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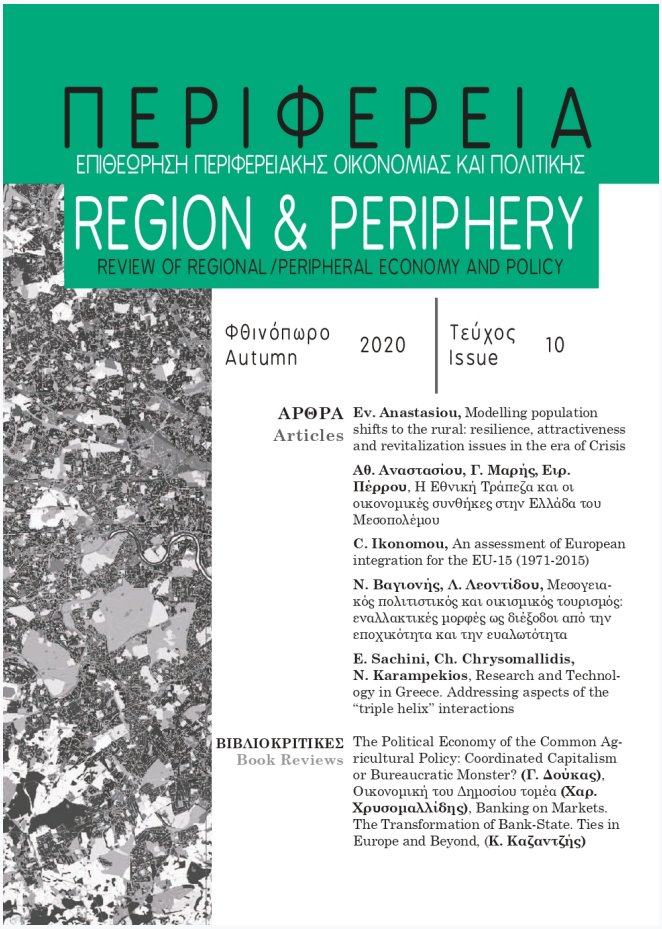

Modelling population shifts to the rural: resilience, attractiveness and revitalization issues in the era of crisis

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Modelling population shifts to the rural: resilience, attractiveness and revitalization issues in the era of crisis

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Abstract

In the context of the crisis and its economic and social impacts the livelihoods revisited. As an alternative to the economic impasse, a pattern on counterurbanization has significantly emerged. The main purpose of the present study is to explore the dynamics of the countryside through the attractiveness of the urban population. An econometric model was applied to data from population Censuses and Hellenic Statistical Authority registers. The findings suggest that the ex-urbans prefer not remote, urban-like destinations, with infrastructure and services, while more attractive seem to be the areas with employment opportunities.

KEY-WORDS: Human geography, demography, counterurbanizaion, attractiveness, Ordinary-Least Squares.

Πληθυσμιακές μετατοπίσεις στην ύπαιθρο: Ζητήματα ανθεκτικότητας, ελκυστικότητας και αναζωογόνησης κατά την κρίση

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Περίληψη

Στο πλαίσιο της κρίσης και των οικονομικών και κοινωνικών της επιπτώσεων, το βιοτικό επίπεδο των Ελλήνων αναθεωρήθηκε. Ως εναλλακτική λύση στο αδιέξοδο έχει αναδειχθεί ένα μοτίβο μετατόπισης του ελληνικού πληθυσμού στην ύπαιθρο. Ο σκοπός του άρθρου είναι να διερευνήσει τη δυναμική της υπαίθρου μέσω της ελκυστικότητας του αστικού πληθυσμού, μεσα από την εφαρμογή ενός οικονομετρικού μοντέλου σε δεδομένα των μητρώων της Ελληνικής Στατιστικής Υπηρεσίας και των τελευταίων απογραφών πληθυσμού. Από τα ευρήματα προκύπτει ότι οι ελκυστικοί προορισμοί της υπαίθρου είναι οι αστικόμορφοι, με υποδομές, υπηρεσίες, ευκαιρίες απασχόλησης, πληθυσμιακή δυναμική και εύλολη πρόσβαση στον αστικό χώρο.

