World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

Check for updates

HOUSEHOLD COPING STRATEGIES IN THE FACE OF THE SECURITY CRISIS: TYPOLOGY AND DETERMINANTS IN ATACORA, ALIBORI AND BORGOU (NORTHERN BENIN)

Romaric OGOUWALE [1, 2, *]

[1] Department of Geography and Land Planning, University of Abomey-Calavi, BP 1338, Abomey-Calavi, Benin.
[2] Pierre Pagney Laboratory: Climate, Water, Ecosystems and Development (LACEEDE), University of Abomey-Calavi, BP 526, Benin.
* Corresponding Author

World Journal of Advanced Research and Reviews, 2026, 32(01), 1244–1254

Publication history: Received on 12 September 2026; revised on 18 October 2026; accepted on 20 October 2026

Article DOI: https://doi.org/10.30574/wjarr.2026.32.1.2664

Copyright © 2026 Author(s) retain the copyright of this article. This article is published under the terms of the Creative Commons Attribution License 4.0

ABSTRACT

As insecurity spreads across northern Benin, displaced households and their host families use a range of strategies to protect their consumption and livelihoods. This study builds a typology of these strategies and analyses their determinants in Atacora, Alibori and Borgou. It draws on a Benin Red Cross household survey (August to September 2026) of 2,451 households in 13 communes. Sixteen strategies were classified by severity (stress, crisis, emergency) following the WFP CARI approach. Multiple correspondence analysis and hierarchical clustering produced a typology, whose determinants were estimated with a multinomial logit model and whose geography was analysed through spatial autocorrelation on 151 villages. Nearly all households reduce meals (85.9%). Help from family or friends (43.7%), borrowing (35.0%) and community gifts (33.1%) are the most common strategies, and 44.0% of households reach the crisis level. Five types emerge: dead end, with no possible strategy (11.1%); erosion of human capital and mobility (24.3%); mobilization of own resources (21.5%); accumulation of support (14.9%); and family solidarity (28.2%). The commune discriminates types better (Cramér's V = 0.21) than the department (0.16) or displacement status (0.11). Land access, livestock, aid received and shocks experienced steer households toward one type or another. Types 2 and 3 show the lowest food consumption. Aid should be targeted by coping profile and territory rather than by status alone.

Keywords: Coping strategies; Security crisis; Typology; Multiple correspondence analysis; Multinomial logit; Forced displacement; Northern Benin

1 INTRODUCTION

Since 2021, the spread of armed violence from the central Sahel and northwestern Nigeria has turned northern Benin into a lasting crisis area [1–3]. The departments of Atacora, Alibori and Borgou host more than 42,000 internally displaced persons (IDPs) and several thousand refugees [4]. For these households, as for the families that shelter them, the crisis means lost assets, no access to fields, closed markets and rising prices. Each household answers with a set of decisions: drawing on savings, selling an animal, borrowing, asking relatives for help, cutting health or education spending, or sending a member away to look for work.

These coping strategies are central to the analysis of livelihoods [5,6]. Work on food crises has shown that they follow a gradation: households first use reversible strategies, then erode their productive assets, and finally turn to practices that compromise their future [7,8]. The Consolidated Approach for Reporting Indicators of Food Security (CARI) of the World Food Programme (WFP) accordingly sorts strategies into three levels of severity: stress, crisis and emergency [9]. In conflict settings these choices are constrained by asset losses, restrictions on mobility and the breakdown of social networks [10,11].

Humanitarian assessments mostly measure how often each strategy is used. Yet households do not choose a single strategy. They combine several, and the combination says something about their situation and resources. This article seeks to identify these combinations and to understand what determines them. It asks three questions: (i) which strategies do households in northern Benin use against the crisis, and with what severity? (ii) which typical profiles of strategies can be distinguished? (iii) which individual and territorial factors steer households toward one profile or another? The hypothesis is that strategies depend less on displacement status than on available resources (land, livestock, aid, networks) and on the territory where the household lives.

