Geographies of Child Adoption in Greece During the Economic Crisis (2011-2018): Spatial Thinking of Inequalities, Trends, and Policies

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Submitted: 11 October 2020, Accepted: 17 February 2021, Published: 19 March 2021
Volume 29, 2021. p.351-369. http://doi.org/10.25133/JPSSv292021.022

Abstract

This paper aims to investigate an area previously unexplored by human geographers: the spatial and sociodemographic structure of adoptions in Greece during the economic crisis. The main purpose is twofold: (a) to examine potential inequalities emerging either from the gender and age of the adopted child or from the spatial distribution of the children and (b) to capture agglomeration or dispersion clusters of adoptions in Greece. The study employed panel data across the 13 regions of Greece for the period 2011-2018. To detect inequalities in adoptions, demographic and spatial indicators were used as well as specific inequality measures via statistical computing (R). Through thematic cartography and spatial analysis methods, the proximity effects in child adoption during the economic crisis were examined. The results led to the conclusion that crisis periods dramatically affect the rates of child adoption. Both gender and spatial inequalities were intertemporal and particularly high. Greece is marked by uneven geographies calling for new policy measures. Thus, the present paper could serve as a basis for an 'adoption observatory' in Greece.

Keywords

Child adoption; economic crisis; Greece; inequality; social demography; spatial analysis

Introduction

This paper will focus on a sensitive, indirect demographic event: child adoption. In Greece, both domestic and intercountry adoptions are at low levels, with a reported 2,970 adoptions occurring during the economic crisis (ELSTAT, 2019a). Due to recent demographic trends, such as increased age at first marriage (UNECE, 2019), childlessness (Miettinen et al. 2015), divorce rates (ELSTAT, 2019b), the negative balance of births and deaths (ELSTAT, 2020), and urbanization (Anastasiou & Duquenne, 2017), adoption has come into the spotlight. In addition to the demographic situation of Greece, the economic crisis had further implications on adoption trends. Consequently, the need has arisen to generate a basis from which to formulate policies. Adoptions may be treated from a spatial point of view, constituting an observatory—the fundamental basis for policymaking. Therefore, the geographies of adoptions in the period of the crisis need to be examined.

Regarding barriers to data availability, there is international concern about both the legal status of adoptions and comparability issues. Scholars have focused on post-adoption attitudes, human development, age-at-adoption effects, and other sociological aspects. Data on the spatial dimensions of the demographic challenge, however, are limited. The demographics of adoptions play an important role as, despite the extremely small percentages reported in Greece, adoption can complete the structure of a family and, moreover, is an acceptable form of a family. At the same time, adoption contributes to the mobility of the population, especially international mobility (Yngvesson, 2015).

From the spatial point of view, especially at a low scale, adoptions are of major importance. The lack of spatial microdata limits the range of research questions and the methods and techniques proposed. In that context, this paper will focus on the age structure of adopted individuals in Greece (child and adult adoptions), their gender, and their spatial concentrations at the regional level. More specifically, the present study aims, firstly, to explore inequalities across gender and age and, secondly, to examine the potential spatial patterns emerging from the distribution of the adoptions in Greece during the economic crisis period.

Literature review

Adoption is one of the main and most important childcare institutions. It aims to rehabilitate children in need of protection in a family environment. By its nature, child adoption involves inequality (Lewis & Brady, 2018), either geographical, economic, and social, for children to be adopted, biological parents, and adoptive parents. Thus, the research emphasizes the significance of studying it further. The present review attempts to highlight the inequalities from the geographical and demographic perspectives, present the current situation in Greece, and identify the barriers to adoptions.

In terms of space, there are always two unequal ends in the adoption chain, and this automatically implies the existence of multiple forms of inequality and important discrepancies between countries (Mignot, 2019). The beginning of the thread lies in the geographical disparities and the inability to raise children in certain areas (Heynen, 2006).

Therefore, the geographical dimension of 'luck' in defining the birthplace and place of residence (Kearns & Reid-Henry, 2009) is an important factor in the adoption process, especially in international cases (Leinaweaver & van Wichelen, 2015). Prospective adoptive parents are shaping the destination of the child's migratory route (Leinaweaver, 2015), underlining a specific type of population mobility. On the other hand, geographies may be vital for adopters and adoptees as they shape their new families.

From 2004-2014 in the European Union, an average of 11,610 intercountry adoptions involving children originating from non-EU countries were realized (Table 1), reporting a rate of intercountry child adoption of almost 12 per 100,000 children (Jurviste et al., 2016). Italy, France, and Spain received the most children, while the predominant countries of origin were Russia, Ethiopia, and China. An important question not yet addressed is the receiving member states' preferences of origin, which may be linked to the destination countries' integration policies.

Table 1: Intercountry Adoptions in the European Union, Top Origin-Destination Countries, 2004-2014

Top 10 countries of origin	Adoptions (f)	Top 5 receiving countries				
Russia	21,727	ES	IT	FR	DE	UK
Ethiopia	9,053	FR	IT	BE	DK	DE
China	8,718	FR	NL	SE	UK	FI
Colombia	8,143	IT	FR	DE	SE	NL
Vietnam	6,206	FR	IT	DK	SE	DE
Ukraine	6,089	IT	ES	FR	DE	SE
Haiti	5,371	FR	DE	NL	BE	IT
Brazil	3,239	IT	FR	NL	PT	BE
India	2,528	IT	UK	DK	SE	FR
Kazakhstan	2,266	ES	SE	BE	FR	DE

BE = Belgium, DE = Germany, DK = Denmark, ES = Spain, FI = Finland, FR = France, IT = Italy, NL = Netherlands, PT = Portugal, SE= Sweden, UK = United Kingdom,

Note: *(Jurviste et al., 2016), author's elaboration*

Domestic adoptions achieved higher rates than intercountry ones. From 2002-2014, 18,366 domestic adoptions occurred, with a rate of 18 adoptions per 100,000 children (Jurviste et al., 2016). In relative terms, the UK, Germany, Poland, Bulgaria, Denmark, and Cyprus reported the highest adoption rates.