ΛΕΞΕΙΣ-ΚΛΕΙΔΙΑ: Ανθρωπογεωγραφία, δημογραφία, αποαστικοποίηση, ελκυστικότητα της υπαίθρου, μέθοδος ελάχιστων τετραγώνων

1. Introduction

The era of the crisis has caused a whole host of changes in the Greek territory. The economic dysfunctions have resulted in changes in the migration scene by redistributing a significant part of the urban population. The counterurbanization appeared for many as an attractive alternative against the crisis. Beyond this view, certain rural areas revitalized by becoming destination poles for ex-urbans.

However, the broader context of Greek rural space addresses heterogeneity and highlights the nuances of spatial inequalities. Austerity policies implemented during the economic crisis did not take into account the spatial dimension, fueling even greater inequalities (Artelaris, 2017). The exploring of the countryside's sustainability, resilience and attractiveness determinants is at stake since it would be utopian to be treated as a "single" space. It still remains a pivotal issue whether under the development of the economic crisis the Greek rural areas enhanced their resilience (Papadopoulos, 2019).

The population shifts to the rural are closely intertwined with the attractiveness and consequently the resilience of an area. The main determinant for addressing resilience is the ability to meet the main social and economic needs of the local population, thus contributing to a minimum level of social integration and improving living standards. Through this study, it is attempted to explore the contribution of spatial, demographic, social and economic factors in the rural attractiveness.

In this study, it is first applied a short review of the theoretical literature on Greek rural areas, their attractiveness and their temporal transformation. Continuing is clarified the relationship between rural attractiveness and counterurbanization, in times of the economic crisis. In the second section, there are presented the determinants assessed to affect rural attractiveness and the econometric model specification. Finally, the results and discussion section depict the main findings and explore the underlying issues of the relationship between space, population, and attractiveness.

2. A review of the theoretical literature

The recent economic crisis has significantly raised issues of resilience, attractiveness, and revitalization in rural areas. Their multifaceted nature requires to formulate a framework in which both endogenous factors and external control sources play a dominant role. These issues, therefore, concern the estimation and adaptation of an area to external conditions, like the economic crisis, while simultaneously addressing internal demographic, social, economic,

and environmental weaknesses (Schouten, Van Der Heide and Heijman, 2009). To address resilience in rural areas special characteristics need to be routed as human and natural resources, investment and infrastructure, social capital and local knowledge (Anthopoulou, Kaberis and Petrou, 2013), welfare and social justice (Silva and Cardoso, 2017; Heijman, Hagelaar and van der Heide, 2019).

In recent decades, the Greek countryside has turned into a field of ongoing transformations. It is not just a complementary area of the urban fabric but has been transformed into a multi-functional space with the potential to develop multiple economic activities (Maravegias, 2007). This evolution in rural areas reshaped the unidirectional orientation of the agriculture sector towards a multi-functional space for production, export, leisure and tourism and thus substantial consumption of the countryside takes place (Papadopoulos, 2004). Additional activities set up in the new countryside include construction, industrialization, promotion of local traditional products and holiday homes (Kayser, 1990; Anthopoulou and Gousios, 2007).

In particular cases, the development of services and activities revitalized demographically the countryside. Changes in the spatial distribution of the population, a decrease in the population growth rate of urban centers, and population recovery of rural areas are being identified (Kyriazi - Allison, 2009). Mobility shifts to the rural could also strengthen local social resilience (Papadopoulos et al., 2019). Focusing on demographic dynamics, migration affects highly an areas' operation and may lead to population redistribution, where new spatial patterns and attractive areas emerge (Davezies, 2009; Baudet, 2011).

The relative increase in population in certain rural areas is not due to the increase in natural balance but to "newcomers" who are exploited according to the geographical characteristics of each region (Kasimis, Papadopoulos and Pappas, 2010). At the same time, the migratory inflows of the foreign population expanded in the - discarded by the locals - agriculture sector also contributed to demographic breath (Kotzamanis and Duquenne, 2012). There emerge definitely new migration types and directions where the larger urban centers are not systematically the preferred destination.

