarrollo y Fronteras, Instituto de Recursos Naturales y Agrobiología, C.S.I.C, 1993; 64–82.

Cabero Dieguez V: **EI espacio fronterizo de Salamanca con Portugal. Una aproximación geográfica y socioeconómica.** In: *Raya/Raia. Revista hispano-portuguesa de desarrollo transfronterizo.* Badajoz, Departamento de Geografía y Ordenación del Territorio de la Universidad de Extremadura, 1996; 99–111.

CE: **Guía práctica de la cooperación transfronteriza [Practical Guide toCross-Border Cooperation]. Tercera Edición**. Gronau: Asociación de Regiones Fronterizas Europeas (ARFE), 2000.

Coletti R: **Cooperación transfronteriza y trayectorias de desarrollo: aprendizajes de la experiencia europea [Cross-Border Cooperation and Development Paths: Learning from theEuropean Experience].** *Si somos americanos. Revista de Estudios Transfronterizos.* 2010; **10**(1): 154–73.
Reference Source

Council of Europe: **European Outline Convention on Transfrontier Co-operation between Territorial Communities or Authorities.** Madrid, 21.V.1980. European Treaty Series-No. 106. 1980.
Reference Source

Curbelo P: **Em quase metade dos concelhos 25% da população é idosa".** *Jornal de Negocios.* 2020; Accessed April 15, 2023.
Reference Source

Elazar DJ: **Exploring federalism**. Tuscaloosa, University of Alabama Press, 1987.
Reference Source

Faludi A: **Multi-Level (Territorial) Governance: Three Criticisms.** *Plan Theory Pract.* 2012; **13**(2): 197–211.
Publisher Full Text

García C: **Una Eurociudad contra la despoblación, nuevo reto de La Raya hispanolusa**. En: *diario EUROEFE- EURACTIV*. edicion electronica del dia 6 dic 2019. 2019; Accessed April 4, 2023.
Reference Source

Hernández Ulate A, López Ramírez A, Jiménez Elizondo A: **Gobernabilidad e institu-ciones en las Cuencas transfronterizas de América Central y México [Governance and Institutionsin the Transboundary Basins of Central America and Mexico]**. San José: FLACSO, 2009.
Reference Source

Hortelano Mínguez LA, Mansvelt Beck J: **El Desarrollo Local y la Cooperación Transfronteriza en la Raya de Castilla y León.** *Polígonos Revista de Geografía.* 2017; **29**: 37–60.
Publisher Full Text

Martinez S: **¿Cómo reflotar La Raya: el fracaso eterno que sigue alejando a España y Portugal?** En *Diario La Informacion*. edicion del 04/7/2020). 2020; Accessed April 7, 2023.
Reference Source

Maya A: **Las políticas e instrumentos de cooperación transfronteriza en la Unión Europea [Policies and Instruments for Cross-Border Cooperation in the European Union]**. En Lorenzo López Trigal (Coord), *Fronteras Europeas y Latinoamericanas. De la geohistoria y los conflictos a los procesos de cooperación e integración. [European and Latin American Borders. From Geohistory and Conflicts to the Processes of Cooperation and Integration]*. León: Universidad de León, 2007; 57–96.

Moreira MJ, Rodrigues T: **A especificidade demográfica da fronteira luso-espanhola. O exemplo de Bragança e Zamora (1860-1991)**. *População e Sociedade*. (I Encontro Jntemacional Relações Portugal-Espanha. Cooperação e Identidade, Zamora, 1 e 2 de Outubro de 1999), Porto, C.E.P.E.S.E - Centro de Estudos da População Economia e Sociedade, 2000; **6**: 51–71.
Reference Source

Nijkamp P: **Towards a Network of Regions: The United States of Europe.** *Eur Plan Stud.* 1993; **1**(2): 149–68.
Publisher Full Text

Nijkamp P, Rietveld P, Salomon I: **Barriers in spatial interactions and communications. A conceptual exploration.** *Ann Reg Sci.* 1990; **24**(4): 237–252.
Publisher Full Text

O'Dowd L, Wilson TM: **Borders, Nations, and States: Frontiers of Sovereignty in the New Europe**. Aldershot: Avebury, 1996.
Reference Source

Paasi A: **Boundaries as Social Practice and Discourse: The Finnish-Russian Border.** *Reg Stud.* 1999; **33**(7): 669–80.
Publisher Full Text

Pascoal JE: **O Douro internacional: a permeabilidade de uma fronteira natural (1900-1986)**. Dissertation. Director João Carlos Garcia. Universidade do Porto. 2000.