2 MATERIALS AND METHODS

2.1 Study area

Figure 1 shows the study area and the location of surveyed households with usable GPS coordinates. The study covers 13 communes. In Atacora, they range from the Burkinabè border and the Pendjari (Matéri, Cobly, Tanguiéta) to the hinterland (Kérou, Péhunco, Natitingou, Toucountouna). In Alibori, they run along the Niger River (Karimama, Malanville) and the Burkinabè and Nigerian borders (Banikoara, Ségbana, Kandi). In Borgou, the commune of Kalalé borders Nigeria. These communes combine a dominant agropastoral economy, intense cross-border flows and, since 2021, a growing presence of displaced households.

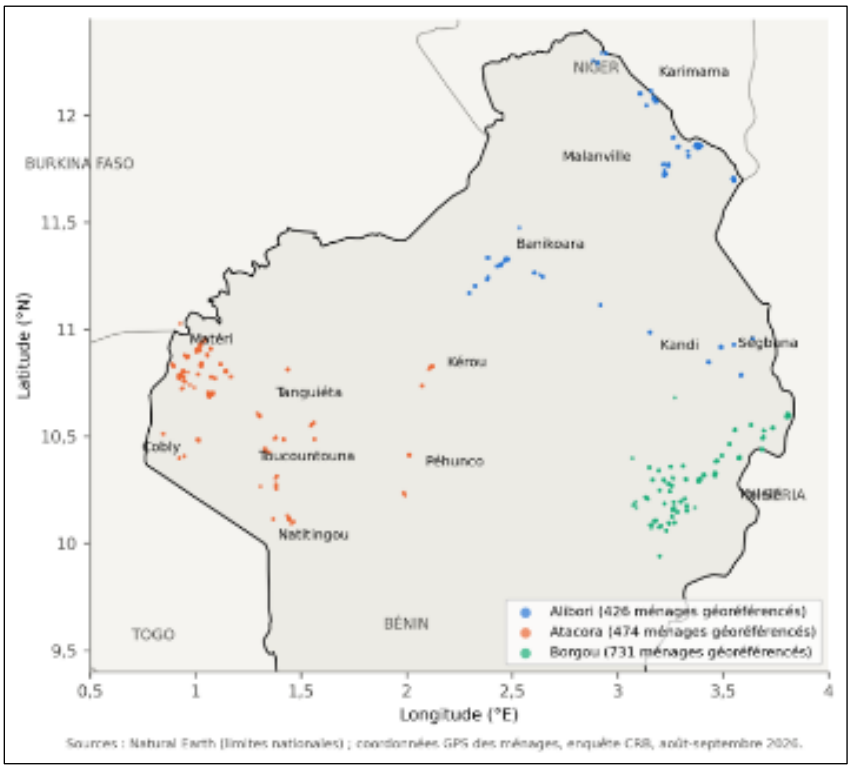

Figure 1: Location of surveyed households in Atacora, Alibori and Borgou.

2.2 Data

The data come from the multisectoral needs assessment of the Benin Red Cross [4]. The household questionnaire was administered with KoboCollect from 29 August to 4 September 2026, after informed consent, to 2,451 households: 813 in Alibori, 770 in Atacora and 868 in Borgou. They comprise host families (39.2%), IDPs and returnees (25.7%) and refugees or asylum seekers (35.1%). The sample was calculated by department with the formula of Cochran [12], a 5% margin of error and a finite population correction.

Sixteen strategies were drawn from four questions: strategies used against the crisis (question 0.46, multiple choice), food sources over the previous two weeks (4.1), income-generating activities (4.9 to 4.11) and recourse to dangerous activities (7.9). Begging and dangerous activities, too rare to be treated separately in the factorial analysis (2.0% and 2.9%), were grouped. Reducing the number of meals (question 6.12), used by 85.9% of households, is too widespread to discriminate between profiles and was left out of the typology. Each strategy is coded 1 if the household uses it.