The non-consideration of the economic crisis in the impact on urban shifts to the rural would be a serious omission. Prior to the economic crisis, the return to the countryside implied the close bonds to the place of origin (Duquenne and Kaklamani, 2009; Gkartzios, 2013; Petrou and Koutsou, 2014). The debate though on counterurban mobilities in times of crisis is gaining interest from empirical findings highlighting the pursuit of culture, voluntarism, collectivism (Gkartzios and Scott, 2015) and "rural idyll" (Anthopoulou, Kaberis and Petrou, 2017).

The economic crisis in Greece is increasingly leading to smaller rates of urbanization. After 2000 the systematic exodus from rural areas was paused, mainly due to the crisis (Kasimis and Papadopoulos, 2013). During 2001-2011 almost 27% of the urban population moved installed in a non-urban destination highlighting discrete spatial patterns (Author, year). Moreover, 50% of semi-urban and 55% of predominantly rural areas attracted population originating from Athens.

Settlements with a population of more than 100,000 in Attica and Thessaloniki recorded a significant population decline (on average 1.3%) mostly due to emigration and negative natural balance (Salvati, 2019). Empirical findings of the last two censuses address the urban population dynamics however a trend of urban shrinkage is emerging, gaining increasing interest as it focuses on the two largest Greek regions (Manika and Anastasiou, 2015). In the NUTS-2 level, from 31/12/2009 till the last census date (2011), the migration balance in Attica and Central Macedonia (regions that include Athens and Thessaloniki) is negative, whereas all the rest, especially the insular (Salvati, 2019), have a slightly positive or clearly positive impact (Duquenne, 2014).

These findings are linked to the deeply suffered crisis effects of the urban population. On the contrary, the rural areas seem to be showing greater resilience during the same period (Psycharis, Kallioras and Pantazis, 2014). Further research on the potential for mobility to the rural implies the willingness of the younger and unemployed Athenians to move (Remoundou, Gkartzios and Garrod, 2016). During 2008-2011, almost 17,000 urban residents moved to the rural in order to get employed in the agriculture sector (Kasimis and Papadopoulos, 2013).

However, it must be noticed that the countryside is not a panacea for the crisis. The agricultural profession seems to be an attractive alternative out of the impasse, but it is not economically viable for everyone (Daudon and Vergos, 2015; Artelaris, 2017).

Concerning the human aspect, the rural attractiveness is a mixed spatial context, related both to permanent residents in destination and movers incentives. An additional issue appears as regards the sociological point of view and broaches the heterogeneity between locals (rurals) and newcomers (ex-urbans). The coexistence among people with different biotheories and the differentiation in mixing especially of behavioral characteristics could potentially disrupt social cohesion. Besides, urban residents think of rurality as an urban-like concept in non-isolated areas, close to the cities (Remoundou, Gkartzios and Garrod, 2016) and their settlement in an unexpected environment often triggers social deprivation (Anthopoulou, Kaberis and Petrou, 2017). Another aspect contributing to

this is that in rural Greece poverty is particularly marked (Mitrakos, 2014) and a significant part of the population lives in conditions of severe material deprivation (more than 20% of rural population) (Eurostat, 2018).

Despite the indicative findings of individual surveys aforementioned, in Greece, internal migration in recent decades has been little studied mainly due to the non-availability of data. Over time, the exodus of the population from the rural areas has led to a significant demographic weakening of the countryside, due to the population ageing, the depreciation of the agricultural occupancy and the migration of young labor force to Greek urban areas or abroad. However, the economic crisis contributed to the revitalization of certain rural areas, especially those with high population inflows Author (year). High-intensity flows can change both the structure and operation of space and enhance attractiveness, based on a social multiplier effect, as the theory of residential economy argues (Davezies, 2009).

3. Data and Econometric Methodology

3.1 Data

The special characteristics of the rural areas as well as their transition of a space of monodisciplinary character to multidimensional are widely studied in the literature. As aforementioned, the discussion regarding internal migration and particularly urban-to-rural mobilities has received increased attention in the last decades. Furthermore, there is a distinct differentiation between the push and the pull factors of migration decision-making.

The present study focuses on pull factors that attract the urban Greeks in the countryside and at the same time reflect the space dynamics. The population of the study concern the Kapodistrian municipalities with significant inflows intensity (>10%) during 2001-2011 (247 in total recorded high-intensity inflows) (Appendix B). It should also be mentioned that the flows concern the Greek population that in 2001 resided in an urban municipality and 2011 were recorded in a non-urban municipality.