The age at which children are adopted plays a key role in their development of skills and behavioral responses post-institutionalization. Specifically, the younger the child is when adopted, the less institutional experience they have and, consequently, the less functioning difficulties they present (Merz et al., 2013). The age of five years seems to be an important 'threshold' of the emotional and social aspects of adoption (Bilson & Munro, 2019). Based on the limited data provided by 26 countries worldwide, the United Nations reported a mean

age of adoption at between four and six years (United Nations, 2009). Nevertheless, there are marked differences in the at-adoption age thresholds between countries, falling under two years in Belgium and Australia and increasing to greater than five years in Switzerland, Germany, and the UK. Age thresholds differ by country, and there is no official optimum adoption age range for social and behavioral developmental outcomes (Julian, 2013). According to researchers, some institutions spend more time on regulatory and procedural issues than caregiving (Merz & McCall, 2011).

In addition to the importance of the adoptee's age to the formation of the new family, of equal importance is both the caregiver's age and the gap between the two ages (Broadhurst et al., 2017; Leinaweaver, 2015; Voukelatou, 2015). It is also important to mention the limited involvement of prospective parents in the overall adoption process, which has been particularly emphasized in the recent reform agenda in England (Smithson & Gibson, 2017), as it has been an important research topic in previous years (Corby et al., 1996).

Regarding the literature in Greece, we conducted a systematic review of the multidisciplinary studies concerning children's adoptions. We identified a particular gap in the adoptions' geographical dimensions and spatial inequalities. Until now, scientific research has mostly revolved around the psychosocial approach (Papadaki, 2020; Triseliotis, 2000; Voukelatou, 2015), childcare institutions, and their impact on child psychosynthesis (Papamichail, 2020). At the same time, especially in the case of Greece, from 2017 onwards, questions have arisen about the phenomenon of unaccompanied refugee children and the possibilities of their integration into a foster care or adoption regime (Buchanan & Kallinikaki, 2020).

Family planning and reproductive control were introduced in Greece in the late 1970s in an attempt to focus on the ethics of a child's well-being (Paxson, 2004). The total fertility rates (Eurostat, 2020) declined inversely to the modernization of society. In an unfavorable demographic climate, the potential impact of the economic crisis must also be taken into consideration. Although there has been no relevant research on the implications of the economic crisis on adoptions, deprivation and poverty are major factors when bearing a child. In England, for example, in the aftermath of the austerity policies, the number of babies removed from their parents doubled over a period of eight years (Stevens et al., 2020).

Until recently, the child adoption process in Greece proved to be time-consuming. The bureaucracy increased the waiting period to up to six years, disappointing many prospective parents. A further obstacle concerned the absence of a national register with compulsory electronic identification of the children entering the institutions. The collection of the data was carried out by the registries of the Courts of First Instance, after the announcement of the adoption. In 2018, the National Register of Prospective Parents and the National Register of Adoptions were reestablished (Government of the Hellenic Republic, 2018), but still, databases are not systematically updated. Beyond the passing of the law, methodical and targeted steps are needed to change a consolidated situation, either through the implementation of provisions or the coordination of all stakeholders to effectively meet their obligations.

Apart from the above barriers, it takes a long time to determine the motives of the adoptive parents. Caregiving ability is not a measurement for all prospective parents, but their behavior substantially impacts child development (DePasquale et al., 2019). With respect to impediments to the desire to adopt, many Greek people have serious concerns about the child's biological history (e.g., potential health outcomes of genetic disorders) or their capacity

for love, devotion, and care for a non-biological child (Chatjouli et al., 2015). On the other side, the motivations for biological parents to leave a child in an institution vary and depend on factors that make up the individual state's identity (Jurviste et al., 2016), such as the social norms, the social acceptance of teenage pregnancy, the attitudes towards abortion, as well as the adoption policies.

The above review verifies the complexity of adoptions and concludes that a multidisciplinary approach is needed to enhance the understanding of this issue. In summary of the state of affairs at the time of this study, EU countries mostly adopt children from non-EU countries (e.g., Russia, Ethiopia, China, and Colombia). The countries with the highest recorded adoptions are Italy, France, and Spain. Domestic adoptions are far greater in number than international adoptions. The limited data on adoptions do not allow accurate comparability. Data from individual countries concluded that the mean age at adoption is between four and six years old, but there are significant differences between the countries. In Greece, the unfavorable demographic environment in conjunction with the economic crisis circumstances likely resulted in a substantial impediment to adoptions. In the literature, adoptions are viewed from different perspectives, either social or psychological. In the present study, adoptions will be treated from the demographic and spatial point of view.