2.3 Severity of strategies

Following the CARI approach [9], each household is classified at the highest severity level it reaches. Stress covers the use of savings, borrowing of food or money, and help from family or friends. Crisis covers the sale of assets and cuts in health and education spending. Emergency covers begging and dangerous income-generating activities. The severity level S_i of household i is therefore:

$$S_i = \max\{ k \times 1(s_{ij} = 1) : j \in J_k, k = 1, 2, 3 \} \quad (1)$$

where s_{ij} equals 1 if household i uses strategy j, J_k is the set of strategies of level k (1 = stress, 2 = crisis, 3 = emergency), and $S_i = 0$ if none of these strategies is used.

2.4 Typology of strategies

The typology rests on a multiple correspondence analysis (MCA) of the sixteen strategies, followed by a hierarchical clustering (HC) with Ward's criterion [13] on the factorial coordinates [14,15]. MCA inertia rates were corrected following Benzécri [16]:

$$\tau_k = [(p / (p - 1)) \cdot (\lambda_k - 1/p)]^2 \text{ for } \lambda_k > 1/p \quad (2)$$

where λ_k is the eigenvalue of axis k and p = 16 is the number of active variables. The first three axes, which hold 93.2% of the corrected inertia, were retained for the clustering. The partition was consolidated with the k-means algorithm, and each type was characterized by the test-value of over-represented strategies [14]:

$$VT = (n_{jk} - n_k n_j / N) / \sqrt{[n_k(N - n_k)/(N - 1) \cdot (n_j/N)(1 - n_j/N)]} \quad (3)$$

where N is the total number of households, n_k the size of type k, n_j the number of households using strategy j, and n_{jk} the joint count. An absolute test-value above 2 indicates a significant deviation at the 5% level.

2.5 Determinants and geography of types

The determinants of type membership were estimated with a multinomial logit model, using the most frequent type (family solidarity) as the reference. The probability that household i belongs to type m is:

$$P(Y_i = m) = \exp(X_i\beta_m) / [1 + \Sigma_l \exp(X_i\beta_l)] \quad (4)$$

Coefficients are expressed as relative risk ratios (RRR = e^{β}), which show how a variable changes the risk of belonging to type m rather than to the reference type. The explanatory variables are the department, the displacement status, the sex and age of the household head, household size, farming or livestock as main activity, access to land, livestock ownership, the number of security shocks experienced (out of ten) and humanitarian aid received.

The association between types and territorial variables was measured with the χ^2 test and Cramér's V:

$$V = \sqrt{[\chi^2 / (N \cdot (\min(l, c) - 1))]} \quad (5)$$

The spatial structure was analysed on 151 villages with at least three georeferenced households (1,507 households). For each type, Moran's index [17] measures the spatial autocorrelation of its share across villages, with a matrix of the six nearest neighbours and 9,999 permutations. The link between types and food security was estimated by a linear regression of the food consumption score (FCS) [18] on type, with the same controls. Computations were done in Python (pandas, prince, SciPy, scikit-learn, statsmodels, PySAL).

3 RESULTS

3.1 Strategies based first on social networks

Figure 2 shows how often the sixteen strategies are used in each department, and Table 1 gives the detail and the severity level.