The dependent variable Inflows addresses the total flows entered in a non-urban municipality in the period 2001-2011 and results from the data of the Population-Housing Censuses of the representative years. The interpretative variables (Table 1) concern a series of demographic, social, economic and geographic factors.

Table 1: Pull factors to the rural, 2001-2011

Variable Description	Coding	Source
Rural classification	Typ	(Author, year)
Coastal location	Coastal	Own calculations
Number of Settlements	Sett	ELSTAT, Register of Municipalities, Communes and Settlements, 2011
Newly built dwellings	ResAge	ELSTAT, census2011
Secondary education schools	EduSec	Ministry of Education
Employees in arts, recreation, and entertainment	EmpARE	ELSTAT, Labor Force 2011
Proportion of catering service activities to the population	CatSer	ELSTAT, Statistical Business Register, 2011
Age dependency ratio	ADR	ELSTAT, census 2011
Location Quotient of catering service activities	LQ_CatSer	ELSTAT, Statistical Business Register, 2011

Source: Own elaboration

Rural Classification (Typ): This variable expands the geographical distinction of the Greek countryside. The greek non-urban space is characterized by high heterogeneity, consequently, the countryside refers both to insular, mountainous and lowland spatial units. Furthermore, except for geomorphological criteria, rural space differs in population distribution as well as economic activity and/or specialization and infrastructure. The ordinal variable *Typ* gets three values, *1=semi-Urban, 2= Semi-Rural, 3=predominantly Rural* municipalities regarding the degree of population urbanity (Author, year).

Littoral locality (Coastal): The trend of the population's mobility to coastal areas has been established under the term "littoralisation" (Zucca, 2004). This phenomenon gives impetus to the coastal economy and favors the development of activities such as tourism, fishing, navigation and others (Zdruli, 2008; Jakar and Razin, 2012). In this context, the dummy variable "coastal" was created as an interpretive component of internal migration. It takes the value "1" when it comes to coastal municipalities and "0" for non-coastal municipalities, by reflecting at the same time the advantage or disadvantage of a spatial unit's location.

Settlements (Sett): This variable represents the number of settlements in a municipality. The dispersion of settlements in the area is an indication of possible mobility within a spatial unit. The variable *Sett* can provide indirect informa-

tion about the quality of the measurement of mobility and especially its intensity (Duquenne, 2014).

Gymnasiums (EduSec): The specific variable indicates the count of gymnasiums in a municipality. Access to secondary education is vital to human and economic development (King, McGrath and Rose, 2007). Furthermore, secondary education is a bridge to connect youngs with adult life, providing the supplies, skills and social values for a healthy future (Jacob and Lehner, 2011). In Greece, it is observed an unwillingness of teachers to be positioned in rural, and isolated areas, that automatically impair the quality of schooling networks in remote areas (OECD, 2011).

Employees in arts, recreation, and entertainment (EmpARE): This variable employs a proportion to indirect measure the differentiation of the economic fabric, as regards the sector of arts, recreation and entertainment. It covers a wide range of activities regarding the general public. In Greece, almost 165,298 people are currently occupied in the specific sector (CEDEFOP, 2018).

$$EmpARE = \frac{employees\ in\ arts, recreation\ and\ entertainment}{total\ employees} * 1000$$

The proportion is based on the distribution of the employees of a spatial unit in the sectors of the specific economic activity to the total employees. Finally, it facilitates the exploration of the economic specialization of an area to arts, recreation, and entertainment and therefore the employment opportunities in specific activities.

Proportion of catering service activities to the population (CatSer): This is an indicator that highlights the potential of the economy in municipal units. It is defined as the number of catering service businesses to the permanent population (1000 people) and reflects the penetration of catering service activities in municipalities.

$$CatSer = \frac{Catering\ service\ activities}{totalpopulation} * 1000$$

The indicator may be interpreted variously depending on the observer's point of view: on the one hand, it reflects the degree to which a municipality's residents approach the service and the ease of access to the specific economic activity. On the other hand, it reveals the degree of goods and services supply in an area and third the concentration of goods and services in proportion to the population of each location.

