Chapter 11 / Capítulo 11

Habitability, territory, and sustainability: Interdisciplinary studies on housing, environment, and society in northwestern Mexico
ISBN: 978-9915-9966-6-0
DOI: 10.62486/978-9915-9966-6-0.Ch11
Pages: 140-152

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Vacant housing and perceived abandonment in social housing subdivisions of northwestern Mexico

Vivienda deshabitada y percepción del abandono en fraccionamientos de interés social del noroeste de México

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ABSTRACT

Vacant housing is one of the most visible expressions of habitability problems in Mexican social housing subdivisions. Using the preliminary data cut from the pilot survey of project FZ-HAB-0029 on the Factoriza UAS platform, this study described the initial behaviour of a ten-item scale with two dimensions, Perceived abandonment in the subdivision and Rootedness in the subdivision, among residents of social housing subdivisions in Mazatlán. With a cross-sectional design, 7 cases out of a target of 100 were analysed while data collection remained open. Descriptive statistics, Cronbach's alpha, McDonald's omega total and the Spearman correlation between dimensions were estimated, and an exploratory factor analysis was attempted. Internal consistency was practically null for Perceived abandonment (α = .062), owing to the negative correlation of a reverse-worded item, and low for Rootedness (α = .357), with omega not interpretable in either dimension. The factor analysis was not interpretable because the sample had fewer cases than items, and the correlation between dimensions included zero (ρ = .218). Residents perceived deterioration of vacant dwellings, intended to stay in their subdivision and rarely took part in neighbourhood activities. The findings do not yet provide validity evidence and point to revisions of the instrument.

Keywords: vacant housing; perceived abandonment; place attachment; social housing

RESUMEN

La vivienda deshabitada es una de las expresiones más visibles de los problemas de habitabilidad de los fraccionamientos de interés social en México. Este estudio describió, en el corte preliminar del levantamiento piloto del proyecto FZ-HAB-0029 de Factoriza UAS, el comportamiento inicial de una escala de diez reactivos con dos dimensiones, Abandono percibido en el fraccionamiento y Arraigo en el fraccionamiento, en residentes de fraccionamientos de interés social de Mazatlán. Con diseño transversal, se analizaron 7 casos de una meta de 100, con el levantamiento abierto. Se estimaron descriptivos, alfa de Cronbach, omega total y la correlación de Spearman entre dimensiones, y se intentó un análisis factorial exploratorio. La consistencia interna fue prácticamente nula en Abandono percibido (α = .062), por la correlación negativa de un reactivo inverso, y baja en Arraigo (α = .357), con el omega no interpretable en ambas dimensiones. El análisis factorial no fue interpretable porque la muestra tiene menos casos que reactivos, y la correlación entre dimensiones incluyó el cero (ρ = .218). Los residentes percibieron deterioro de las viviendas deshabitadas, conservaron la intención de permanecer en su fraccionamiento y apenas participaron en actividades vecinales. Los resultados no aportan todavía evidencias de validez y orientan la revisión del instrumento.

Palabras clave: vivienda deshabitada; abandono percibido; apego al lugar; vivienda de interés social

INTRODUCTION

During the first two decades of this century, Mexico produced social housing on an unprecedented scale, in housing complexes built by private developers with financing from public housing agencies.

The policy reduced the housing backlog, but it did so unevenly and at costs that are now visible: small dwellings, housing developments far from urban centers, insufficient services and a high number of abandoned homes. The federal government itself acknowledged the scale of this abandonment in 2020, and several studies link it to an expansive policy that failed to address the needs of its residents (Hernández Ilizaliturri et al., 2025). Vacant housing is therefore one of the most visible expressions of the habitability problems in social housing subdivisions.

Vacant homes are not only a problem for the people who abandoned them. They also transform the experience of those who stay behind. In southeastern Ciudad Juárez, the presence of uninhabited and squatted homes is accompanied by insecurity, a lack of public spaces and social isolation (Holguín Ávila and Maycotte Pansza, 2024). In neighborhoods in the state of Hidalgo, abandoned housing has been associated with security and environmental problems and with a deteriorated urban landscape (Chávez-San Juan et al., 2024).