Perkmann M: **Cross Border Regions in Europe. Significance and Drivers of Regional Cross-Border Cooperation.** *Eur Urban Reg Stud.* 2003; **10**(2): 153–71.
Publisher Full Text

Perkmann M, Sum NL: **Globalization, Regionalization and Cross Border Regions.** London: Palgrave Macmillan, 2002.
Publisher Full Text

Phillimore J: **Understanding Intergovernmental Relaciones: Key Futures and Trends.** *Aust J Public Adm.* 2013; **72**(3): 228–238.
Publisher Full Text

Podadera Rivera P, Calderón Vázquez FJ: **Institutional Aspects of Portugal-Spain Cross-Border Cooperation.** *J Borderl Stud.* 2018; **33**(4): 585–604.
Publisher Full Text

Rhi-Sausi JL, Conato D: **Cooperación transfronteriza e Integración en AmericaLatina [Cross-Border Cooperation and Integration in America Latina].** Proyecto IILA -CeSPI Fronteras Abiertas, Roma: IILA-CeSPI, 2009.
Reference Source

Rose R: **Understanding Big Government.** Londres, SAGE, 1984.
Reference Source

Rose R: **From Governnent at the Center to Nationwide Governmen.** En: Yves Mény and Vincent Wright (Eds.) *Centre Periphery Relations in Western Europe.* Londres, George Allen and Unwin, 1985.

Scott J, Collins K: **Inducing Transboundary Regionalism in Asymmetric Situations: The Case of the German-Polish Border.** *J Borderl Stud*. 1997; **12**(1–2): 97–121.
Publisher Full Text

Senabre Lopez D: **Caracterización territorial de la Raya Ibérica. El ámbito de la frontera entre Portugal y España. Castilla y León.** En: Campesino Fernández (coord.) *Turismo de frontera.* 2013; 37–49.
Reference Source

Van Houtum H: **An Overview of European Geographical Research on Borders and Border Regions.** *J Borderl Stud.* 2000; **XV**(1): 57–83.
Reference Source

Von Malchus VF: **Partnerschaft an europäischen Grenzen: Integration durchgrenzüberschreitende. *Zusammenarbeit.*** Bonn: Europäische Schriften des Institutsfür Europäische Politik Europa Union Verlag, 1975; 38–42.
Reference Source

Wilson TM, Donnan H: **Nation, State and Identity at International Borders.** In: *BorderIdentities: Nation and State at International Frontiers.* Cambridge: Cambridge University Press, 1998; 1–30.
Publisher Full Text

Wright DS: **The Concept of intergovernmental relations: Assets and liabilities, paper presented at the annual meeting of the American Political Science Association.** New York, 1981.

ZAMORA NEWS: **La Raya de Zamora, en "catástrofe demográfica".** 2021; Accessed April 5, 2023.
Reference Source

Open Peer Review

Current Peer Review Status: ✔ ? ✔

Version 1

Reviewer Report 07 May 2024

https://doi.org/10.21956/openreseurope.17616.r39653

© **2024 Ruggieri G.** This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

✔ **Giovanni Ruggieri**
Universita degli Studi di Palermo, Palermo, Sicily, Italy

The scientific article deals with the issue of cross-border cooperation to address the dynamics of depopulation in the central-northern Spanish-Portuguese border.
The abstract provides a concise overview of the article, effectively underlining the need for joint efforts between national and local actors to improve the quality of life of border populations.
The introductory paragraph effectively defines the context of the study and clarifies the rationale for examining the issue within the institutional cooperation framework.
Reference is made to the study methods for the period 1960- 2020. The use of three variables essential for assessing population evolution, critical population mass and ageing, is appropriate to achieve the research objectives.
In the results section, the article effectively presents the study's results, highlighting the existence of a recessive demographic continuum. Then, in the discussion of the implications of these results for addressing depopulation from a transnational and European perspective, depth is added to the analysis.
The conclusions underline the need to strengthen cross-border cooperation and the demand for greater operational institutional and administrative capacity.
The research is well conducted, and the results contribute to the existing regional development and governance literature. However, minor reviews are recommended to improve the study's clarity, transparency and practical implications.