Location Quotient of catering service activities (LQ_CatSer): **A** locational analysis method proposed here to approach the economic view of the countryside is the Location Coefficient. It is employed to quantify and estimate the importance of the catering service activities in a spatial entity in relation to the importance of the same activity in Greece (Norcliffe, 1982). It essentially highlights the contribution of an area in relation to the national average.

$$LQ\_CatSer = \frac{Catering\ service\ activities_i \Big/ All\ economic\ activities_i}{Catering\ service\ activities_{Gr} \Big/ All\ economic\ activities_{Gr}} * 1000$$

where i = {1,…,247} municipalities, Gr = Greece.
The location coefficient ranges from 0 to ∞. In more detail:
QL=1 economic activity is just as developed in the region as in the whole country
QL>1 specialization of an area to economic activity.
QL<1 non-specialization of an area to economic activity.

Age dependency ratio (ADR): This is a principal demographic indicator summarising the pressure on the working-age population (15-64 years) from the elderly (> 65 years) and the young population (0-14 years). This ratio expresses numerically the economically dependent individuals in relation to financially active (OECD, 2016).

$$ADR = \frac{population_{0-14} + population_{>65}}{population_{15-64}} * 1000$$

where $population_{0\text{-}14}$ = permanent population 0-14 years in 2001, $population_{>65}$ = permanent population aged 65 years and over in 2001 and $population_{15\text{-}64}$ = population 15-64 years in 2001.

Newly built dwellings (*DwelAge*): Age of construction is one of the buildings' main characteristics. The ratio of the newly built dwellings in a municipality to the older ones is an indication of the urban construction trend and is connected with the prestige and the potential economic development of the area (Kalogirou, 2015). At the household level, newly built houses contribute to the presence of quality housing and living conditions and the development of an urban-oriented lifestyle (Lepkova *et al.*, 2017)consequences, merits and demerits of the assessment of customer satisfaction are also named. A survey of customer satisfaction helps to evaluate the quality of dwellings according to their technical and functional parameters, as well as the degree of cooperation between customers and developers/contractors. The customer satisfaction index

(CSI. For the present paper, we define as new, the houses that were built after 2000, that is, within the decade under consideration.

$$DwelAge = \frac{dwellings\ built\ after\ 2000}{dwellings\ built\ before\ 2000} * 1000$$

Therefore we define the variable *DwelAge* as the houses built after 2000 to those built before 2000. This ration addresses the relative intensity of the new houses built in an area.

3.2 Model Specification

To capture the factors that determine population shifts in a non-urban municipality, an econometric model is applied. In the present, the number of population inflows into a municipality is a linear function of spatial, demographic, social, and economic parameters. Therefore in the model described below there are adopted various dependent variables potentially affecting the magnitude of population flows.

$$(Inflows) = \beta_0 + \beta_1 (typ) + \beta_2 (Coastal) + \beta_3 (Sett) + \beta_4 (EmpARE) + \beta_5 (CatSer) + \beta_6 (LQ\_CatSer) + \beta_7 (ADR) + \beta_8 (EduSec) + \beta_9 (ResAge) + \varepsilon$$

The geographical distinction of the Greek countryside has a strong influence on the determination of rural-in mobilities. The *Typ* variable captures that distinction and consequently elaborates on the patterns of internal migration. As shown in the relevant literature (Author, year) *typ* is expected to receive a positive sign. Specifically during 2001-2011 urban to semi-urban flows corresponded to 11% of the total urban outflows, where urban to rural corresponded to 15.7% respectively. Nevertheless, the dominant mobilities originated from the urban space move mainly towards another rural space (73% of the total outflows from urban space).

As regards the impact of the littoral identity (*Coastal*) of a municipality on the inflows to the countryside is expected to be positive. The coastal nature of an area attracts population mobility, as tourism development both creates potential inflows into the local labor market (Duquenne and Kaklamani, 2010) and promotes road network improvement projects to facilitate access (Doumenge, 1956). Mobility shifts to the coastal areas mainly concern retirees and the elderly by means of offering quality living conditions (Pennington, 2013).

