

# “Modeling determinants of the Generation Z regional perception on the periphery: To stay or to leave”

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# MODELING DETERMINANTS OF THE GENERATION Z REGIONAL PERCEPTION ON THE PERIPHERY: TO STAY OR TO LEAVE

## Abstract

Regional attractiveness plays a crucial role in regional economic development and competitiveness. Despite interest in out-migration from peripheral regions, most studies overlooked Generation Z members in perceiving these factors. Therefore, the paper aims to examine the effect of the regional perception of Generation Z on their expectation of out-migration from the peripheral region. The focus group comprised 56 respondents (stakeholders) selected through purposive sampling by regional development agencies in three peripheral regions of the Czech Republic to identify regional perception indicators. The exploratory factor analysis and the principal component analysis were used to detect latent constructs of the identified regional perception indicators. Logistic regression was used to model the association between latent constructs and Generation Z's intention to leave or to stay in the peripheral region. Economic, social, and environmental dimensions were detected as latent constructs of regional perception indicators. The first dimension represents smartness and opportunities; the second, openness, is accompanied by culture; and the third, a safe and clean environment. The estimation results suggest the effect of the economic and lifestyle dimensions ( $\beta = 0.528$ ,  $p < 0.001$ ) and the social dimension ( $\beta = 0.292$ ,  $p < 0.01$ ) of the regional perception on the intention of Generation Z to leave or stay in the peripheral region, without the effect of the environmental dimension ( $\beta = 0.033$ ,  $p = 0.740$ ). The paper emphasizes the importance of economic, lifestyle, and social indicators of regional perception in place-based policies to retain Generation Z in the peripheral regions.

## Keywords

depopulation, generation Z, out-migration, peripheral regions, regional attractiveness

## JEL Classification

O15, R23, R58, Z13

## INTRODUCTION

Research on regional attractiveness is hot topic due to its cross-disciplinary nature concerning regions' socioeconomic, environmental, and cultural aspects. Most metropolitan regions are gaining the advantage of attracting knowledge workers, while non-metropolitan (peripheral) regions are becoming polarized and peripheralized. In the socioeconomic sense, it refers to brain drain and a less diversified regional economy that can create a spiral of adversity in regional development. In contrast, despite positive economic development, metropolitan regions are experiencing low to negative population growth.

The depopulation trends are often related to the population's changing needs in terms of attractiveness and perception of the regions by the youth. Attractiveness could be reflected in providing favorable conditions for the population regarding public services, transformation towards smart cities, sustainable mobility, novelty ways of communication, efficient use of public spaces, systematic approaches to regen-

erate brownfields, and the ability to tackle the challenges regions face in the long term. New models of boosting the attractiveness of regions are among the topics discussed to nurture local ecosystems toward positive regional perception. They can build on untapped strengths such as quality of life, access to modern public services, and digitalization.

Simultaneously, there are opportunities within urban planning that can reflect on the needs for leisure-time activities and stimulate the transformation of labor markets through job creation and customization of public services for the youth (Cefalo et al., 2020). These aspects of regional attractiveness refer to the transformation of regions through soft factors related to various amenities and growth opportunities for the youth labor market. However, these soft location factors for regional perception are not substantially studied in different age cohorts, with a gap in the determinants of Generation Z to or not to out-migrate (Larkin et al., 2018; Florida, 2019; Priporas et al., 2020). These determinants could be relevant in treating depopulation processes that threaten local economies by limiting growth opportunities in the context of diversification of economic activities, causing severe environmental problems, and complicating the provision of public services.

Depopulation processes cannot be framed from a single perspective, as they are issues of economic development and access to essential services that should go hand in hand. Generation Z signifies the relevance of the multi-scalar approach of depopulation and regional perception as the first generation of digital nomads living in a world that technical and technological advances have driven. They are likely to travel more than previous generations based on the preferences and perception of regions with respect to the attractiveness for retention of Generation Z in peripheral regions.

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## 1. LITERATURE REVIEW AND HYPOTHESES

The decline in population over time is a significant challenge for local and regional development. During industrialization and subsequent economic growth, cities expanded rapidly. They focused first on industry and then on services. The expansion in question required a labor force responsible for the depopulation of peripheral areas, where the increasing substitution of agricultural machinery for human labor further encouraged significant migration processes (Cefalo et al., 2020). In rural regions, the process may also be due to economic diversification and de-agrarianizing of activities (Viñas, 2019).

As stated by Collantes et al. (2014), depopulation processes pose a challenge to both metropolitan and peripheral regions, as they limit growth opportunities in the context of diversification of economic activities, cause serious environmental problems, and complicate the delivery of public services, which can threaten the development of less populated municipalities. Depopulation processes have attracted considerable attention from academia and policymakers due to their cross-disciplinary nature, which is difficult to frame from a

single perspective. Most studies approach this phenomenon from a demographic perspective, where depopulation refers to a decline in population density due to migration, especially from the younger generation. This could result from insufficient pro-urbanization, although other factors, such as access to higher education, also play a crucial role (Gløersen et al., 2016; McCann, 2017).