Is the work clearly and accurately presented and does it engage with the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

Are all the source data and materials underlying the results available?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Giovanni Ruggieri is an associate professor of Applied Economics and holds the chair of Economics of Tourism and Tourism Industries at the University of Palermo. Founder and editor of the International Journal of Island Research at Dublin Technology University, he is the author of several scientific articles on the analysis of the economic impact, social networks, local development, cultural and island tourism and has drawn up several management plans for UNESCO. He holds the position of President of the Observatory of Tourism of the European Islands (OTIE) and is a member of the International Association of Scientific Experts of Tourism (AIEST), the International Association of Economists of Tourism (IATE), the Italian Society of Economics (SIE). giovanni.ruggieri@unipa.it

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 02 May 2024

https://doi.org/10.21956/openreseurope.17616.r36340

© 2024 Ruggieri G. This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Giovanni Ruggieri
Universita degli Studi di Palermo, Palermo, Sicily, Italy

This insightful article demonstrates a keen understanding of the pivotal role that cross-border cooperation plays in addressing the multifaceted challenges of depopulation. The emphasis on a transnational and European perspective is commendable, recognizing the limitations of purely 'national' solutions in tackling depopulation's intricate and pervasive nature. The meticulous descriptive analysis conducted on the Spanish-Portuguese north-central borderline, spanning the period from 1960 to 2020, provides a robust foundation for the conclusions drawn.

The call for reinforced cross-border cooperation and enhanced operability at the institutional and administrative levels underscores the importance of coordinated efforts. The focus on deepening multilevel governance reflects a nuanced approach to address depopulation, acknowledging the need for comprehensive strategies involving governments national and local actors on both sides of the border.

This article contributes valuable insights to the ongoing discourse on depopulation and provides a constructive pathway forward by recommending economic policy interventions within the framework of cross-border institutional cooperation. The commitment to improving the quality of life for populations in border areas is evident throughout, making this study a significant and timely contribution to the field.

Is the work clearly and accurately presented and does it engage with the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

Are all the source data and materials underlying the results available?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 15 December 2023

https://doi.org/10.21956/openreseurope.17616.r36341

© 2023 Kölling M. This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

?

Mario Kölling
Fundación Manuel Giménez Abad, Zaragoza, Spain

The aim of the text is to analyse the extent to which cross-border practices have influenced border demographic dynamics. The authors aim to make a new contribution to the academic debate that will enrich critical reflection and debate on the issue of depopulation, with a view to proposing recommendations for economic policy, within a framework of cross-border institutional cooperation and inter- and intra-governmental coordination.

This is a very interesting topic. I would like to briefly give a few hints that could help to improve the text and make it more understandable for the readers.

Since the authors consider their text as a research article, I would recommend structuring the text in this sense, starting with a conceptual framework, a literature review, a research question and a hypothesis.

Overall, the article is structured in two parts:

- The first part is a descriptive analysis of the evolution of population indicators over the period 1960-2020. The data is well presented, but I miss a literature review on the topic. Furthermore It should be clearer why the authors choose these indicators and this time frame. The authors should include a rational on the territorial unit of analysis: NUTS 3; two large sections border territories, or NUTS II; the authors should explain in more detail why they chose these different territorial units, This is particularly important for a clear comparison.
- Regarding the results of the first part, the collapse of the population in Spanish border municipalities in the period 1960-2020 is very evident, but has been highlighted by several studies, the question would be whether there are specific characteristics of the border regions? If so, the authors should compare this finding with the situation in other Spanish regions. The same would be useful for Portugal. It would make sense to establish two categories "border regions" and "non-border regions". If border regions are more affected by depopulation than "non-border regions", it would give a strong motivation to analyse cross-border cooperation.
- The authors claim that the Portuguese part of the Raya Centro-Norte is resisting the depopulation pressure better than the Spanish part, they should present some more evidence of this.
- The authors argue that there is a Portuguese strategy for urban or pseudo-urban border areas, either to "anchor" the population, but there is no reference to this strategy. It should be clarified whether this national strategy is only for one local entity, or why it does not work for the rest of the units. There may also have been several strategies on the Spanish side, why did they not work, why were former INTERREG programmes not successful?
- It should be clarified why the INE data have been supplemented with the database of institutes specialised in territorial statistics. The same for the Portuguese National Statistical Institute.
- In summary, the authors could elaborate on the specific characteristics of border regions and their research methodology.
- The second part starts with a theoretical framework, this should be at the beginning and linked to the study on depopulation. The second part should be more concentrated on the question of what CBC means for the problem of depopulation. Especially regarding the Castilla y León-Central Portugal Work Community and Castilla y León-North Portugal Work Community (NORCYL). The authors should increase the empirical evidence of the CBS in relation to cross border regions, .e.g. evolution of the budget ...
- The authors mentioned the concepts of multi-level system, Europe of regions and Euroregions, there should be a better definition of these concepts, it may become clear that there are important conceptual differences between these terms.
- The first analysis is based on nuts 3 the second part concentrated on nuts 2, the discussion should include a few words on the implications of this fact for the comparison.