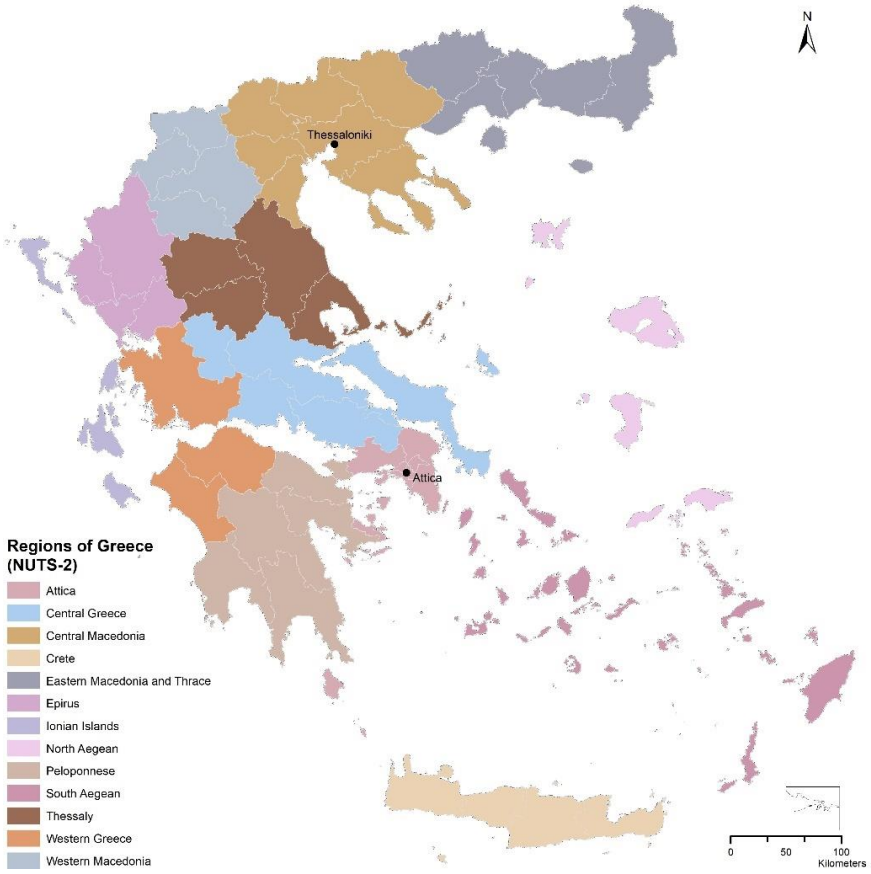
Data and methods

Data and demographics indexes

To get a clearer picture of adoptions in Greece during the economic crisis period, two data sets were used. The first panel data set provided information on the gender of adoptions conducted during 2011-2018 in the 13 regions of Greece (NUTS-2) (Map 1). The second data set showed the distribution of the adoptees by age group (0-5 years, 6-10 years, 11-18 years, 19 years and older) at the national level. Both data sets were derived from the Ministry of Health and Social Solidarity, published by the Hellenic Statistical Authority (ELSTAT, 2019a). The non-availability of spatial microscale data (as shown, the data are available either at the national or NUTS-2 level) fit particular research questions and determine the methodology proposed.

If data availability constitutes a major challenge for the analysis, a second methodological issue concerns the definition of the reference population. The Greek law explicitly states that the age limit of the adoptive parents needs to be between 30 and 60 years (Government of the Hellenic Republic, 2018). Consequently, age groups (i) under 30 years, and (ii) 60 years and over were not included.

Map 1: Study area, Regions of Greece (NUTS-2)



Note: (ELSTAT, 2020b), author's elaboration

As this paper will explore the sociodemographic aspect of the inequalities, the following demographic indicators were calculated to sketch an initial picture of adoptions in Greece: adoption distribution by gender (sex ratio), adoptees by four main age groups (0-5, 6-10, 11-18, 19 and older), and age distribution. Furthermore, in addition to the demographic indexes, the Gini index was applied to capture the inequalities across gender. To explore the spatial inequalities, we estimated the location quotient (LQ) for the adoptions and then applied the Gini index. Finally, to detect spatial patterns of adoptions, we used spatial autocorrelation.

Inequality measures

As mentioned, to approach the spatial inequality in adoptions between the Greek regions, the spatial index LQ was employed. This is a long-standing tool used widely in regional science to identify agglomeration by measuring the share of an attribute in a specific area in relation to the reference area (Bassett & Williams, 1928). The LQ determines the extent to which different areas depart from a norm. It is used to determine the spatial distribution (clustering, concentration, or dispersal) of a phenomenon in a region. It has the form of a ratio and thus allows for the comparison of a specific attribute between different regions.

For the present study, the LQ was calculated for the data of the 13 Greek regions (NUTS-2) over eight years (2011-2018). Its formula consisted of two ratios and was calculated by dividing the number of adoptions in a region relative to its population by the number of adoptions in the overall Greek population:

$$LQ_{\ year} = \frac{\frac{Adoption_{\ i}}{Population_{\ i}}}{\frac{Adoption_{\ GR}}{Population_{\ GR}}} \quad (1)$$

where *year* = 2011 to 2018, *i* = 1 to 13 Greek regions, *GR* = Greece, *Adoption* = the adoptions that occurred, and *Population* = the reference population. Number one is the reference point for the interpretation of the LQ. Values greater than 1.0 indicate a high concentration of adoptions in a region, while values less than 1.0 indicate a dispersed location.

In addition to the LQ, the Gini coefficient and the Lorenz curve were applied to measure inequality across gender and space. Typically, these both address income inequality issues either by mathematical calculation or by visual interpretation. However, in the international literature, they are used for detecting inequalities in multiple disciplines (Abraham et al., 2003; Gianola et al., 2003), including population distribution (Rogerson, 2019; White, 1986). In the present study, the Gini coefficient was applied to (i) adoptions (crude number), (ii) LQ of adoptions to factor in the weight of the population on adoptions, (iii) male adoptees, and (iv) female adoptees. The Gini coefficient is quoted as being a value from zero to one, where zero stood for perfect equality and one for perfect unequal adoption distribution.

Spatial autocorrelation, local clusters, and outliers

Spatial autocorrelation was addressed to explore the existence of spatial patterns. The first law of Geography, according to Tobler (1970), is that "everything is related to everything else, but near things are more related than distant things" (p.236). Tobler's Law introduces a crucial concept in Geography, that of Exploratory Spatial Data Analysis (ESDA). Spatial autocorrelation examines how similar one data point is to other data points around it to understand if phenomena relate in space. It is based on global statistics, such as Moran's I (Moran, 1950), and, in the present study, explains whether the demographic variable Adoptions is randomly distributed among Greece's regions. Positive autocorrelation leads to the clustering of data points, negative autocorrelation leads to the dispersal of data, and an autocorrelation of zero indicates randomness and that locations of data points are not related in space.

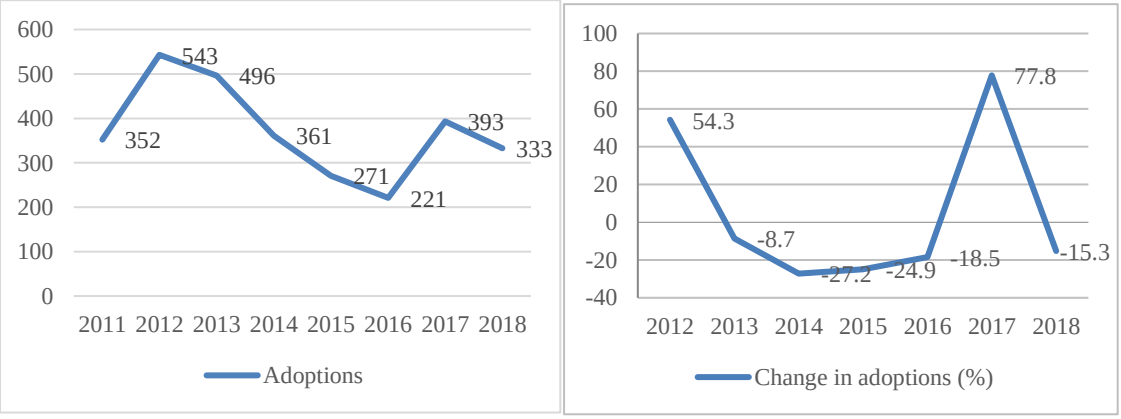
Moran's I provides information on the overall spatial association of the phenomenon under study. The Local Indicators of Spatial Association (LISA) allow for the segmentation of Global Moran's I into the contributions of each of the individual regions (Anselin, 1995), enabling a more in-depth analysis of the spatial association. LISA refers to the classification of specific locations based on the statistical significance of the variable considered and identifies local clusters and spatial outliers. The local clusters are areas that either consist of high levels for a specific indicator surrounded by areas with high levels (High-High) or low levels for a specific indicator surrounded by areas with low levels (Low-Low). The spatial outliers indicate areas with high levels for a specific indicator surrounded by low-level areas (High-Low) and low levels for a specific indicator surrounded by high-level areas for that indicator (Low-High).