Depopulation processes in peripheral regions are also associated with demographic decline or shrinkage due to housing vacancies, economic decline, or inefficient use of public spaces (Heeringa, 2020). Shrinkage is also associated with the decline of core cities due to demographic changes, suburbanization processes, and economic decline, with simultaneous structural impacts on population density (Wiechmann & Bontje, 2015). Haase et al. (2016) state that many urban functions and services must adapt due to urban shrinkage and depopulation. In addition, migration of the young and productive population of childbearing age to cities or suburbs is ever-increasing (Barakat, 2015). This trend has had a twofold impact on regions losing young people: population decline and a change in the composition of the remaining population, representing a higher intensity of aging (Verwest, 2011).

The depopulation trends are related to the historical development of industrial regions (path dependence) following the transformation from centrally planned economies to market economies (Šimon, 2017). However, peripheral areas that are close to central urban regions, as well as areas that have good transport connections, often achieve population growth (Gløersen et al., 2016). Following the introduction of the depopulation of peripheral regions, the paper focuses on the characteristics of Generation Z, arguing that this is the first generation to be born into a globalized world that already has technological advances with a high degree of accessibility to new technologies. This circumstance reinforces the participation of young people in the digital world, whereby they are in contact with mobile phones, tablets, computers, and the Internet almost from a young age and, as a rule, daily. According to Dimock (2019), the basic premise of Generation Z representatives is often to be almost instantly and permanently connected to the online world, mainly for entertainment and communication with their peers.

Compared to previous generations, Generation Z is characterized by its technical prowess and the ability to search for much online information. The technical spectrum allows them to enter contact with the global world. That means contacts with users on all continents (Roblek et al., 2019). A central question mark is the use of critical thinking, especially with regard to the ability to verify available information and a deeper understanding of the problem. The availability of technology often results in members of Generation Z reading less and learning primarily visually (McCrinkle & Wolfinger, 2014). Generation Z is more individualistic and has fewer social skills and more superficial relationships due to virtual socialization (Roblek et al., 2019). Overuse of social networks leads to reduced social relationships in physical environments and often causes problems for young people in establishing relationships/social contacts.

On the other hand, the younger generation can better self-organize, discuss problems, and is not afraid to share new ideas (Behavio, 2019). Generation Z is the first generation of digital nomads living in a world that has changed due to technical and technological advances. Generation

Z is likely to travel more than previous generations, with the potential to network with diverse countries, religions, and cultures, which means that it may become the first global generation.

Following depopulation and Generation Z, a widening gap between developed and less developed regions could be observed in the deepening of socioeconomic disparities between regions. On the other hand, the high concentration of population in urban areas also has inevitable negative consequences, such as pollution and lack of affordable housing. At the same time, public policies need to respond to depopulation processes through Generation Z, which significantly impacts the socioeconomic development of regions. Most studies suggest that there will be a depopulation of peripheral and metropolitan areas in the coming years, which can be considered as outgoing theories of peripheral regions from which young people leave to study and work (Lovén et al., 2020; Priporas et al., 2020). This trend of depopulation of peripheral regions is linked to the changing needs for retention of Generation Z. Retention approaches are reflected in the fact that this generation is sensitive to sustainability, youth friendliness, safety, and cultural diversity. However, they seem less loyal than previous generations based on their perception and preference (Özkan & Solmaz, 2017). Furthermore, a large proportion of mutual interaction between Generation Z and regional authorities regarding retention strategies takes place through social media, reflecting on city image, city brand (place branding) personality, and overall satisfaction with the local environment, cleanliness, and openness to opportunities (Priporas et al., 2020; Aasetre et al., 2020).

Place branding is a tool for attracting new residents, tourists, and investors and is a way of communicating with existing residents, businesses, and other institutions (Belabas et al., 2020; Almeida & Cardoso, 2022). The idea of brand or rebranding of a place reflects the need to select certain benefits or values and represent them inside out. Hence, the underpinnings of place branding and rebranding are rarely only about logos or slogans. It is usually the case that both logos and slogans are aligned with local identity and circumstances (Bonakdar & Audirac, 2020). According to Kavaratzis (2020), place branding has roots in marketing focused on

strategies to attract investment and tourism related to local identity. In this regard, place branding represents a series of place-based socioeconomic impacts that generate tangible (strategies, programs, communication) and intangible (philosophy, atmosphere) aspects of place branding with the premise of capturing talent and investment (Belabas et al., 2020). Intangible aspects do not create a city's brand entirely, but in practice, it is often about small steps leading to the change in the presentation (thinking) of the place.

Florida (2019) argues that place branding could effectively implement a creative city concept. However, it cannot be claimed that city branding has a decisive influence on the outgoing tendencies of Generation Z. According to Kavartzis (2020), only a well-managed discussion on a new brand can start a particular process of revival and participation of all stakeholders. Both tangible and intangible can help mitigate outgoing tendencies. However, certain economic factors are taking the lead in the retention/attraction of Generation Z, especially in the case of availability of skilled jobs, quality of healthcare, availability of rental housing, the capacity of nursery and primary schools, safety, community or social life, sports facilities, access to nature and the environment (Hospers, 2020; Miftahuddin et al., 2021).