- In general terms both parts - a descriptive analysis of the population situation in the municipalities of the North-Central Spanish-Portuguese border and the descriptive analysis of institutional coordination in cross-border areas - should be better connected.
- Above all, the interrelationship between population and CBC should be made clearer. The author could also include some economic policy recommendations, as mentioned in the introduction.
- The text would benefit from a linguistic revision, some expression should be more precise:
- “It is never easy to compare Spain and Portugal, even though there are so many similarities (EU members, shared past, joint future, etc.)”
- “In short, the necessary cocktail for a ‘better’ life that, on the one hand, ‘retains’ the current residents, preventing them from abandoning the territory and, on the other, ‘attracts’ the older population to these ‘urban functionality’ areas. young and ready.”
- “This bet of the Portuguese State for the border urban or pseudo-urban areas [...].“

Is the work clearly and accurately presented and does it engage with the current literature?
Partly

Is the study design appropriate and is the work technically sound?
Partly

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

Are all the source data and materials underlying the results available?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Yes

Are the conclusions drawn adequately supported by the results?
Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: federalism, multi-level governance, EU budget and redistributive policies

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 24 Apr 2024

PABLO PODADERA-RIVERA

RESPONSES TO THE REVIEWER'S REPORT Answer

We thank the reviewer **Dr. Mario Köeling** for his dedication, effort and interest in our work,

as well as for his comments and observations that, without a doubt, enrich our vision and the whole of our work. Next, we will try to respond in a timely manner to the different observations made in your review report of our work.

1. Given that the authors consider their text as a research article, I would recommend structuring the text in this sense, based on a conceptual framework, a bibliographic review, a research question and a hypothesis. **Our work, even though it is basically a research article, incorporates other elements such as review, exploration, reflection and recommendations. Because of this diverse nature, we have opted for a more "functional" and direct format in the sense of fundamentally highlighting the results of the research, in line with the approaches of the ORE platform, aimed, precisely, at highlighting the research and its results. In fact, elements such as the bibliographic review, study objectives, research question, as well as the conceptual framework, are integrated and disseminated throughout different sections of the work with the intention of offering the aforementioned functionality.**

2. Furthermore, it should be clearer why the authors choose these indicators and this time frame. **The authors opt for these indicators convinced that they reflect a high degree of accuracy regarding the critical population mass (evolution, volume, density) and aging levels (population over 65 years of age) of the border population of the territorial areas analyzed. which is in line with one of the specific objectives pursued and raised in the work, which is none other than its contrast. The time frame chosen and analyzed is due to technical reasons; From 1960 to 2020 we have comparative statistical information for Spain and Portugal that allows us to carry out properly homogenized contrasts and provides us with the statistical basis for future comparisons.**

3. The authors have chosen the NUTS 3 units as the basis of the territorial comparison, because, on the one hand, it is the harmonized nomenclature used by EURSTAT and the European Commission in matters of Territorial Cohesion Policy and, furthermore, because through With NUTS 3 we can carry out a harmonized comparison since the Portuguese NUTS 3 of this border section are equivalent to the Spanish provinces (clarified in footnote number 9 of the text). This allows us to have all the statistical information regarding the evolution of the neighboring border municipalities, both on the Spanish side and on the Portuguese side.