The spatial index values were illustrated in thematic maps using specialized geographic information systems to detect spatial clusters across the study period. Both the Gini index calculation and the Lorenz curve display were performed in the R environment, employing the package on inequality metrics (ineq.). Finally, the spatial statistics (Global Moran's I and local indicators of spatial association) were performed with the open-source software tool GeoDa (2020).

Results

During the economic crisis in Greece, 2,970 adoptions were carried out, of which 1,379 were male, and 1,591 were female. The adoption trends during the study period (2011-2018) fluctuated at low annual levels (M= 371), while the course of adoptions steadily declined. In 2014, adoptions in Greece showed a negative record of the crisis period, which can be linked to the continually deteriorating economic situation of the Greek people. Over the period from 2011 to 2018, the rate of child adoptions in Greece decreased by 5.5% (Figure 1).

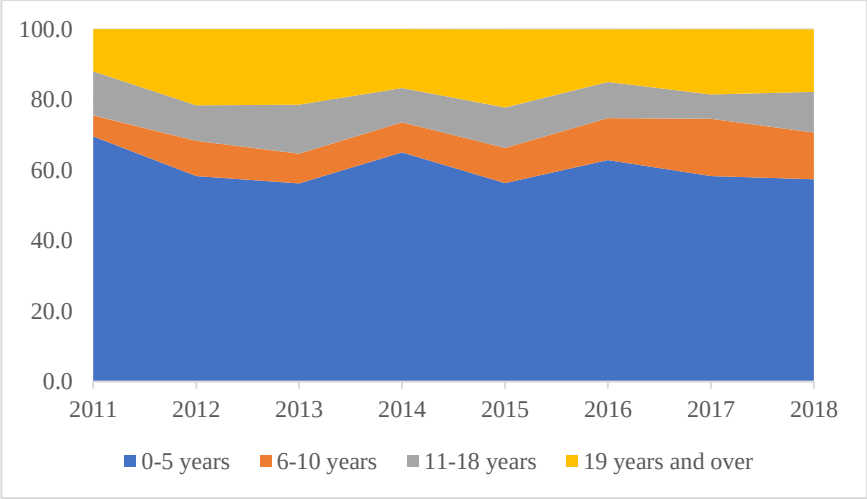
Figures 1,2: Evolution in Annual Numbers of Adoptions, Change in Adoption Rates (%), 2011-2018



Note: (ELSTAT, 2019a), author's elaboration

Most adoptions over the crisis period involved children aged between zero and five years (Figure 3). Nevertheless, this trend saw a downward trajectory (from 70.7% in 2011 to 56.5% in 2018), while adoptions of children aged 6-10 years gradually increased (from 3.1% in 2011 to 13.5% in 2018). Regarding children aged 11-18 years, an unstable situation was observed with important fluctuations. Finally, adoptions in the age group of 19 years and older presented a significant increase, which reached a peak in 2015 (22.1%) and then stabilized at slightly lower levels (18%).

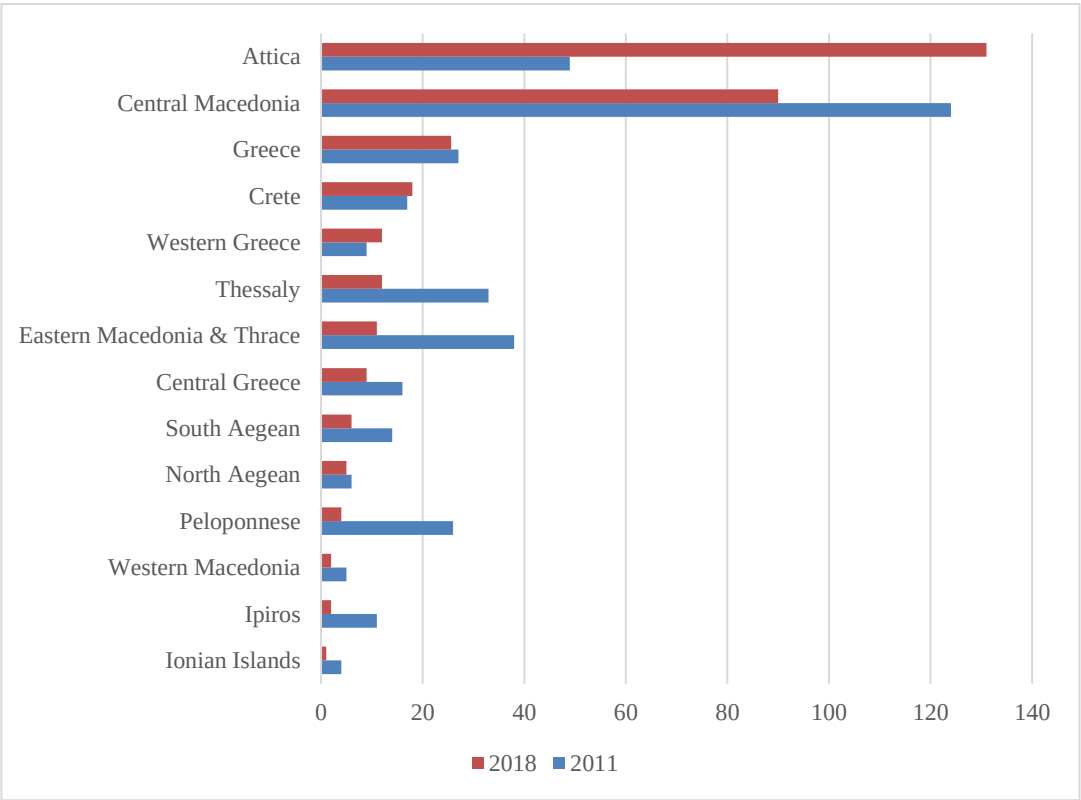
Figure 3: Age Distribution of Adoptions, 2011-2018



Note: (ELSTAT, 2019a), author's elaboration

From 2011-2018, adoptions were limited (on average 29%) in most regions (77%) (Figure 4), while Peloponnese and Epirus recorded the highest reductions (84.6% and 81.8%, respectively). Only three regions reported an increase in adoptions during this period. Attica's adoptions increased sharply from 49 in 2011 to 131 in 2018 (an increase of 167%). Western Greece and Crete followed, indicating much lower percentages of growth (33.3% and 5.9%, respectively).