Conversely, one of the most significant pitfalls of branding/rebranding strategies is the fragmentation of actions that diverge from its complexity. It is practically impossible for the place's brand strategy and visual identity to appeal to every stakeholder (Cudny, 2019; Aasetre et al., 2020; Almeida & Cardoso, 2022). Therefore, it is essential to reflect on the identity of the place and the needs of Generation Z regarding communication within digitalization (digital cities, smart cities). Places dealing with depopulation face challenges while pursuing the place branding strategies and retention of Generation Z. Collaboration between local or regional policymakers and Generation Z is essential for their retention due to their innovative and creative nature. They are open to discussing problems and sharing new ideas in designing and implementing place branding strategies that promote opportunities, openness, and destination attractiveness (Iorgulescu, 2016). Place branding strategies denote an instrument for Generation

Z retention by promoting job, leisure, and educational opportunities through social media campaigns as part of vibrant places (Nyhuis, 2017). As Priporas et al. (2020) argue, place image and brand personality impact the engagement of Generation Z with local/regional social media.

Therefore, following insights into perceptions of marginality in geographical space developed by Mehretu et al. (2000), the paper's main aim is to determine regional perception indicators by Generation Z on their intention to leave or stay in the peripheral region. This approach is original in its contribution to investigating the regional perception of soft location factors of Generation Z members, which are considered to be determinants of their out-migration.

Therefore, the paper develops two hypotheses:

- H1: Over 50% of Generation Z members intend to leave the peripheral region.*
- H2: Increasing the negative regional perception of soft location factors of Generation Z members is associated with their increased likelihood of leaving the peripheral region.*

## 2. METHODS

Regional perception indicators cannot be measured directly, as they are based on the beliefs and attitudes of respondents as actors or stakeholders of regional development. Therefore, a two-step approach was employed to set regional perception indicators. The list of place's attractiveness characterized by soft location factors dimensions introduced by Florida (2019) for the creative class attraction was used as the first step for conceptualizing the regional perception indicators. The second step that contributed to the conceptualization was the modification of Florida's (2019) soft location factors dimensions to the regional level considering Generation Z needs by regional stakeholders using a single focus group as suggested by Nyumba et al. (2018).

More than 75% (56) of the 72 invited stakeholders selected by the purposive sampling conducted by regional development agencies in three pe-

ripheral areas of the Czech Republic (the Karlovy Vary Region, the Jeseník District, and the City of Zlín) accepted their participation in the focus groups during the period from February to April 2021. Participating regional stakeholders included public sector administration bodies, regional development agencies, educational institutions, and private companies. Code saturation and sample size (number of focus groups) were treated satisfactorily for focus group discussions, followed by Hennink et al. (2019). The code analysis resulted from interactive discussions with stakeholders moderated by the authors, as facilitators derived the final set of independent variables – regional perception indicators – to model their association with the expectation of Generation Z to leave the peripheral region (Table 1). The evaluation of the indicators by Generation Z members, treated as participants in the questionnaire survey, was transferred into a four-point Likert-type scale – strongly agree to disagree strongly. The Karlovy Vary Region was selected as a case study to estimate the regional attractiveness indicators for leaving the peripheral region.

The paper transformed Generation Z members' responses indicating whether participants consider it realistic to return to the region if they left it. To identify whether the subject would leave or stay in the region, all responses indicating that the participant would or would not return to the region were recoded as "Leave," and responses were recoded as "Stay" in case the Generation Z member was not considering leaving the region. The variable was renamed to "Expect to leave" (EXPEL).

The criterion for selecting respondents in the region was based on their status, as high school students are current members of Generation Z.

This criterion was established to gain insight into those objects of the investigation before deciding where to start their families and work. An online questionnaire survey was used to collect data from Generation Z. The survey was conducted in all public and private high schools in the region from December 2021 to March 2022 with digital informed consent from the participants. All students in the graduating classes or pre-graduation year classes were selected as Generation Z members alternately based on the age structure of the participants to cover students over 15 years old. The total number of subjects who participated was 1038. After data preparation, the subject pool of 690 cases was used for analysis. The remaining 320 subjects were excluded from the analysis, as they did not state whether they would return to the region or if they would not consider leaving the region; 28 participants did not complete all regional perception indicators in the survey. Therefore, the sample size in the study is appropriate for the explanatory factor analysis (EFA), as it is above all the recommended power analysis results from Monte Carlo simulation studies noted by Kyriazos (2018).

Three statistical methods were used to prepare the data and verify the assumptions of the resulting data set for analysis. Firstly, the reliability of the regional perception indicators derived from the predictors used in Table 1 was examined as soft location factors, as the concept can only be measured indirectly (Graham, 2006). The Likert-type scale variables led to a reliability analysis performance to estimate the item's internal consistency, as Deng and Chan (2017) and Vaske et al. (2017) suggested. The analysis is based on Omega HA ( $\omega$ ) for the reliability measure to avoid violating the assumptions caused by the traditionally

**Table 1.** Regional perception indicators

Florida's (2019) soft location factors	Derived regional perception indicators – Name	Derived regional perception indicators – Label
Quality of Life/Quality of Place	Wealthy, Creative, Smart, Offering opportunities	WEALTH, CREATIVE, SMART, OPPORT
Culture	Culture, Openness	CULTURE, OPEN
Large big-ticket events	Destination attractiveness	DESTAT
Nightlife scene, cafés, bars, and music clubs	Vibrant	VIBRANT
Outdoor and lifestyle activities	Youth-friendly	YFRIEND
Accessibility of activities	Safe	SAFE
Water area	Clean	CLEAN