The settlements constitute an additional component in the interpretation of human mobility. Both the size and the range of the distribution of the settlements into a wider area are crucial for the understanding of population installation

(Social Sciences Foundation Course Team, 1970). The less-dense settlements lack basic housing conditions and infrastructure services (Schwedes, 2017). What these strands imply is that the fewer and more scattered the settlements in a municipality, the smaller the population flows to it. So Sett is expected to receive a positive sign.

From an economic perspective, it is crucial to examine the impact of employment opportunities in two dynamic sectors in rural economies. It is considered positive for the migratory patterns of the fact that the countryside has been enhanced with arts, recreation, and entertainment amenities (EmpARE) (Johnson and Stewart, 2005; Ulrich-Schad, 2015). Under this context, some rural areas may be led to the revitalization and constitute an attractiveness pole of newcomers, either taking advantage of the economic opportunities that arise or the willingness for the rural idyl. By the same token, both catering service activities and their spatial allocation (CatSer, LQ_CatSer) play an important role in human behavior as regards population shifts (Shen, 2019). The catering service industry in the countryside is a major commercial activity especially in areas of touristic and recreation interest as well as in the population dynamic settlements.

The demographic aspect of the urban-to-rural approach is extensively linked to the population dynamics of an area. High population spatial units concentrate a series of benefits, like diversity in infrastructure and services, wide economic fabric, and social well-being. The more populated is a location the more potential spill-over effects reaps. However, the stakes are high as regards the age structure of the population. The expectations of the Greek urban people to settle in a spatial unit with young and active population are considered to be higher than moving to aged or depopulated locations, so the elasticity of Age-dependency ratio (*ADR*) is expected to be negative.

Existence and quality of education structures are a priority in choosing a migratory destination, especially when it comes to households with minor children. This context is consistent with the natural course of events that occur during a person's life cycle. Parents are vulnerable to the upbringing of their children, which would prevent them from being installed in a remote and isolated area. So, the change in a municipality's inflows will probably increase with an increase in the number of gymnasiums (*EduSec*); though empirical evidence shows a lack of educational activities, especially in isolated and remote areas (Author, year).

Finally, as regards housing incentives, lower costs, housing conditions, and affordance opportunities attract the population to reside in certain rural areas (Eurostat, 2018). Nevertheless, rural housing is relatively older than urban (Woods, 2011). Empirical evidence shows that localities with newly built dwellings are more likely to receive high mobility rates (Myers, Choi and Lee, 1997). Given these, the variable *DwelAge* is expected to receive a positive sign.

4. Results

Prior to presenting the econometric analysis findings, a descriptive analysis was applied (Table 2, Table 3) to better describe the sample. The rural classification in Greece into three subgroups allows as ascertaining the degree of urbanity in the non-urban localities. So, the greek non-urban localities presented high intensity of inflows during 2001-2011 (247 in total) are mostly predominantly rural (65.6%), whereas a significant proportion (23.9%) corresponds to semi-urban areas. An additional significant geographical characteristic is the littoral identity of the under-study municipalities. Thus it is observed that most rural areas of the sample are coastal (60.7%). Finally, from a social and/or infrastructure point of view almost one out of four municipalities have no secondary schools at all where more than one in two municipalities have one gymnasium.

Table 2. Descriptive Profile of discrete predictors

	N	%
Municipalities	247	100.0
	Rural Classification	
Semi-Urban	59	23.9
Semi-Rural	26	10.5
Predominantly Rural	162	65.6
	Secondary Education	
0 Schools	61	24.7
1 School	143	57.9
= > 2 Schools	43	17.4
	Coastal Locality	
No	97	39.3
Yes	150	60.7

The numeric variables with the exception of the age-dependency ratio present significant variation and thus, we may assume spatial inequalities that have to be further examined. There are on average almost 16 settlements in the under-study municipalities. Further considering the descriptive statistics it is observed both the population and housing ageing as well as the high concentration of catering services in certain rural areas.