Figure 4: Adoptions in Greece by Geographic Region, 2011, 2018



Note: (ELSTAT, 2019a), author's elaboration

As shown by the demographic index of sex ratio (males per 100 females) (Table 2), there was a clear dominance in the adoption of female children, which differentiated in some cases if we consider the spatial or time dimensions. In most regions, the balance showed a higher number of female adoptees. The geographic variations in sex ratio revealed a preference for male children only in Western Greece, Central Greece, and South Aegean. Attica and Thessaly reported a more stabilized situation yet were still oriented more towards female adoptees. The regions of Eastern Macedonia and Thrace, and Central Macedonia preferred female adoptees.

Table 2: Sex Ratio of Adoptees by Geographic Region, 2011-2018

	Sex Ratio (males per 100 females)							
Geographic region	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Greece	82.8	82.8	91.1	86.6	88.7	93.8	94.4	105.0
Eastern Macedonia & Thrace	81.0	60.0	100.0	41.7	125.0	250.0	200.0	175.0
Attica	80.8	79.7	95.7	81.5	85.4	75.9	96.0	88.4
North Aegean	50.0	15.4	0.0	500.0	40.0	*nd	50.0	100.0
Western Greece	125.0	144.4	100.0	20.0	150.0	60.0	80.0	200.0
Western Macedonia	25.0	600.0	133.3	*nd	100.0	nd	100.0	100.0
Epirus	42.9	150.0	200.0	*nd	*nd	200.0	50.0	*nd
Thessaly	73.7	75.0	93.8	112.5	100.0	80.0	80.0	71.4
Ionian Islands	100.0	100.0	33.3	100.0	0.0	33.3	100.0	*nd
Central Macedonia	80.0	84.5	72.3	92.9	119.0	120.0	109.3	102.3
Crete	183.3	90.9	145.5	40.0	70.0	175.0	35.7	80.0
Central Greece	200.0	200.0	66.7	140.0	0.0	200.0	400.0	80.0
South Aegean	44.4	100.0	75.0	150.0	300.0	0.0	125.0	100.0
Peloponnese	85.7	54.5	87.5	350.0	66.7	33.3	40.0	300.0

*Note: (ELSTAT, 2019a), author's elaboration, *nd= no data*

The cartographic representation of the location quotient of children's adoptions (Figure 5) communicated the spatial information and provided substantial results. Throughout the analysis period (2011-2018), most regions reported low concentrations of adoptions compared with the average, whereas three regions systematically recorded adoption levels below the country's average (Ionian Islands, Western Macedonia, and Western Greece).

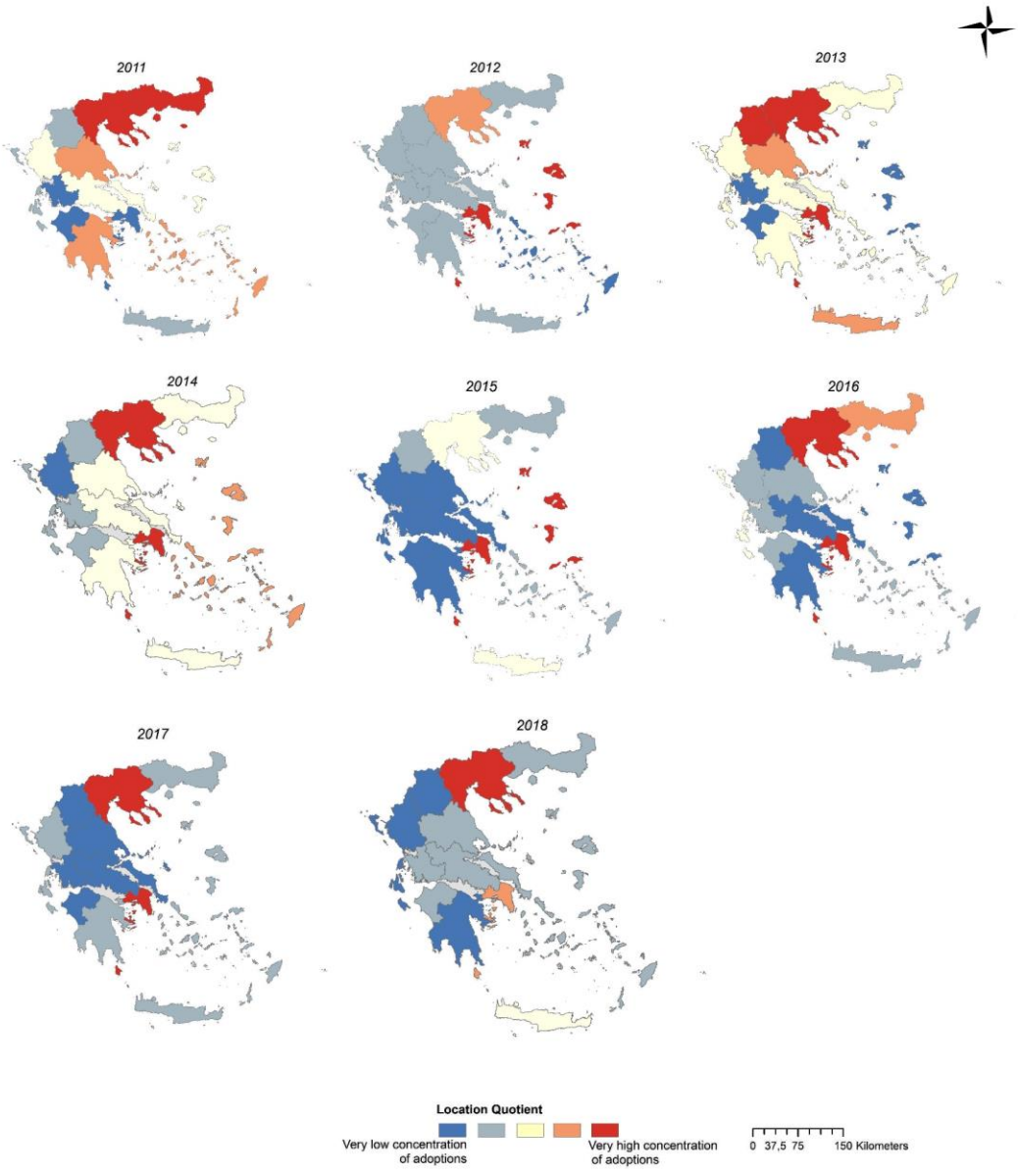
The map identifies two intervals, 2011-2012 and 2012-2018, according to the adoption rates of the different regions. In the first interval, high levels of adoptions are observed, whereas, in the second period, the adoptions are mainly limited to the two metropolitan regions.