Outside Mexico, residents of neighborhoods with vacant properties describe a cycle in which the abandonment of the built environment is linked to violence, loss of social cohesion, and the deterioration of health and well-being (Roude et al., 2024).

Given this environment, whether residents stay depends on their bond with the place. Research on residential mobility has shown that perceived neighborhood disorder is associated with a greater intention to move, whereas community attachment and satisfaction are associated with a lower one (Gu et al., 2025).

The relationship between perceived abandonment and the place attachment of those who remain is therefore a central question for the habitability of social housing developments. However, no instruments were identified that jointly measure both aspects in housing developments in northwestern Mexico.

Project FZ-HAB-0029 of the Factoriza UAS platform set out to study unoccupied housing and the perception of abandonment in social housing developments in northwestern Mexico. This article reports the results of the first pilot survey of the Perceived Abandonment and Rootedness in Housing Developments Scale (ten items organized into two dimensions), conducted in Mazatlán and based on a very small preliminary data cut. For this reason, the article's scope is the initial review of the instrument, not the estimation of population parameters or the measurement of housing vacancy.

The general objective was to describe the initial behavior of a scale of perceived abandonment and rootedness in the preliminary data cut from its pilot survey of residents of social housing subdivisions in Mazatlán.

The specific objectives were, first, to describe the distribution of responses to each item; second, to estimate the internal consistency of each dimension using alpha and omega coefficients; third, to assess the feasibility of an internal structure analysis with the available sample size; and fourth, to explore the relationship between the scores on the two dimensions. The project package records no hypotheses, so the study is descriptive and exploratory in scope.

DEVELOPMENT

UNINHABITED HOUSING IN SOCIAL HOUSING DEVELOPMENTS

Housing abandonment in social housing developments has been explained by a combination of locational, design and household economic factors.

The peripheral location of the housing developments is accompanied by limited access to employment, transport and services. The evaluation of social housing policy has emphasized that the expansion of supply was not matched by sufficient attention to the needs of residents (Hernández Ilizaliturri et al., 2025).

At the dwelling level, architectural design, functionality, comfort, construction quality and aesthetics are related to the decision to stay or leave, so a dwelling that does not meet the main needs of its occupants may end up abandoned (Chávez-San Juan et al., 2024).

Difficulties in social organization compound the problem. In Ciudad Juárez, Rodríguez Sosa et al. (2022) identified difficulty in organizing the maintenance of multifamily units as a risk to

https://doi.org/10.62486/978-9915-9966-6-0.Ch11

the acceptance of social housing. Holguín Ávila and Maycotte Pansza (2024) documented that, in housing developments with unoccupied dwellings, the invasion of empty houses is accompanied by a perception of loneliness and insecurity among those who remain.

Abandonment, therefore, is not merely a feature of the housing stock but a condition that is perceived and experienced on the street.

The Perceived Abandonment in the Housing Development dimension of the instrument captures this experience through five indicators: the presence of unoccupied dwellings on the respondent's own street (R1), their deterioration (R2), the use of vacant houses for activities that worry residents (R3), the proportion of occupied houses in the housing development (R4, reverse-scored), and the closure of businesses in recent years (R5). After R4 was recoded, a higher score indicates greater perceived abandonment.

ABANDONMENT, DISORDER, AND SAFETY

The literature on vacant properties has documented their relationship with neighborhood safety and health. In a cluster-randomized trial in Philadelphia, full remediation of abandoned houses (installing working doors and windows and clearing trash and overgrown vegetation) was associated with relative reductions in weapons violations and gun assaults, although nearby residents' perceptions of safety and the time they spent outdoors did not change (South et al., 2023).

In Baltimore, the demolition of vacant housing was associated with a small decrease in emergency department visits, but not with significant changes in crime (Kvik et al., 2022).