**Table 2.** Correlation matrix of the regional perception indicators

	YFRIEND	SAFE	WEALTH	CLEAN	CREATIVE	CULTURE	SMART	OPEN	OPPORT	DESTAT
SAFE	.138**	–	–	–	–	–	–	–	–	–
WEALTH	.398**	.131**	–	–	–	–	–	–	–	–
CLEAN	.154**	.423**	.222**	–	–	–	–	–	–	–
CREATIVE	.422**	.217**	.371**	.331**	–	–	–	–	–	–
CULTURE	.350**	.179**	.275**	.250**	.480**	–	–	–	–	–
SMART	.457**	.171**	.421**	.293**	.499**	.438**	–	–	–	–
OPEN	.317**	.126**	.267**	.227**	.383**	.434**	.401**	–	–	–
OPPORT	.579**	.184**	.440**	.197**	.504**	.378**	.479**	.415**	–	–
DESTAT	.221**	.177**	.186**	.230**	.309**	.484**	.262**	.397**	.279**	–
VIBRANT	.492**	.102**	.322**	.167**	.424**	.354**	.450**	.364**	.511**	.372**

Note: \*\* significance at the 0.01 level.

used Cronbach’s alpha (Goodboy & Martin, 2020; Hayes & Coutts, 2020). The standardized  $\omega$  value of 0.847 is considered satisfactory, as it reached the value > 0.800 (Goodboy & Martin, 2020).

Secondly, the Pearson correlation matrix was performed to control the collinearity of the regional perception indicators. Table 2 shows several moderate significant correlations ( $p < 0.01$ ) among the predictors in the modeling determinants to leave. Therefore, thirdly, the EFA was carried out to identify latent constructs by reducing the set of original variables in compliance with the statistical procedures in Henson and Roberts (2006). Following the procedure, the data inspection techniques were implemented by the probability of the  $\chi^2$  distribution with degrees of freedom  $df$  by the squared Mahalanobis distances to detect multivariate outliers. Bartlett’s sphericity test inspected whether the observed correlation matrix is an identity matrix. And the Kaiser-Meyer-Olkin (KMO) sampling adequacy test identified that latent constructs may be present and EFA may be performed. Principal component analysis (PCA) was used to explain maximum variance to reduce the number of predictors (Schreiber, 2021). The Kaiser criterion was adopted to suggest the number of factors representing common variances. The varimax orthogonal rotation was adopted to produce uncorrelated results from rotated factors. Anderson-Rubin factor scores for each case of the resulting factors were calculated for their imputation as latent constructs of the regional perception indicators.

A logistic regression was performed to understand the identified latent constructs as determinants of leaving Generation Z from the peripheral region.

This method is the most appropriate for modeling the relationship between the binary dependent variable and one or more categorical and continuous independent variables (Peng et al., 2002; Peng & So, 2002; Anderson et al., 2003). The rationale for such a regression analysis is that the fit curve is far from linear – S-shape. To measure the relationship between predictors and outcomes, the regression model took the form:

$$\begin{aligned} \log it(Y) &= \text{natural log(odds)} = \\ &= \ln\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta X_1 + \varepsilon, \end{aligned} \tag{1}$$

where  $\pi$  is the probability of the outcome of the event;  $\alpha$  is the  $Y$  intercept;  $X$  is the independent variable;  $\beta$  is the regression coefficient;  $\varepsilon$  is the error.

To adjust the logistic regression model to this case, the relationship between the latent constructs, factors of the regional perception indicators, and the expectation of Generation Z to leave took form:

$$\begin{aligned} \log it(EXPEL) &= \alpha + \beta_1 \text{Factor1} + \\ &+ \beta_2 \text{Factor2} + \beta_3 \text{Factor3} + \varepsilon. \end{aligned} \tag{2}$$

Peng et al. (2002) and Peng and So (2002) provided the resulting model description. Logit means natural logarithm ( $\ln$ ) of the odds of outcome ( $EXPEL$ ). The odds are the ratios of the probabilities ( $\pi$ ) of the outcome that occurs (Generation Z is expected to leave) to the probabilities that the outcome does not occur ( $1 - \pi$ ). The regression coefficient ( $\beta$ ) determines the direction of the relationship between the predictor (factor  $x$  ( $n$ )) and the logit

of the result (*EXPEL*). When the coefficient ( $\beta$ ) is greater than zero, the larger (or smaller) predictor values are associated with, the larger (or smaller) logarithmic figures of the outcome. Therefore, the adjusted model is defined as “The likelihood that the expectation of the member of Generation Z to leave the peripheral region is related to determinants that represent latent constructs of the regional perception indicators.” The goodness-of-fit statistic was performed for the assumption of the model that the derived logistic regression model fits well the dependent variable (*EXPEL*). To measure how well the model predicts the dependent variable, the Nagelkerke pseudo-coefficient of determination was used as it reaches the maximum value of 1. The statistical significance of the regression coefficients ( $\beta$ ) was tested using the Wald  $\chi^2$  statistic. All data analysis was performed with IBM SPSS Statistics 23.