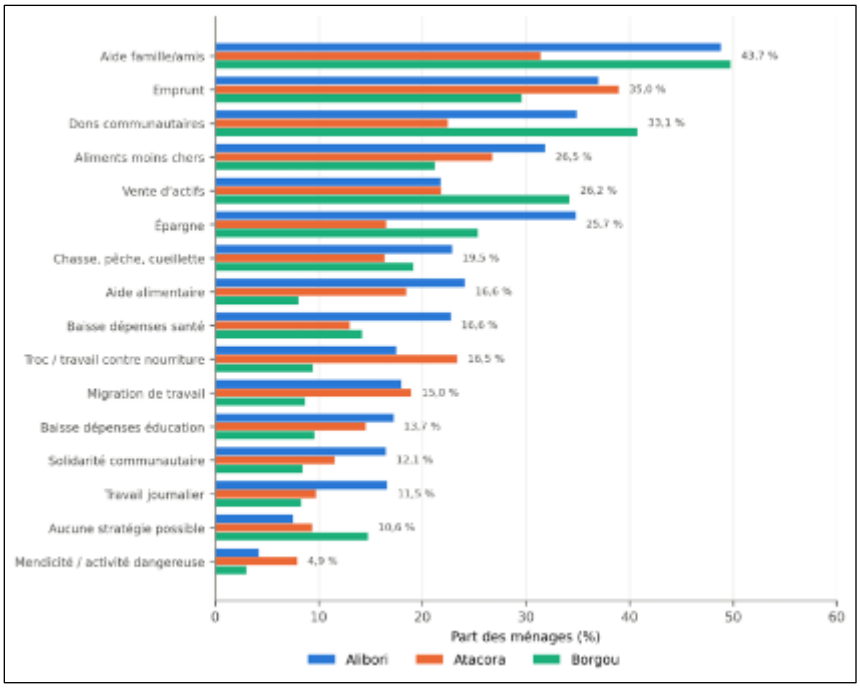

Figure 2: Frequency of coping strategies by department.

Table 1: Coping strategies reported, by department.

Strategy	Item	CARI level	Alibori (%)	Atacora (%)	Borgou (%)	All (%)	p
Help from family/friends	0.46	Stress	48.8	31.4	49.8	43.7	<0.001***
Borrowing	4.1	Stress	37.0	39.0	29.6	35.0	<0.001***
Community gifts	4.1	–	34.9	22.5	40.8	33.1	<0.001***
Cheaper food	0.46	–	31.9	26.8	21.2	26.5	<0.001***
Sale of assets	0.46	Crisis	21.8	21.8	34.2	26.2	<0.001***
Savings	0.46	Stress	34.8	16.5	25.3	25.7	<0.001***
Hunting, fishing, gathering	4.1	–	22.9	16.4	19.1	19.5	0.004**
Reduced health spending	0.46	Crisis	22.8	13.0	14.2	16.6	<0.001***
Food aid	4.1	–	24.1	18.4	8.1	16.6	<0.001***
Barter / work for food	4.1	–	17.5	23.4	9.4	16.5	<0.001***
Labour migration	0.46	–	18.0	19.0	8.6	15.0	<0.001***
Reduced education spending	0.46	Crisis	17.2	14.5	9.6	13.7	<0.001***
Community solidarity	0.46	–	16.5	11.6	8.4	12.1	<0.001***
Day labour	4.9–4.11	–	16.6	9.7	8.3	11.5	<0.001***
No strategy possible	0.46	–	7.5	9.4	14.7	10.6	<0.001***
Begging / dangerous activity	4.9–4.11, 7.9	Emergency	4.2	7.9	3.0	4.9	<0.001***

CARI level: severity classification [9]; "–": strategy not classified. p: χ^2 test. *** p < 0.001; ** p < 0.01; * p < 0.05. Source: CRB household survey, 2026.

Households use 3.2 strategies on average. The most frequent rely on social networks: help from family or friends (43.7%), borrowing of food or money (35.0%) and community gifts (33.1%). Next come buying cheaper food (26.5%), selling assets (26.2%) and using savings (25.7%). Strategies that erode human capital remain a minority but are

worrying: 16.6% of households cut health spending and 13.7% cut education spending. One household in ten (10.6%) reports having no possible strategy. All strategies differ significantly between departments ($p < 0.01$). Borgou stands out for family help (49.8%), gifts (40.8%), asset sales (34.2%) and the absence of any strategy (14.7%). Alibori relies more on savings (34.8%), food aid (24.1%), day labour (16.6%) and cuts in health spending (22.8%). Atacora is characterized by borrowing (39.0%), barter or work for food (23.4%) and labour migration (19.0%).

3.2 Nearly half of households at the crisis level

Figure 3 shows the distribution of households by the highest severity level reached.