During the first period, almost 40% of the regions reported a significant or very high concentration of adoptions, and one-fourth ranged at the same level as the national average. The highest shares of adoptions were located in Central Macedonia and Eastern Macedonia, and Thrace, with two times higher concentrations of child adoptions than in Greece as a whole. In Attica, on the other hand, an extremely low concentration of adoptions was noted

(0.39), which was also the lowest in 2011. This fact is a contradiction in terms since Attica accounts for 35.4% of the population of Greece.

The second interval (2012-2018) indirectly depicted the implications of the crisis for adoptions and space inequalities. Attica and Central Macedonia were the only two of the 13 regions that maintained high rates of adoptions over time. In Attica, in particular, there was a steadily rising rate of adoption. Even though the adoptions were mainly located in only two areas, the concentration rates were lower than in the previous interval (Attica's highest LQ was 1.62, and Central Macedonia's highest LQ was 1.55). Apart from the trend followed by the above metropolitan regions, the North Aegean Islands reported significant concentrations in 2012 (1.53) and 2015 (1.42). Specifically, in 2012, the adoptions located in the Aegean insular territory were the highest noted.

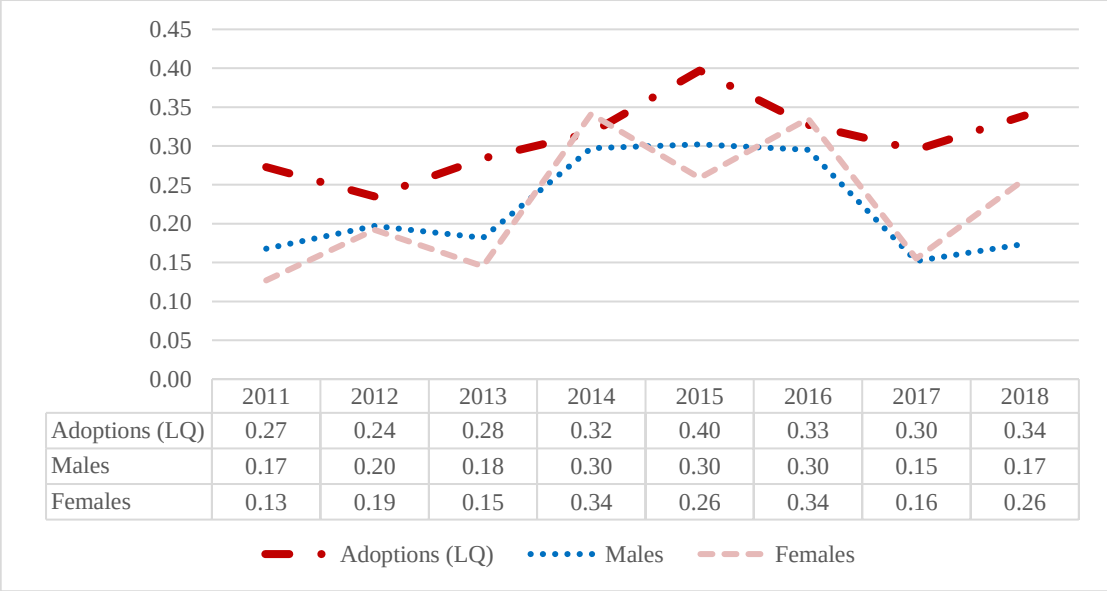
Figure 5: Cartographic Representation of Adoptions Concentration (LQ)



Note: (ELSTAT, 2019a), author's elaboration

The Gini coefficient (Figure 6 and Appendix A) indicated significant inequalities in the distribution of the adoptions (LQ) throughout the study period. Specifically, inequality progressively rose from 0.24 in 2011 to 0.40 in 2015, while, in subsequent years, it decreased slightly to 0.34 in 2018. This means that the adoption rates differed between 24%-40% from the average between two random regions. Regarding the inequality in adoption distribution by gender, this stayed at relatively low levels until 2013, although higher levels were observed in the distribution of males than females. The years 2014-2016 paint a different picture, reporting a widening in the inequalities gap with greater preference observed towards females. The concentration of both males and females de-escalated in 2017, even though the inequality in the overall adoptions remained at high levels (0.30). Finally, the year 2018 differentiated between males and females, with the females reporting once again an increase in the distribution gap in their favor.

Figure 6: The Gini Index of Males, Females, and Total Concentration of Adoptions, 2011-2018