### 3. RESULTS AND DISCUSSION

Of the high school students who completed the questionnaire, 81% (559 out of 690) reported their expectation to leave, accepting *H1*. This result provides evidence of the peripheral region’s severe social and economic disadvantages and confirms expected out-migration, aligning with Lovén et al. (2020) and Priporas et al. (2020). Furthermore, the result confirms the continuation of economic and social divergence between Czech regions by Smętkowski (2013) and Hübelová et al. (2021). Finally, the result indicated a rationale for finding regional perception indicators, which could be suggested as determinants of the expected high level of out-migration in the left-behind peripheral region.

Table 2 shows the collinearity between predictors; the EFA was the first statistical analysis to find determinants. The assumption that the data are not affected by multivariate outliers was confirmed by performing a probability of the  $\chi^2$  distribution by the squared Mahalanobis distances, where any case reached  $p < 0.001$  (df: 10). The p-value of Bartlett’s test of sphericity supported the assumption that the correlation matrix is the identity matrix (approx.  $\chi^2$ : 2347.904; df: 55; p-value  $< 0.001$ ). The Kaiser-Meyer-Olkin Measure of sampling adequacy reached the value of 0.884, a meritorious value by Howard (2016). The value indicated that latent

constructs are expected to be present, and EFA is valuable to be performed. PCA using Kaiser’s criterion of 1, recommended three factors representing 61% of the common variance. Varimax orthogonal rotation suggested loadings of regional perception indicators to factors following recommendations by Howard (2016). Table 3 summarizes the results of the varimax rotation. As satisfactory regional perception indicators loading onto their primary factor were considered those with the value of factor loadings above 0.40, along with factor loadings onto alternative factors below the value of 0.30 and demonstrating a difference of 0.20 between their primary and alternative factor loadings.

Table 3 shows that VIBRANT indicator was the only predictor that violated the recommendation. The resulting factors were named following the theoretical foundations of the paper and the dominant indicators in the factor. Florida’s (2019) soft factor dimension ‘nightlife scene, cafés, bars, and music clubs’ derived as VIBRANT regional perception indicator shows cross-loading between SMARTOPPORT and OPENCULTURE factor. The cross-loading might be due to the association of the nightlife scene, cafes, and bars with the local culture and its openness to new people and cultural trends, and the simultaneous association with the friendliness of places to the youth offering opportunities to spend their leisure time. In general, these results suggest latent structures in the regional perception indicators, where:

1. SMARTOPPORT presents economic and lifestyle opportunities as the first dimension of soft location factors for Generation Z members, which is in line with Iorgulescu (2016) and Roblek et al. (2019);
2. OPENCULTURE supports the idea of the social dimension represented by openness to new ideas and people, along with the presence of cultural amenities where new ideas can be created and shared, and networking takes place. These findings are consistent with Priporas et al. (2020) and Gabrielova and Buchko (2021);
3. SAFECLEAN specifies the environmental dimension characterized by indicators of environmental pollution by human agents and



**Table 3.** Rotated factors matrix of the regional perception indicators

Regional perception indicators	Factor		
	SMARTOPPORT	OPENCULTURE	SAFECLEAN
YFRIEND	.786	.153	-.014
OPPORT	.769	.253	.071
WEALTH	.697	.018	.151
SMART	.662	.302	.218
VIBRANT	.589	.447	-.075
CREATIVE	.576	.368	.278
DESTAT	.053	.831	.124
CULTURE	.304	.712	.159
OPEN	.310	.654	.073
SAFE	.073	.050	.823
CLEAN	.134	.186	.795

fear of crime in the context of everyday or shared experience, similar to conclusions drawn by Kavaratzis (2020) and Miftahuddin et al. (2021).

A binomial logistic regression was performed to determine the effects of three factors of regional perception indicators (SMARTOPPORT, OPENCULTURE, and SAFECLEAN) on the likelihood that the Generation Z member is expected to leave the peripheral region. The assumption of linearity of the factors concerning the logit of the outcome (EXPEL) was measured using the Box-Tidwell procedure. All predictors were linearly related to the logit of the dependent variable ( $p$ -value > 0.05). There was no standardized residual with a value greater than 2.3 standard deviations. Therefore, all cases were kept in the model. Omnibus Tests of Model Coefficients ( $\chi^2$ : 34.754,  $p$ -value < 0.001) revealed that the logistic regression model accurately predicted the outcomes categories compared to the absence of an independent variable. Furthermore, based on the evaluation of Hosmer and Lemeshow’s goodness of fit test ( $\chi^2$ : 6,505;  $df$ : 8;  $p$ -value < 0.001), the model predicted categorical outcomes well. It explained 7.9% (Nagelkerke R<sup>2</sup>) of the variance in expectation to

leave and correctly classified 80.7% of cases. Of the three factors, only two were suggested as determinants for leaving the region, SMARTOPPORT and OPENCULTURE (as shown in Table 4). More specifically, increasing negative regional perception by unit, measured by the two factors, was associated with an increased likelihood of expectation of leaving by 1.696 and 1.340, respectively. Therefore, the study found sufficient evidence to reject *H2* and suggests a partial effect of the increasing negative regional perception of the soft location factors of Generation Z members on the increased likelihood of leaving the peripheral region.