These findings show that the relationship between vacant housing and safety is complex: interventions targeting the physical environment may be associated with changes in some indicators of violence without immediately altering residents' perceptions.

In New Orleans, residents linked neglected properties to their health, their sense of safety, social cohesion, and civic participation, and recommended improving neighborhood conditions to reduce violence and enhance quality of life (Roude et al., 2024). Item R3, on the use of empty houses for unsettling activities, touches on this dimension of the experience of abandonment.

ROOTEDNESS AND PERMANENCE IN THE HOUSING DEVELOPMENT

Rootedness refers to the bond people maintain with the place where they live and their willingness to remain there. The literature on place attachment distinguishes several dimensions, such as place identity, place dependence, affect, and social bonds. A systematic review noted that there is no consensus on how to measure place attachment and that its dimensions do not behave in the same way with respect to behavioral intentions (Dang and Weiss, 2021).

In rural households in seismic zones of China, place dependence was negatively associated with relocation intention, whereas place identity was indirectly related to evacuation intention through perceived response efficacy (Qing et al., 2022).

In urban settings, a study based on 1,568 questionnaires administered in 74 communities in Guangzhou grouped perceptions of the community environment into three aspects (perceived disorder, community attachment and satisfaction). It found that perceived disorder was positively associated with the intention to move, whereas attachment and satisfaction were negatively associated with it (Gu et al., 2025).

In subsidized housing developments in the same city, Tang et al. (2024) associated greater residential satisfaction with larger dwellings, well-equipped neighborhoods, close neighborhood ties, and community activities.

The instrument's Rootedness in the Housing Development dimension brings together five aspects of this bond: feeling part of the housing development (R6), knowing the neighbors on one's street (R7), intending to continue living in the housing development (R8), having considered leaving one's home (R9, reverse-scored), and participating in activities with neighbors (R10).

After R9 is recoded, a higher score indicates greater place attachment. As in the literature reviewed, the dimension combines affective, social and intention-to-stay components, which do not necessarily move together.

From this perspective, the expected relationship between perceived abandonment and place attachment is negative, but not necessarily simple. A resident may perceive considerable abandonment around them while also maintaining a strong bond with their home and with

https://doi.org/10.62486/978-9915-9966-6-0.Ch11

the neighbors who remain. Given the cross-sectional design, any relationship between the two dimensions must be understood as an association rather than one of dependence.

METHODOLOGY
DESIGN

We conducted a quantitative, non-experimental, cross-sectional study with a descriptive and exploratory scope. The data come from survey LEV-0034, "Mazatlán Pilot · Perceived Abandonment and Rootedness," from project FZ-HAB-0029 on the Factoriza UAS platform, and from the frozen dataset DST-0032, with a data cut-off date of 9 October 2026. The survey constitutes an independent sample and is the only one in the project.

POPULATION, SAMPLE, AND DATA CUTOFF

The survey population was defined as individuals aged 18 years or older residing in social housing developments in northwestern Mexico, with a pilot study in Mazatlán.

According to the survey log, the participating housing developments are classified as social housing and have unoccupied dwellings documented in an official source. Selection was non-probabilistic. The Factoriza log shows that 14 people opened the questionnaire and 7 completed it; no cases were excluded on quality-control grounds, so 7 cases were analyzed (Table 2).

The analyzed data cut is preliminary: it comprises 7 cases out of a target of 100, and data collection was still open, in the field, at the cut-off date. With 7 cases for 10 items, the ratio is 0.7 cases per item, so the inter-item correlation matrix is not invertible. The adequacy of the data and of the sample is the first condition that the methodological literature asks researchers to verify in item factor analysis (Ferrando et al., 2022; Goretzko et al., 2021).

INSTRUMENT

The Perceived Abandonment and Place Attachment in Housing Developments Scale was administered. It comprises ten items with a five-point response format, ranging from Strongly disagree (1) to Strongly agree (5), organized into two five-item dimensions: Perceived Abandonment in the Housing Development (R1 to R5) and Place Attachment to the Housing Development (R6 to R10). Two items are reverse-worded, R4 ("In my housing development, most of the houses are occupied") and R9 ("I have thought about leaving my home in this housing development"), and are already recoded in the data matrix.