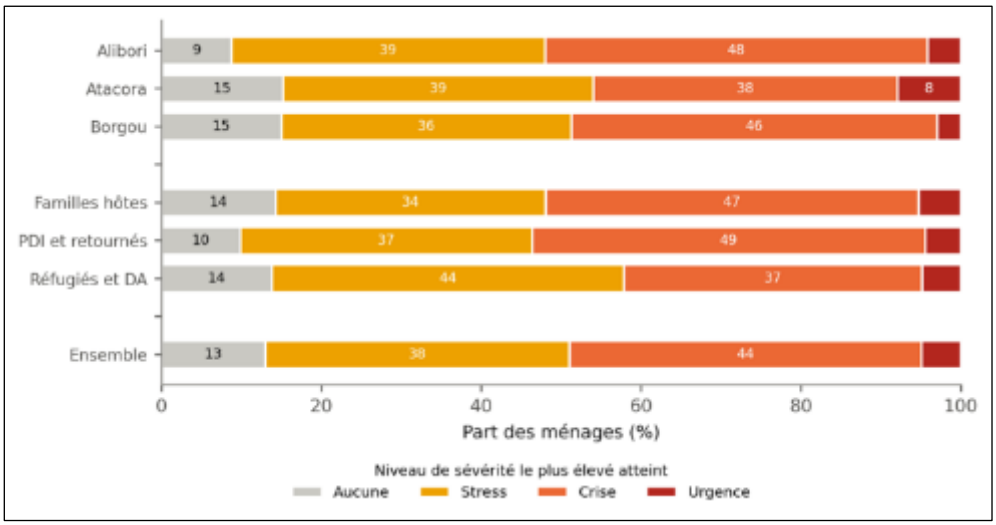

Figure 3: Severity level of coping strategies by department and status.

Close to half of households (44.0%) reached the crisis level and 4.9% the emergency level; 38.1% stay with stress strategies and 13.0% use none. The crisis level is most frequent in Alibori (47.8%) and Borgou (45.7%), and the emergency level in Atacora (7.9%). By status, IDPs most often reach the crisis level (49.2%), whereas refugees more often stay at the stress level (44.0%), for lack of assets to sell or savings to draw on. On food, households mostly consider reducing the number of meals (43.2%) or portions (32.4%), and less often barter (21.9%). Severity measured this way does not separate households by food consumption (Kruskal-Wallis, $p = 0.10$): a household can remain at the stress level because it has nothing left to sell. This is why a typology that accounts for the combination of strategies is useful.

3.3 Five strategy profiles

Figure 4 shows the HC dendrogram and the first factorial plane of the MCA, and Figure 5 gives the profile of the five types.

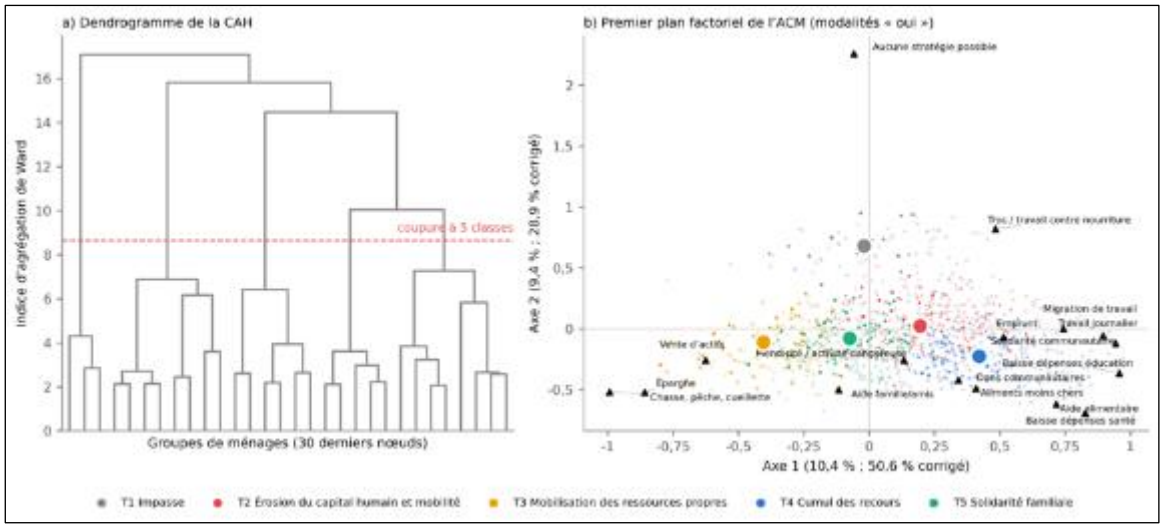

Figure 4: HC dendrogram (a) and first factorial plane of the MCA (b).