The most striking result of Table 4 is that the regional perception indicators associated with economic and social factors were considered relevant to the expectation of leaving the peripheral region, contrasting to the findings of Lovén et al. (2020) without environmental factors. This is surprising, as the region has tackled long-term environmental pollution and antisocial behavior resulting in crime, which aligns with the findings of Hübelová et al. (2021). However, these results could be due to current policy measures leading to the closure and regeneration of local open-air brown coal mines, power plants, curfew, or other measures

**Table 4.** Coefficients of the regional perception indicators components

Factor	$\beta$	S.E.	Wald	df	P-value	Odds ratio	95% C.I. for Odds ratio	
							Lower	Upper
SMARTOPPORT	.528	.104	25.991	1	3.4298E-7***	1.696	1.384	2.078
OPENCULTURE	.292	.111	6.963	1	0.008322 **	1.340	1.078	1.664
SAFECLEAN	.033	.100	.110	1	0.740259	1.034	.850	1.258
Intercept	1.559	.106	215.360	1	9.3009E-49 ***	4.754	–	–

Note: \*\*\* significance at the 0.001 level, \*\* significance at the 0.01 level, S.E. indicates standard error, 95% C.O. indicates 95% confidence interval for the odds ratio.

limiting movement during the COVID-19 pandemic. In summary, lifestyle factors, smart city solutions and technologies, openness (tolerance), and economic opportunities were indicated as determinants of expectation to leave or retain in the peripheral region, supporting the finding of Hospers (2020) and Priporas et al. (2020), which supports *H2*. Therefore, these factors can be used as regional perception indicators for branding or rebranding the region, similar to indicators presented by Belabas et al. (2020), Kavaratzis (2020), and Aasetre et al. (2020).

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## CONCLUSION

The study aimed to model the determinants of regional perception on Generation Z's intention to leave or stay in the peripheral region. The paper has provided latent constructs of regional perception measured by soft location factors, modified here considering the specifics of its use at the regional level and Generation Z needs. The estimation results emphasize the importance of the latent constructs defined by smartness, opportunities, openness, and culture as decisive soft location factors for the regional perception of Generation Z. More importantly, the results suggest that these factors play a crucial role in regional attractiveness for Generation Z. Therefore, the study presents a novel approach to developing regional perception by employing soft location factors as determinants of Generation Z retention in peripheral regions. Furthermore, the results signify contemporary regional development approaches based on regional smartness and openness.

Selecting a peripheral region as a case study could be a limitation when studying regional perception regarding soft localization factors.

The practical implications of the paper are reflected in the prospects for multilevel governance toward regional attractiveness with the participation of local, regional, and national authorities collaborating in regional development practices and branding strategies. Furthermore, these authorities must involve citizens and the private sector in designing and implementing public policies to increase the regional attractiveness for Generation Z members.

Further research in regional perception should tackle challenges concerning digitalization processes and the changes in smart specializations of regions and their role in branding or rebranding. In addition, future studies could analyze how the digitalization of products and services contributes to regional perception.