After recoding, a higher score indicates greater perceived abandonment and greater rootedness. Table 1 presents the code, dimension, wording and direction of each item.

Table 1. Structure of the instrument.

Code	Dimension	Item	Reverse
R1	Perceived abandonment in the housing development	There are unoccupied homes on my street	No
R2	Perceived abandonment in the housing development	The unoccupied houses in my neighborhood are deteriorated	No
R3	Perceived abandonment in the housing development	The empty houses in my housing development are used for activities that worry me	No
R4	Perceived abandonment in the housing development	In my housing development, most of the houses are occupied	Yes
R5	Perceived abandonment in the housing development	Businesses in my residential development have closed in recent years	No
R6	Rootedness in the residential development	I feel part of my residential development	No
R7	Rootedness in the residential subdivision	I know the neighbors on my street	No
R8	Rootedness in the housing development	I plan to continue living in this housing development	No
R9	Attachment to the housing development	I have thought about leaving my home in this housing development	Yes
R10	Rootedness in the housing development	I take part in activities with my neighbors	No

Note. Scale of perceived abandonment and rootedness in housing developments. Five-point response scale (Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree). Reverse-scored items have already been recoded in the delivered data matrix. Source: Factoriza UAS, project FZ-HAB-0029, survey LEV-0034, dataset DST-0032.

https://doi.org/10.62486/978-9915-9966-6-0.Ch11

PROCEDURE

Responses were collected through the survey questionnaire administered on Factoriza UAS, which records explicit online informed consent before the first item and does not collect identifying data. Factoriza froze dataset DST-0032 with a cryptographic hash, generated the matrix with reverse-scored items recoded, and produced the descriptive, internal-consistency and within-dimension correlation analyses (runs RUN-00186 to RUN-00190). The complementary analyses were run on the data file and the item dictionary exported by the platform.

DATA ANALYSIS

In the first stage, Factoriza UAS calculated the mean, standard deviation, skewness, kurtosis, and percentages of responses at the extreme values of each item; the internal consistency of each dimension using Cronbach's alpha (Cronbach, 1951), together with the corrected item-total correlation and alpha if item deleted; and the correlations among the items of each dimension, which the package notes identify as Spearman correlations, with 95% confidence intervals computed using the Fisher transformation.

In a second stage, the program analisis_psicometrico.py (version 1.0) was run in Python 3.13.16 (Python Software Foundation, 2026) with NumPy 2.5.3 (Harris et al., 2020), SciPy 1.18.1 (Virtanen et al., 2020), and pandas 3.0.5. The program applies fixed, explicitly stated procedures, with no manual intervention in the calculations.

The program estimated McDonald's omega total (McDonald, 1999/2013) for each dimension from a one-factor model, without reversing items; when any item correlates or loads negatively with the rest of its dimension, the program does not report omega because the coefficient is no longer interpretable. It also attempted an exploratory factor analysis of the ten items, preceded by an assessment of overall and item-level sampling adequacy (Lorenzo-Seva and Ferrando, 2021) and a test of sphericity, using parallel analysis to determine the number of factors, minimum residual extraction and oblimin rotation.

Finally, it estimated the relationship between the mean dimension scores using Spearman's coefficient and its 95% confidence interval, computed via the Fisher transformation with the standard error from Bonett and Wright (2000).

The reference values for interpreting the psychometric indices are treated as guidelines rather than as decision rules (Ferrando et al., 2022). No items were removed; the program flags problematic items and leaves the decision to the authors. Confirmatory factor analysis was not performed and is proposed as future work.

ETHICAL CONSIDERATIONS

Participation was voluntary and anonymous. Factoriza UAS records explicit informed consent online and does not collect names, email addresses or any other identifying data.