Table 3. Descriptive profile of continuous predictors

Variables	Minimum	Maximum	Mean	Std. Deviation
Inflows	17	4005	661.0	674.7
DwelAge	0	70.7	17.5	12.3
EmpARE	0	111.9	9.6	10.3
LQ_CatSer	0	5.3	1.9	0.9
CatSer	0.7	59.3	16.2	10.2
Sett	1	91	15.5	12.6
ADR	31.1	115.2	59.6	15.3

The econometric model employed multiple linear regression to predict the inflows to the rural space in Greece based on spatial/geomorphological criteria as well as economic, demographic, and social. Before modeling this relationship, the regression equation suggests basic assumptions to be met. The sample size is adequate as it ensures a minimum proportion of observations to variables, 10:1 (Hair *et al.*, 2018). A linear relationship between *inflows* and predictors is observed, as well as an absence of multicollinearity (Appendix A) and autocorrelation (Table 4). For the estimations was also used White's heteroskedasticity-consistent covariance matrix estimator by performing Monte Carlo simulation (White, 1980; Cribari-Neto and Zarkos, 2001)which is commonly used in empirical research, and also on some alternatives based on different bootstrapping schemes. Our results reveal that the White estimator can be considerably biased when the sample size is not very large, that bias correction via bootstrap does not work well, and that the weighted bootstrap estimators tend to display smaller biases than the White estimator and its variants, under both homoskedasticity and heteroskedasticity. Our results also reveal that the presence of (potentially.

A significant regression equation was found ($F(9, 247) = 52.286$, $p < .000$), with an R^2 of .665, that is considered satisfying, in terms of goodness of fit (Table 4). The empirical results show that all predictors contribute significantly to rural-in mobilities.

Table 4. The results of the econometric model

Predictors	*Inflows (N=247)*	ß
constant	1362.4	
Typ	-283.2 (-7.2)***	-.357
Coastal	-118.2 (-1.8) **	-.086
Sett	11.9 (5.3) ***	.224
EmpARE	6.7 (2.7) ***	.103
CatSer	-8.1 (-2.8) ***	-.123
LQ_CatSer	-98.1 (-2.6) ***	-.116
ADR	-5.5 (-2.5) **	-.125
EduSec	182.5 (5.1) ***	.253
DwelAge	14.4 (6.1) ***	.262
Adjusted R2	.665	
F-test	52.286*	
Durbin-Watson	1.905	

t statistics are in parentheses.

,* indicate significance at the 95% and 99% level respectively.

The predictors that mostly affect the population shifts to the rural spatial units are rural classification, housing age, diversity in secondary education, and the number of settlements in a municipality. The contribution especially of the spatial variables in inflows magnitude has a strong impact, confirming once again that space is not neutral. Rural classification (Typ) with an unexpected negative sign shows the inability of the predominantly rural locations to attract population. The coefficient of the specific variable is the largest among all predictors. The more urbanized a municipality, ceteris paribus, the more newcomers receive, so moving down the urban-rural hierarchy it is less likely to attract a new population. This, in fact, is related to the geographical distance and limited infrastructure and services in remote rural areas.

As regards settlements (*Sett*), the larger their number in a municipality the more inflows are attracted. The positive sign of the number of settlements in an area dominantly addresses *spatial socialization* (Paasi, 1996). Furthermore, a large number of settlements justifies wider access to infrastructure and services and consequently facilitates population mobility. Therefore the expected positive sign is validated.

Littoral destinations (*Coastal*) and inflows have a weak relationship. Nevertheless, the unexpected negative sign of the elasticity for littoral destinations

reveals an alternative approach in human behavior in terms of perspective on space consumption. The Greek countryside and thus coastal zones are mostly associated with tourism and recreation. The movers will likely combine these locations as escape routes from everyday life in terms of its rhythms.

The coefficient of the employees in arts, recreation, and entertainment variable (EmpARE) receive the expected positive sign with a moderate relationship. This variable is also statistically significant. As aforementioned, the countryside provides a variety of recreational amenities and this in turn creates employment opportunities. The more increasing the employees in the specific economic sector, the more attractive is the corresponding location both in terms of finding a job as well as the number, variety, and quality of amenities provided.

However, the economic fabric is spatially differentiated, which is confirmed by the rather unexpected negative sign of the variables concerning the catering services (*CatSer, LQ_CatSer*). An increase in the proportion of catering service activities to the population apparently leads to lower migration inflows. This finding is probably explained by the fact that the majority of the understudy municipalities have high economic specialization in catering service activities (mean LQ = 1.9). The local markets' relative saturation is not an incentive to install a new population as long as there are no further business and employment opportunities.