4. It would make sense to establish two categories: "border regions" and "non-border regions." If border regions are more affected by depopulation than "non-border regions", this would provide a strong motivation to analyze cross-border cooperation. **Since the first report, in 1959, on the territorial situation in the European Communities, the "border regions" were already considered, due to their peculiar characteristics, as weak and peripheral areas (mountain areas, interior continental areas, etc.) in relationship with the central areas. In the case of the particular issue of depopulation, cross-border management would be necessary which, in the case of the territorial areas included in our study, is still very incipient. We do not know exactly to what extent it would be feasible to propose a differentiation between two conceptual categories of "border regions" and "non-border regions." What does seem clear, based on the results of our study, is the**

need to propose cross-border management of the issue of depopulation, so that it can be addressed with a certain level of efficiency.

5. The authors claim that the Portuguese part of the North-Central Stripe is resisting the pressure of depopulation better than the Spanish part, so they should present some more evidence of this. **Graphs number 1 and number 7 clearly show that the Portuguese part of the Central-North Stripe better resists depopulation, with a population for the entire border around 80,000 inhabitants, while the Spanish part moves around to 16,000 inhabitants. Both sides are affected by depopulation, although the Spanish side presents a more pronounced situation.**

6. The authors argue that there is a Portuguese strategy for urban or pseudo-urban border areas, either to "anchor" the population, but there is no reference to this strategy. It is worth clarifying whether this national strategy is only for a local entity, or why it does not work for the rest of the units. There may also have been various strategies on the Spanish side, why did they not work, why were the old INTERREG programs not successful? **Historically, concern about the border and its population has been much more intense on the Portuguese side than on the Spanish side. Successive Portuguese governments have always had a special sensitivity to border issues, since they understood their borders as a barrier against possible aggression coming from the Spanish side. Hence, the concern about border settlement and the existence of a border protection device around cities and border centers (idea explained on pages 11 and 12 of the work). Precisely, one of the conclusions of our study has been, precisely, the "visualization" of this strategy, based on the available data. It is not that the INTERREG programs have not worked, but that they have been implemented with a greater national than border perspective. In the Spanish case, a lot has been invested in the tourism development of the border territory and, in this sense, important advances have been made in the study area, although these locally concentrated efforts are insufficient to adequately address a generic problem such as depopulation (idea explained on pages 11)**

7. The authors should increase the empirical evidence of the CBS in relation to cross-border regions, for example, budget evolution... **We appreciate the observation and it will be taken into account in future research on the topic. Specifically for this work, the budget or other characteristics of the CBC, such as joint planning, were not the object of analysis.**

8. there should be a better definition of these concepts, it may be clear that there are important conceptual differences between these terms. **We appreciate the observation made and we will take it into account in future work.**

Competing Interests: No competing interests were disclosed.

Reviewer Report 14 December 2023

https://doi.org/10.21956/openreseurope.17616.r36342

© 2023 Cippitani R. This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Roberto Cippitani
Universita degli Studi di Perugia, Perugia, Umbria, Italy

- The work is clearly and accurately presented, with the conclusions consistent with the hypothesis and based on data. Yes, both the conclusions and the hypotheses are consistent with a basic correlation existing between them. Likewise, the paper's database comes from official statistical sources of both countries INE.es and INE.pt.

- The study design is appropriate and the work is technically sound. The study tries to explain the depopulation phenomenon in the Spanish-Portuguese border framework. in this sense, the whole study is designed according to a two sides border scheme (tables, data, general information, etc.) trying to explain the border area as a single territory.
- The paper clearly shows data and information necessary for analysis carried out by others. Yes, broadly speaking the paper offers a useful amount of information (economic-demographic and geographic at different levels: local municipalities, provinces, departments, regions) which could be used for other researchers as a primary source.

- The article makes reference to the sources of data used and which may be easily reached in order to reuse them. Yes, in the paper's framework normally the statistical sources are correctly established, being official and institutional sources is relatively easy to get them.

- The statistical analysis and its interpretation is appropriate.
Yes, usually authors use descriptive statistics that greatly facilitate the reading and understanding of the analysis and its preparation for a social science audience to whom the article is directed

Is the work clearly and accurately presented and does it engage with the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

Are all the source data and materials underlying the results available?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
I cannot comment. A qualified statistician is required.

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Law of economics

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.