STATEMENT ON THE USE OF ARTIFICIAL INTELLIGENCE

The following were used in preparing this manuscript: the Factoriza UAS platform, for data management and for descriptive, internal consistency and inter-item correlation analyses; a Python analysis program with fixed and validated procedures, for omega, exploratory factor analysis and the correlation between dimensions; and the Claude Opus language model (Anthropic), to run that program, assist with literature searches, prepare a draft and assemble the document from the results. The authors reviewed, corrected and approved the entire text, verified every reference, and take full responsibility for the content of the article.

RESULTS

SAMPLE COMPOSITION

Table 2 summarizes the case flow. Of the 14 individuals who opened the questionnaire, 7 completed it and were analyzed, with no quality-control exclusions. All analyzed cases answered

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all ten items. The proportion of incomplete questionnaires should be reviewed during field administration.

Table 2. Sample composition.

Indicator	Value
People who opened the questionnaire	14
Completed questionnaires	7
Cases excluded by quality control	0
Cases analyzed	7
Items	10

Note. Survey "Piloto Mazatlán · Abandono percibido y arraigo" [Mazatlán Pilot · Perceived Abandonment and Rootedness] (LEV-0034); population: persons aged 18 years or older residing in social-interest (low-income) housing subdivisions in northwestern Mexico, with a pilot in Mazatlán; territory: Mazatlán, Sinaloa, in social-interest housing subdivisions with uninhabited housing documented in an official source. Dataset DST-0032, fingerprint af001bcad37888fc. Source: Factoriza UAS. Preliminary cut-off: n = 7 out of a target of 100, with the survey still open.

DESCRIPTIVE STATISTICS

Table 3 and Figure 1 present the descriptive statistics. For Perceived Abandonment in the Housing Development, the highest mean was for the deterioration of unoccupied dwellings (R2: *M* = 3.57, *SD* = 0.79), followed by the presence of unoccupied dwellings on the respondent's own street (R1: *M* = 3.29, *SD* = 1.60), which showed the greatest dispersion in the instrument, and by the closure of businesses in recent years (R5: *M* = 3.29, *SD* = 1.38).

The use of empty houses for activities that worry residents had an intermediate mean (R3: *M* = 2.86, *SD* = 1.07). The reverse-scored item R4, in its recoded version, had the lowest mean in the dimension (*M* = 2.00, *SD* = 1.41), with 43% of responses at the minimum value, which corresponds to strongly agreeing that most of the houses in the housing development are occupied.

In the Attachment to the housing development dimension, means were high for knowing the neighbors on one's street (R7: *M* = 4.14, *SD* = 0.90), intending to continue living in the housing development (R8: *M* = 4.14, *SD* = 0.38), and feeling part of the housing development (R6: *M* = 4.00, *SD* = 0.58). R9, in its recoded version, also had a high mean (*M* = 3.86, *SD* = 1.07), indicating, on average, little willingness to leave one's home.

In contrast, participation in activities with neighbors had the lowest mean on the instrument (R10: *M* = 1.86, *SD* = 1.07), with 43% of responses at the minimum value. Taken together, this cross-section depicts residents who perceive signs of abandonment in their surroundings without believing, on average, that most of the houses are vacant. They maintain a bond with their housing development and intend to remain there, but they hardly take part in neighborhood activities.

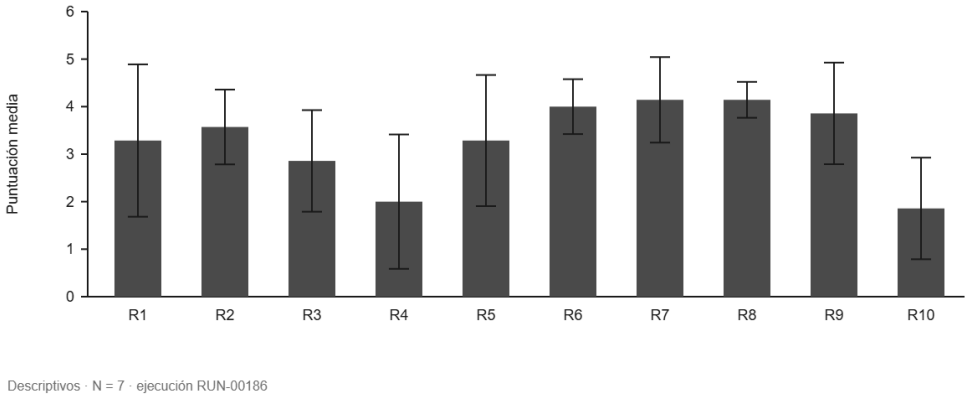
Table 3. Descriptive statistics of the items.