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## REFERENCES

- Aasetre, J., Carlsson, E., & Haugum, M. H. (2020). Developing local community: Municipal policies oriented towards place branding. *Scandinavian Journal of Public Administration*, 24(2), 43-63. Retrieved from <https://ojs.uib.no/journal/article/view/4651>
- Almeida, G. G. F. D., & Cardoso, L. (2022). Discussions between place branding and territorial brand in regional development: A classification model proposal for a territorial brand. *Sustainability*, 14(11), 6669. <https://doi.org/10.3390/su14116669>
- Anderson, R. P., Jin, R., & Grunke-meier, G. L. (2003). Understanding logistic regression analysis in clinical reports: An introduction. *The Annals of Thoracic Surgery*, 75(3), 753-757. [https://doi.org/10.1016/s0003-4975\(02\)04683-0](https://doi.org/10.1016/s0003-4975(02)04683-0)
- Barakat, B. (2015). A 'recipe for depopulation'? School closures and local population decline in Saxony. *Population, Space and Place*, 21(8), 735-753. <https://doi.org/10.1002/psp.1853>
- Behavio. (2019). *Zatracená generace Z: Jak přemýšlejí mladí Češi o životě, práci i budoucnosti*. (In Czech). Retrieved from <https://magazin.aktualne.cz/zatracena-generace-z/r~d1f1da48debd11e9926e0cc47ab5f122/>
- Belabas, W., Eshuis, J., & Scholten, P. (2020). Re-imagining the city: Branding migration-related diversity. *European Planning Studies*, 28(7), 1315-1332. <https://doi.org/10.1080/09654313.2019.1701290>
- Bonakdar, A., & Audirac, I. (2020). City branding and the link to urban planning: Theories, practices, and challenges. *Journal of Planning Literature*, 35(2), 147-160. <https://doi.org/10.1177/2F0885412219878879>
- Cefalo, R., Scandurra, R., & Kazepov, Y. (2020). Youth labor market integration in European regions. *Sustainability*, 12(9), 3813. <https://doi.org/10.3390/su12093813>
- Collantes, F., Pinilla, V., Sáez, L. A., & Silvestre, J. (2014). Reducing depopulation in rural Spain: The impact of immigration. *Population, Space and Place*, 20(7), 606-621. <https://doi.org/10.1002/psp.1797>
- Cudny, W. (2019). *City branding and promotion: The strategic approach*. New York: Routledge.
- Deng, L., & Chan, W. (2017). Testing the difference between reliability coefficients alpha and omega. *Educational and Psychological Measurement*, 77(2), 185-203. <https://doi.org/10.1177/0013164416658325>
- Dimock, M. (2019, January 17). *Defining generations: Where Millennials end and Generation Z begins*. Pew Research Center. Retrieved from <https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/>
- Florida, R. L. (2019). *The rise of the creative class*. New York: Basic Books.
- Gabrielova, K., & Buchko, A. A. (2021). Here comes Generation Z: Millennials as managers. *Business Horizons*, 64(4), 489-499. <https://doi.org/10.1016/j.bushor.2021.02.013>
- Gløersen, E., Drăguliu, M., Hans, S., Kaucic, J., Schuh, B., Keringer, F., & Celotti, P. (2016). *The impact of demographic change on European regions*. European Union: Committee of the Regions. Retrieved from [https://cor.europa.eu/en/engage/studies/Documents/The%20impact%20of%20demographic%20change%20on%20European%20regions/Impact\\_demographic\\_change\\_european\\_regions.pdf](https://cor.europa.eu/en/engage/studies/Documents/The%20impact%20of%20demographic%20change%20on%20European%20regions/Impact_demographic_change_european_regions.pdf)
- Goodboy, A. K., & Martin, M. M. (2020). Omega over alpha for reliability estimation of unidimensional communication measures. *Annals of the International Communication Association*, 44(4), 422-439. <https://doi.org/10.1080/23808985.2020.1846135>
- Graham, J. M. (2006). Congeneric and (essentially) tau-equivalent estimates of score reliability: What they are and how to use them. *Educational and Psychological Measurement*, 66(6), 930-944. <https://doi.org/10.1177/0013164406288165>
- Haase, A., Rink, D., & Grossmann, K. (2016). Shrinking cities in post-socialist Europe: What can we learn from their analysis for theory building today? *Geografiska Annaler: Series B, Human Geography*, 98(4), 305-319. <https://doi.org/10.1111/geob.12106>
- Hayes, A. F., & Coutts, J. J. (2020). Use omega rather than Cronbach's alpha for estimating reliability. *But... Communication Methods and Measures*, 14(1), 1-24. <https://doi.org/10.1080/19312458.2020.1718629>
- Heeringa, I. (2020). Regional shrinkage and planning policy change in Europe: The case of Asturias. *Regional Studies, Regional Science*, 7(1), 101-107. <https://doi.org/10.1080/21681376.2020.1741435>
- Hennink, M. M., Kaiser, B. N., & Weber, M. B. (2019). What influences saturation? Estimating sample sizes in focus group research. *Qualitative Health Research*, 29(10), 1483-1496. <https://doi.org/10.1177/1049732318821692>
- Henson, R. K., & Roberts, J. K. (2006). Use of exploratory factor analysis in published research. *Educational and Psychological Measurement*, 66(3), 393-416. <https://doi.org/10.1177/0013164405282485>