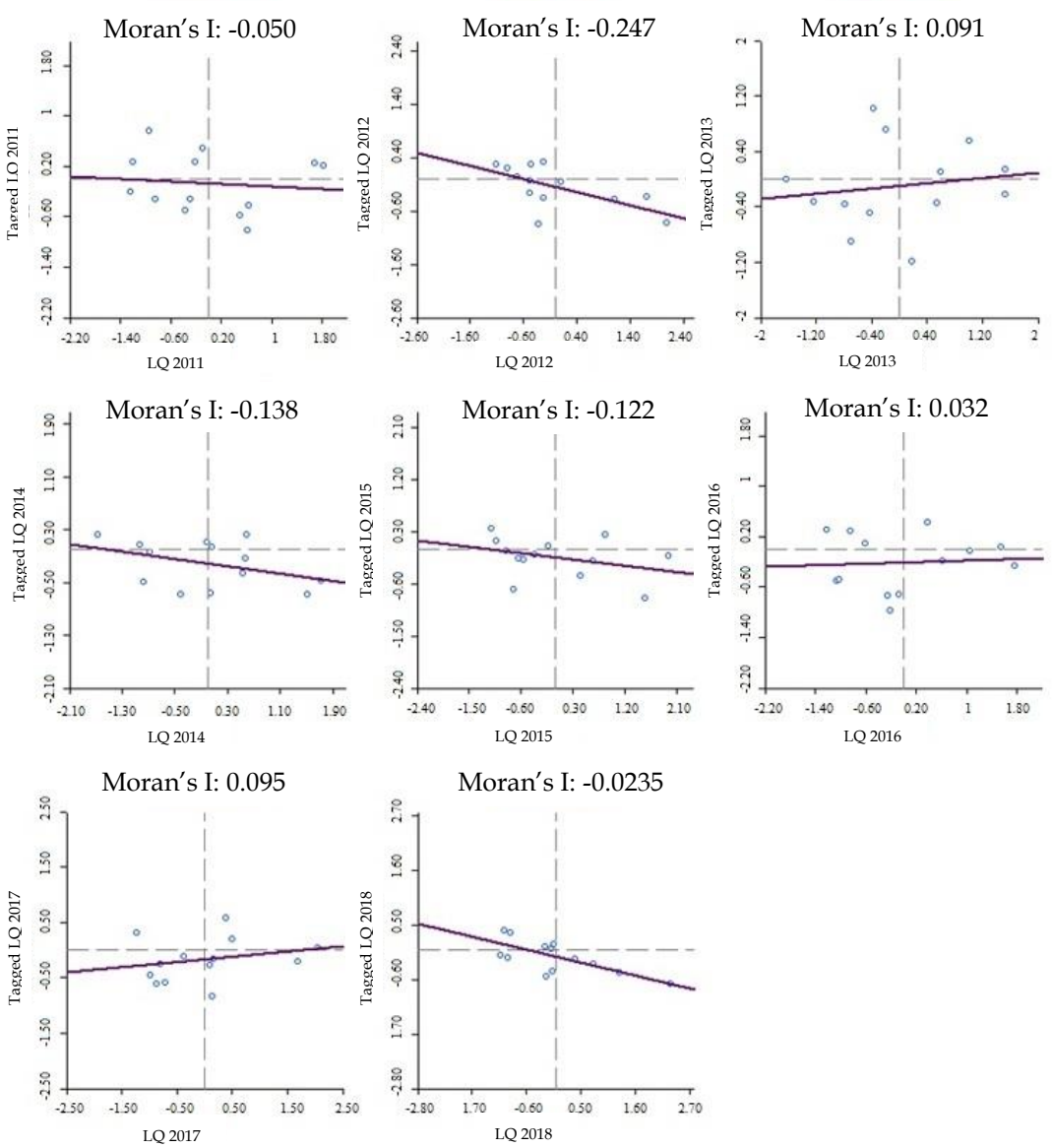


	2011	2012	2013	2014	2015	2016	2017	2018
Adoptions (LQ)	0.27	0.24	0.28	0.32	0.40	0.33	0.30	0.34
Males	0.17	0.20	0.18	0.30	0.30	0.30	0.15	0.17
Females	0.13	0.19	0.15	0.34	0.26	0.34	0.16	0.26

Note: (ELSTAT, 2019a), author's elaboration

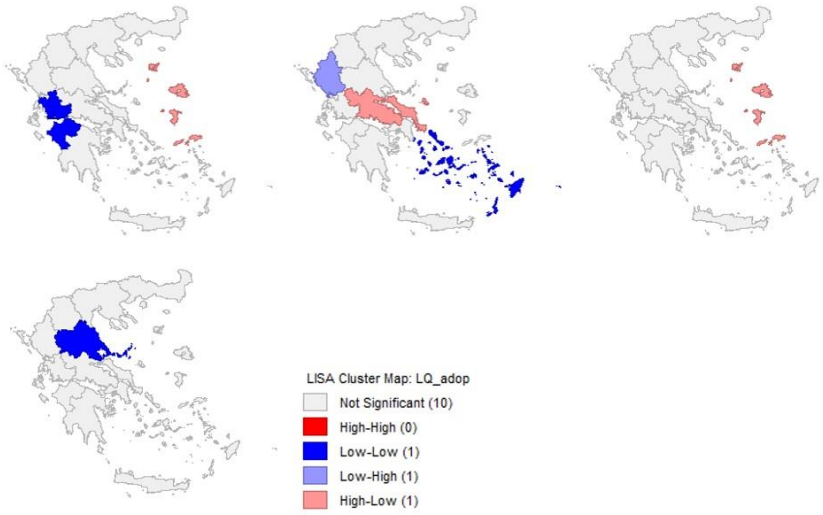
Through the spatial analysis, patterns of the adoptions during the economic crisis period could be detected and explained. The Global Moran's I index (Figure 7) indicates the existence of spatial autocorrelation in the adoptions in specific years of the crisis: 2012 (-0.247), 2014 (-0.138), 2015 (-0.122), 2018 (-0.235). In all four years, either a slight or moderate negative spatial autocorrelation was observed. This means low percentages of adoptions in the Greek regions tended to be associated with high local average values of adoptions. Consequently, the existence of spatial patterns was confirmed, as regions with similar rates of adoptions tended to be closer to each other. This finding confirmed that space is not neutral and impacts the development of the demographic phenomenon of adoptions. The rest of the years in the study period indicated the absence of spatial relations.

Figure 7: Moran Scatterplot - The Relationship Between Adoptions (LQ) and the Value of the Average Adoption of its Neighbors



Note: (ELSTAT, 2019a), author's elaboration

Figure 8: Univariate LISA Maps Depicting Spatial Clusters and Outliers, 2012-2013-2015-2016



Note: (ELSTAT, 2019a), author's elaboration

Moran's I local indicators for adoptions (Figure 8) confirmed the existence of either cold spots or spatial outliers across the 13 regions of Greece for specific years of the period under study. In 2012, a cold spot was found in Western Greece (p <0.05), which confirms the existence of a spatial cluster in which the neighboring regions had an equally low rate of adoptions. In 2013, the South Aegean Islands formed a cluster of low concentrations of adoptions (p <0.05), with the simultaneous appearance of two spatial outliers in the regions of Epirus and Central Greece (p <0.05). The North Aegean Islands appeared as a spatial outlier in 2015, with low adoption rate concentrations. In 2016, a cold spot was seen in Thessaly, signifying low adoptions in the adjacent regions. Even though a particularly strong negative spatial autocorrelation was observed in 2018, specific spatial patterns did not emerge.