Item	M	SD	Skewness	Kurtosis	Floor	Ceiling
R1	3.29	1.60	-0.98	-0.86	29%	14%
R2	3.57	0.79	1.11	0.27	57%	14%
R3	2.86	1.07	-0.77	0.26	14%	29%
R4	2.00	1.41	1.98	4.40	43%	14%
R5	3.29	1.38	-0.71	-0.33	14%	14%
R6	4.00	0.58	0.00	3.00	14%	14%
R7	4.14	0.90	-0.35	-1.82	29%	43%
R8	4.14	0.38	2.65	7.00	86%	14%
R9	3.86	1.07	-0.77	0.26	14%	29%
R10	1.86	1.07	1.52	2.71	43%	14%

Note.N = 7. Floor and ceiling indicate the percentage of responses at the minimum and maximum values. The item-total correlation column across the ten items is omitted because it combines two dimensions; the item-total correlation by dimension is presented in Table 4. Run RUN-00186 of Factoriza UAS. Preliminary cutoff: n = 7 out of a target of 100, with data collection still open.

https://doi.org/10.62486/978-9915-9966-6-0.Ch11

Figure 1. Mean scores per item with one-standard-deviation bars.



INTERNAL CONSISTENCY

Table 4 compiles the item analysis by dimension computed with Factoriza, and Table 5 presents the coefficients from the complementary software. The dimension Perceived abandonment in the housing development yielded α = .062 in both calculations, a value indicating that the items, taken together, do not share variance.

Omega is not reported because R4 correlated negatively with the rest of the dimension (-.739); its removal would raise alpha to .766. Among the remaining items, R2, the deterioration of unoccupied dwellings, was the most consistent (.763), followed by R5 (.524), R1 (.281), and R3 (.261). None of the inter-item correlations in this dimension had a confidence interval that excluded zero; the highest was between R2 and R5 (.682, 95% CI [-.146, .948], *p* = .091).

Rootedness in the housing development yielded α = .357 in both calculations; omega is not reported because R10, participation in activities with neighbors, correlated negatively with the rest of the dimension (-.137), and its removal would raise alpha to .610. R7 (.605), R8 (.464), and R6 (.452) were the most consistent items, whereas R9 had a practically null correlation (.011). The only correlation whose interval excluded zero was the one between feeling part of the housing development and intending to continue living in it (R6 and R8: .764, 95% CI [.025, .963], *p* = .046). Participation in neighborhood activities correlated negatively with R9 (-.606, 95% CI [-.933, .270], *p* = .149) and with R8 (-.441), with neither interval excluding zero.

Table 4. Item analysis by dimension.

Dimension	Item	Corrected item-total r	α if item deleted
Perceived abandonment	R1	.281	-.449
Perceived abandonment	R2	.763	-.589
Perceived abandonment	R3	.261	-.207
Perceived abandonment	R4	-.739	.766
Perceived abandonment	R5	.524	-.829
Rootedness	R6	.452	.156
Rootedness	R7	.605	-.154
Rootedness	R8	.464	.230
Rootedness	R9	.011	.483
Rootedness	R10	-.137	.610

Note.N = 7. Scale from 1 to 5; reverse-scored items R4 and R9 are shown recoded. Run RUN-00186 of Factoriza UAS. Preliminary data cut: n = 7 out of a target of 100, with data collection still open.

https://doi.org/10.62486/978-9915-9966-6-0.Ch11

Table 5. Internal consistency by dimension.