23. Hospers, G. J. (2020). A short reflection on city branding and its controversies. *Tijdschrift Voor Economische en Sociale Geografie*, 111(1), 18-23. <https://doi.org/10.1111/tesg.12386>
24. Howard, M. C. (2016). A review of exploratory factor analysis decisions and overview of current practices: What we are doing and how can we improve? *International Journal of Human-Computer Interaction*, 32(1), 51-62. <https://doi.org/10.1080/10447318.2015.1087664>
25. Hübelová, D., Ptáček, P., & Šlechtová, T. (2021). Demographic and socio-economic factors influencing health inequalities in the Czech Republic. *GeoScape*, 15(1), 53-65. <https://doi.org/10.2478/geosc-2021-0005>
26. Iorgulescu, M. C. (2016). Generation Z and its perception of work. *Cross-Cultural Management Journal*, 18(1), 47-54. Retrieved from [https://seaopenresearch.eu/Journals/articles/CMJ2016\\_11\\_6.pdf](https://seaopenresearch.eu/Journals/articles/CMJ2016_11_6.pdf)
27. Kavaratzis, M. (2020). Is 'city branding' worth re-visiting? *Tijdschrift Voor Economische en Sociale Geografie*, 111(1), 24-27. <https://doi.org/10.1111/tesg.12403>
28. Kyriazos, T. A. (2018). Applied psychometrics: Sample size and sample power considerations in Factor Analysis (EFA, CFA) and SEM in general. *Psychology*, 9(8), 2207-2230. <https://doi.org/10.4236/psych.2018.98126>
29. Larkin, C. M., Jancourt, M., & Hendrix, W. H. (2018). The Generation Z world: Shifts in urban design, architecture and the corporate workplace. *Corporate Real Estate Journal*, 7(3), 230-242. Retrieved from <https://hstalks.com/article/3838/the-generation-z-world-shifts-in-urban-design-arch/>
30. Lovén, I., Hammarlund, C., & Nordin, M. (2020). Staying or leaving? The effects of university availability on educational choices and rural depopulation. *Papers in Regional Science*, 99(5), 1339-1365. <https://doi.org/10.1111/pirs.12530>
31. McCann, P. (2017). Urban futures, population ageing and demographic decline. *Cambridge Journal of Regions, Economy and Society*, 10(3), 543-557. <https://doi.org/10.1093/cjres/rsx009>
32. McCrindle, M., & Wolfinger, E. (2014). *The ABC of XYZ. Understanding the global generations* (3rd ed.). Bella Vista, Australia: McCrindle Research. Retrieved from [https://www.academia.edu/35646276/The\\_ABC\\_of\\_XYZ\\_Mark\\_McCrandle\\_PDF\\_pdf](https://www.academia.edu/35646276/The_ABC_of_XYZ_Mark_McCrandle_PDF_pdf)
33. Mehretu, A., Pigozzi, B. W., & Sommers, L. M. (2000). Concepts in social and spatial marginality. *Geografiska Annaler: Series B, Human Geography*, 82(2), 89-101. <https://doi.org/10.1111/j.0435-3684.2000.00076.x>
34. Miftahuddin, A., Hermanto, B., Raharja, S. U. J., & Chan, A. (2021). City branding and its variables: The evidence from Indonesia. *Geo Journal of Tourism and Geosites*, 34(1), 240-244. <http://dx.doi.org/10.30892/gtg.34132-643>
35. Nyhuis, R. (2017). *Millennial attraction to Southwest Michigan-Retaining and attracting millennial talent to our region's companies* (Honors Thesis No. 2841). Western Michigan University. Retrieved from [https://scholarworks.wmich.edu/honors\\_theses/2841](https://scholarworks.wmich.edu/honors_theses/2841)
36. Nyumba, T. O., Wilson, K., Derrick, C. J., & Mukherjee, N. (2018). The use of focus group discussion methodology: Insights from two decades of application in conservation. *Methods in Ecology and Evolution*, 9(1), 20-32. <https://doi.org/10.1111/2041-210x.12860>
37. Özkan, M., & Solmaz, B. (2017). Generation Z – The global market's new consumers – And their consumption habits: Generation Z consumption scale. *European Journal of Multidisciplinary Studies*, 2(5), 222-229. <https://doi.org/10.26417/ejms.v5i1.p150-157>
38. Peng, C.-Y. J., & So, T. S. H. (2002). Logistic regression analysis and reporting: A primer. *Understanding Statistics*, 1(1), 31-70. [https://doi.org/10.1207/s15328031us0101\\_04](https://doi.org/10.1207/s15328031us0101_04)
39. Peng, C.-Y. J., Lee, K. L., & Ingersoll, G. M. (2002). An introduction to logistic regression analysis and reporting. *The Journal of Educational Research*, 96(1), 3-14. <https://doi.org/10.1080/00220670209598786>
40. Priporas, C.-V., Stylos, N., & Kamenidou, I. (E.). (2020). City image, city brand personality and generation Z residents' life satisfaction under economic crisis: Predictors of city-related social media engagement. *Journal of Business Research*, 119, 453-463. <https://doi.org/10.1016/j.jbusres.2019.05.019>
41. Roblek, V., Mesko, M., Dimovski, V., & Peterlin, J. (2019). Smart technologies as social innovation and complex social issues of the Z generation. *Kybernetes*, 48(1), 91-107. <https://doi.org/10.1108/K-09-2017-0356>
42. Schreiber, J. B. (2021). Issues and recommendations for exploratory factor analysis and principal component analysis. *Research in Social and Administrative Pharmacy*, 17(5), 1004-1011. <https://doi.org/10.1016/j.sapharm.2020.07.027>
43. Šimon, M. (2017). Multi-scalar geographies of polarisation and peripheralisation: A case study of Czechia. In S. Šroda-Murawska & D. Szymańska (Eds.), *Bulletin of Geography. Socioeconomic Series*, 37, 125-137. <http://dx.doi.org/10.1515/bog-2017-0029>
44. Smętkowski, M. (2013). Regional disparities in Central and Eastern European countries: Trends, drivers and prospects. *Europe-Asia Studies*, 65(8), 1529-1554. <https://doi.org/10.1080/09668136.2013.833038>
45. Vaske, J. J., Beaman, J., & Sponarski, C. C. (2017). Rethinking internal consistency in Cronbach's alpha. *Leisure Sciences*, 39(2), 163-173. <https://doi.org/10.1080/01490400.2015.1127189>
46. Verwest, F. (2011). *Demographic decline and local government strategies: A study of policy change in the Netherlands*. Radboud University. Retrieved December 4, 2022, from <https://repository.ubn.ru.nl/handle/2066/90822>
47. Viñas, C. D. (2019). Depopulation processes in European rural areas: A case study of Cantabria (Spain). *European Countryside*, 11(3), 341-369. <https://doi.org/10.2478/euco-2019-0021>
48. Wiechmann, T., & Bontje, M. (2015). Responding to tough times: Policy and planning strategies in shrinking cities. *European Planning Studies*, 23(1), 1-11. <https://doi.org/10.1080/09654313.2013.820077>