Discussion and proposals for adoption policies

The debate over the demographic challenge has recently intensified in Greece. The country is experiencing a significant population decline, low birth rates, and high population aging. Furthermore, the economic crisis triggered a wave of emigration in the young labor force (Labrianidis & Pratsinakis, 2016), while a consequent population redistribution increased the urban-rural divide (Anastasiou, 2020). As shown above, the absence of a demographic balance is apparent. There is increasing concern over the dynamics of the indirect demographic aspect of child adoption, which has demonstrated a decreasing trend over the crisis period.

The findings show a decrease in adoption rates by 5.4% from 2011-2018 across the 13 regions of Greece. From 2011-2012, adoptions in Greece doubled, whereas, after 2012, a negative trend started with an annual decrease of 16.7%. Overall, during the crisis period studied (2011-2018), Peloponnese, Epirus, the Ionian Islands, and Eastern Macedonia and Thrace showed the most significant drops in adoptions. The adoptions increased in only three regions: Attica, Western Greece, and Crete. These findings are not in accordance with the low fertility rates of the

country (1.3 live births/woman) (Balourdos et al., 2019). If we examine the fertility rates by region, the Ionian Islands and Crete are relatively above the national average (1.6 and 1.5, respectively), while Attica, Peloponnese, and Western Greece show lower fertility rates (1.3) (Balourdos et al., 2019; Eurostat, 2020).

It is, therefore, crucial to create targeted interventions and implement action plans to formulate a practical child and family support policy. Indirectly perceived benefits will have a significant impact on both local societies and space. Achieving this requires not only a comprehensive demographic policy but also horizontal measures regarding institutions. Accessing adoption data, both in Greece and in the rest of Europe, is problematic, making comparability challenging. Among the member states that reported comparable categories (i.e., Bulgaria, France, Ireland, Luxembourg, Latvia, Slovenia, and the UK), 78.2% of the domestic adoptions involved children under four years old (Juvriste et al., 2016). In Greece, the adoption of children under five years old was at much lower levels (59%).

Moreover, it is crucial to systematically update the national register to monitor the public as well as private child institutions more effectively. The way adoption information is collected plays a key role in shaping policies. The long delays and multiple bureaucratic problems faced by parties interested in commencing foster care or child adoption led to an extended stay of about 2,500 children in institutions, with a consequent impact on their mental development and health. This is a severe weakness that should be confronted by reducing the bureaucracy and social inquiry time for prospective adoptive parents.

Another important element of inequality is gender-selective adoption. It has been observed that adoptions in Greece focus significantly on the adoptive parents' preferences instead of the real needs and rights of the children waiting to be adopted (Fotiadi, 2019). The analysis showed that there is a preference for adopting girls. This profound preference for females is contradicted by Greek society's social stereotypes in bearing or adopting a son. Parents are usually not willing to adopt a child who deviates from the stereotype they have in mind.

A crucial finding that emerged from the analysis was spatial and intertemporal inequalities. It became apparent that the spatial concentration of the adoptions presented significant differentiation between the regions of Greece. Moran's I index verified that space was not neutral and showed how neighboring regions presented high or low levels of adoptions, highlighting specific years of the economic crisis (2012, 2014, 2015, and 2018). Specifically, Western Greece (2012), the Aegean Islands (2013), and Thessaly (2018) reported low adoption rates and spatial relations with their neighboring regions. These findings are of significant importance as, for the specific years, it seems that spatial dynamics explained patterns of human behavior and played a crucial role in adoption distribution. From the above, it is apparent that the influential component of space urgently needs to be taken into consideration. In terms of geographical proximity, adoption cases should be considered in line with the child's place of birth and natural family residence. This specific intervention has multiple effects, primarily on a child's smooth transition to family care and, secondly, but equally important, on reducing spatial inequalities. Furthermore, people in disadvantaged areas should also have the opportunity to access adoption information. Policymakers should take into consideration the geographical dimension of adoptions in order to make more targeted and space-oriented policies.

To reverse the negative trend in adoptions, the government must take into account the general pessimism that resulted from the profound economic crisis. A proposal in that direction would be the raising of public awareness concerning adoptions via campaigns or social

actions based on human values. Such promotions could encourage adoption practices and expose stereotypes and prejudices. Finally, in line with the above suggestions, actions and national strategies on income policies should pursue a targeted approach with the aim of harmonizing work and family life.

Conclusions

Adoptions are a sensitive social issue with demographic implications. In Greece, however, research is limited. In this paper, the question of the spatial impact on child adoptions in Greece in the era of the economic crisis was addressed. The availability of data on a large spatial scale (NUTS-2) allowed for identifying inequalities in space, time, and gender, but limited our view to the determinants of the negative trend on adoptions.

The economic crisis was a significant barrier that could partly explain the broader negative trends in adoption rates. The results indicated a considerable reduction in adoptions during the period 2011-2018, with a simultaneous increase in inequalities, especially in 2015, concluding a decline in adoptions in periods of instability. Of particular importance is the finding that the predominant pattern of concentration of adoptions involved the two metropolitan regions of Attica and Central Macedonia. Drawing a parallel between the population concentration and the main internal migration pattern in Greece, urbanization (Anastasiou & Duquenne, 2017), it could be said that the crisis of adoptions in Greece is also an urban issue.

The geographic factor also plays a key role in adoptions, and Greece is marked by uneven geographies. The results led to the incontrovertible conclusion that spatial inequality is timeless and, consequently, the ineffectiveness of government policies in response to adoption heterogeneity has been revealed. The increasingly complicated nature of these inequalities disrupts society in various ways. Rather than focusing on the distribution of inequalities, however, coordinated planning should be carried out to better understand the necessary initiatives and address the core issues. In line with that, the identification of hot and cold spots will help to develop and monitor the interventions.

The results provided considerable insight into child adoptions in Greece. Nevertheless, it is not possible to conclude the determinants triggering the trends of this social phenomenon unless there is systematic registration of the children in institutions and a social inquiry of the prospective parents. Future research on the individual characteristics of both adoptees and adopters on a lower geographic scale could generate further evidence regarding this sociodemographic phenomenon.

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Appendix

Appendix A: The Lorenz Curve of Adoptions' Concentration (LQ), 2011-2018