Dimension	Items	n	α	ω	Remarks
Perceived abandonment in the housing development	5	7	.062		Reverse-worded items: R4; □ not interpretable
Rootedness in the housing development	5	7	.357		Reverse-keyed items: R10; □ not interpretable

Note.N = 7. Perceived abandonment = Perceived abandonment in the residential subdivision; Rootedness = Rootedness in the residential subdivision. The corrected item-total correlation excludes the item itself from the total of its dimension. Cronbach's α for the full dimension, with 5 items each: Perceived abandonment in the residential subdivision = .062 (run RUN-00187); Rootedness in the residential subdivision = .357 (RUN-00189). When the mean covariance among the remaining items is negative, alpha if item deleted is no longer bounded between 0 and 1, which explains its negative values. Source: Factoriza UAS, Tables 4 and 6 of the package, combined without modifying values. Preliminary cutoff: n = 7 of a target of 100, with data collection still open.

INTERNAL STRUCTURE

The planned exploratory factor analysis could not be estimated interpretably, and its results are not presented in tables. With 7 cases and 10 items, the correlation matrix is not invertible, so the overall measure of sampling adequacy, the item-level sampling adequacy, and the test of sphericity could not be computed. Parallel analysis suggested one factor, but the solution showed a Heywood case for R8 and opposite signs for five items; with fewer cases than items, the solution lacks support. These results are recorded in the reproducibility appendix, but they provide no evidence on the dimensionality of the instrument and should not be cited as such.

RELATIONSHIP BETWEEN THE DIMENSIONS

Table 6 presents the Spearman correlation between the mean scores of the two dimensions, based on 7 cases. The relationship was positive and weak, and its interval included zero, ρ = .218, 95% CI [-.647, .838], *p* = .639, so this data cut does not allow us to assert an association between perceived abandonment and rootedness. Because neither dimension showed sufficient internal consistency, this correlation should not be interpreted, and the width of the interval indicates a highly imprecise estimate.

Table 6. Correlations between dimensions.

Dimension pair	n	ρ	IC 95 %	p
Perceived Abandonment of the Housing Development and Rootedness in the Housing Development	7	.218	[-.647, .838]	.639

Note.α = Cronbach's alpha; ω = McDonald's omega total from a one-factor minimum residual model, without reversing items. Complete cases per dimension. Source: Own elaboration with analisis_psicometrico.py 1.0 (Python 3.13.16), dataset DST-0032_FZ_HAB_0029. Preliminary cutoff: n = 7 out of a target of 100, with data collection ongoing.

DISCUSSION OF RESULTS

This study aimed to describe the initial behavior of a scale of perceived abandonment and rootedness among residents of social housing developments in Mazatlán. The central finding is that neither dimension behaved as a scale in this cross-section. Perceived Abandonment had an alpha close to zero, attributable mainly to the behavior of R4, and Rootedness had a low alpha, with one item showing the opposite sign.

With 7 cases, all coefficients are provisional: the simulation literature on alpha and omega coefficients has been developed with far larger samples (Malkewitz et al., 2023), and the internal structure could not be estimated.

The descriptive profile of the abandonment dimension is consistent with the literature. The finding that the deterioration of unoccupied dwellings had the highest mean is in line with descriptions of the dilapidated appearance that abandoned housing gives the urban landscape (Chávez-San Juan et al., 2024) and with the experiences of residents of Ciudad Juárez and New Orleans (Holguín Ávila and Maycotte Pansza, 2024; Roude et al., 2024).

The intermediate mean for R3 suggests that, in this sample, the use of empty houses for unsettling activities is not a widespread experience. These correspondences are descriptive: the study did not measure housing vacancy, so it cannot link perceptions to the actual extent of

https://doi.org/10.62486/978-9915-9966-6-0.Ch11

vacancy in each housing development.

The behavior of R4 deserves particular attention. Its correlation with the rest of the dimension was strongly negative, and its removal would raise alpha from .062 to .766. A content-based explanation is possible: a person may recognize uninhabited and deteriorated dwellings on their street and, at the same time, believe that most homes in the housing development remain occupied, because R4 refers to the proportion of abandonment rather than its presence.