The age dependency ratio's *(ADR)* sign is associated with a negative coefficient. The larger the inactive population, the smaller the number of rural-in flows. The negative relationship between population dynamics and shifts is capturing the demographic pressure in the countryside. The spatial population structure varies across non-urban areas. Population shifts to areas with a small proportion of ageing is more likely to happen. This in fact states the obvious, that localities with population dynamics attract also dynamic populations.

Secondary education (*EduSec*) as expected has a significant, strong, and positive impact on the migration decision. The likelihood to enter a non-urban municipality is obviously higher when there exists at least one gymnasium. Especially when talking about households with children it is crucial the need for educational infrastructure. From this point of view, *ceteris paribus*, non-urban municipalities attract more population when they offer a wide secondary schooling network.

The housing age (*AgeDwel*) plays an important role in the migration decision. The expected positive significant impact on inflows lies in the housing opportunities emerging in rural Greek areas. The standardized coefficient suggests a significant relationship between housing age and inflows. A non-urban municipality attracts a higher proportion of populations when the housing sector consists of newly-built dwellings. Considering that in urban areas the housing costs are much higher the potential movers benefit the best value for money.

5. Conclusions

In the presented paper an attempt was made to predict the factors attracting high population inflows to the countryside. The population shifts in a non-urban entity are a function of a set of geographic, demographic, social and economic factors.

The empirical results of the present show that ex-urbans even in the countryside looking for an urban lifestyle. The population shifts towards semi-urban localities underline both the preference and/or need of the moving urban population to reside in an urban-like area. This finding indirectly raises the issue of the rural (not) attractiveness. The countryside attracts higher proportions of in-migrants in the semi-urban areas providing the capacity for easy access to infrastructure, services and education.

The crisis fierce effects on urban population shifts are obvious in selecting destinations based on employment criteria. It is observed preference of settlement in areas with employment opportunities in arts, entertainment and recreation, while it is inversely construed when areas with a significant degree of catering service activities. Although the latter is also an indirect means of socializing the findings suggest that what is at stake is the solution to the work impasse.

Inevitably, the rural revitalization chain is a sequence of population rejuvenation and motives of attractiveness. In recent years, interventions have indeed taken place aimed to treat the isolation, based on the special character of rural areas. The recent decades the Greek countryside has been transformed and is still trying to adapt to new "smart" data. However, geographical isolation is currently a major obstacle to attracting a new population to settle, to the growth of the economic fabric, and consequently, to real revitalization. Nevertheless *"no one goes everywhere"* and therefore specific human-spatial patterns emerge even in seemingly unattractive areas (Author, year).

Therefore, the attractiveness of the urban population in the countryside should be considered on the basis of a) movers incentives b) movers demographic profile c) space dynamics. Rural revitalization policies must be properly adapted, without the Greek countryside being treated as a single space. The potentials that arise from the countryside's diverse character could impact the country's economic course and achieve a better spatial balance. At the same time, social policy planning is crucial to eliminate urban-rural inequalities.

Potential limitations in the present study could include the unavailable data on such a low spatial scale. The importance of the findings hence requires further strengthening with a view to improving the count of the predictor variables with special emphasis on the age structure of the population and the distance between origin and destination.

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APPENDIX

Appendix A. Collinearity statistics

Model	*B*	*SE B*	β	t	p	TOL	VIF
(Constant)	1362.385	176.432		7.722	.000		
Typ	-283.218	39.260	-.357	-7.214	.000	.577	1.734
DwelAge	14.359	2.358	.262	6.089	.000	.766	1.306
EduSec	182.554	36.130	.253	5.053	.000	.563	1.777
EmpARE	6.728	2.516	.103	2.674	.008	.957	1.045
CatSer	-8.071	2.871	-.123	-2.811	.005	.743	1.346
Sett	11.949	2.234	.224	5.347	.000	.806	1.241
ADR	-5.516	2.183	-.125	-2.527	.012	.578	1.730
LQ_CatSer	-98.072	37.586	-.116	-2.609	.010	.709	1.410
Coastal	-118.224	63.934	-.086	-1.849	.046	.657	1.522

Appendix B. Study Area