A technical explanation is also possible, because scales with items worded in both directions require careful reading, and some respondents answer positively and negatively worded items inconsistently (Steinmann et al., 2022; García-Batista et al., 2021).

In the rootedness dimension, the results distinguish the emotional bond and the intention to stay, which were associated with each other, from participation in neighborhood activities, which was low and behaved in the opposite direction.

This pattern is consistent with the warning that the dimensions of place attachment do not behave in the same way (Dang and Weiss, 2021) and suggests that neighbourhood participation is a distinct aspect of rootedness. The literature on subsidised housing associates neighbourhood ties and community activities with greater satisfaction (Tang et al., 2024), and studies of housing developments with vacant dwellings document the social isolation of those who remain (Holguín Ávila and Maycotte Pansza, 2024).

The low participation observed is consistent with this isolation, but the cross-section does not allow this interpretation to be tested.

The intention to remain, which was high in this sample, contrasts with the image of social housing developments as places people leave. The residential mobility literature associates perceived disorder with a greater intention to move and attachment with a lower one (Gu et al., 2025), but with 7 cases and dimensions lacking internal consistency, this relationship cannot be examined. In addition, response quality must be reviewed before the final analysis, because in small samples careless or inconsistent response patterns can markedly distort correlations (Ward and Meade, 2023).

CONCLUSIONS

The study met its objective to the extent permitted by a preliminary sample of 7 cases. In its pilot administration, the perceived abandonment and rootedness scale for housing developments from project FZ-HAB-0029 showed virtually zero internal consistency for Perceived abandonment in the housing development (α = .062) and low internal consistency for Rootedness in the housing development (α = .357). Omega was not interpretable in either dimension because items R4 and R10 had opposite signs.

The exploratory factor analysis could not be estimated interpretably because the sample has fewer cases than items, and the confidence interval for the correlation between the dimensions included zero. The results do not yet provide validity evidence, but they describe residents who perceive deterioration and abandonment in their surroundings, who retain their attachment to their housing development and the intention to remain in it, and who barely participate in neighborhood activities.

The limitations are substantial. The sample of 7 cases, against a target of 100, with 0.7 cases per item, precludes estimating the internal structure and makes all statistics unstable; data collection was still ongoing, and not everyone who opened the questionnaire completed it.

The pilot study was conducted in Mazatlán, so the results are not representative of the housing developments in northwestern Mexico referred to in the project title. No information is available on the participating housing developments, the respondents, or housing tenure, and the study did not measure housing vacancy. The cross-sectional design precludes establishing dependence relationships, and no confirmatory factor analysis was performed.

Several decisions for the authors follow from these results. The first is to review both the recoding and the wording of R4, and to assess whether it should be replaced by an item referring to the presence of abandonment in the immediate surroundings. The second is to assess whether neighborhood participation (R10) should be measured as a separate dimension, distinct from affective attachment and from the intention to stay. The third is to review the case with contradictory responses. The fourth is to confirm the correlation coefficient that Factoriza applied between items. The fifth is to record the housing development, the official source of the vacancy data, housing tenure, and length of residence. None of these decisions was made in the present analysis, which retains the original ten items.

https://doi.org/10.62486/978-9915-9966-6-0.Ch11

For future work, we propose completing data collection up to the planned target, extending it to housing developments in other cities in the northwest, repeating the exploratory factor analysis once the number of cases allows, and then evaluating the resulting structure through confirmatory factor analysis in an independent sample.

Linking perceptions to development-level vacancy data would make it possible to examine the correspondence between perceived and recorded abandonment. An instrument with documented validity evidence would also provide useful information for housing recovery programs by incorporating the experience of those who remain in the developments, an aspect that evaluations of social housing policy have identified as neglected (Hernández Ilizaliturri et al., 2025).

https://doi.org/10.62486/978-9915-9966-6-0.Ch11

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