After Benzécri's correction, the first three axes summarize 50.6%, 28.9% and 13.8% of the inertia. The first axis opposes the mobilization of own resources (savings, asset sales, gathering) on the left to the accumulation of external support (food aid, gifts, day labour, spending cuts) on the right. The second isolates the absence of strategy. The aggregation index falls in steps (17.07; 15.80; 14.46; 10.03; 7.25). A four-class partition would merge family solidarity and accumulation of support, whose profiles differ clearly. The cut retained, between the nodes at 10.03 and 7.25, gives five classes (silhouette = 0.26).

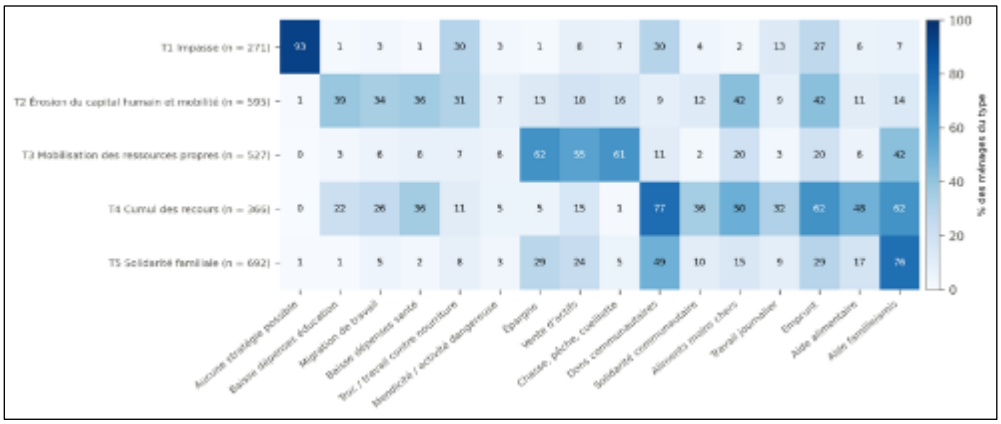

Figure 5: Frequency of strategies in each of the five types (%).

Table 2 summarizes the characteristics of the five types.

Table 2: Characteristics of the five strategy types.

Indicator	T1 Dead end	T2 Erosion and mobility	T3 Own resources	T4 Accumulation of support	T5 Family solidarity
Size (share of sample)	271 (11.1%)	595 (24.3%)	527 (21.5%)	366 (14.9%)	692 (28.2%)
Mean number of strategies	1.4	3.3	3.1	4.9	2.8
Mean number of shocks (out of 10)	3.3	2.1	1.7	3.2	2.9
Female household head (%)	38.0	30.1	20.9	30.3	30.5
Farming or livestock main activity (%)	60.1	74.1	79.3	63.9	78.6
Access to land (%)	23.2	22.0	28.7	30.1	35.3
Owns livestock (%)	21.8	25.7	37.4	24.0	23.4
Humanitarian aid received (%)	44.6	62.4	59.0	78.1	65.0
Supported by a host household (%)	42.8	30.9	31.1	54.4	48.8
Hosts / IDPs / refugees (%)	36 / 18 / 45	43 / 26 / 31	44 / 31 / 25	33 / 22 / 45	37 / 27 / 37
Share of Alibori households (%)	7.5	25.1	22.6	19.7	25.1
Share of Atacora households (%)	10.9	33.8	18.8	12.1	24.4
Share of Borgou households (%)	14.5	15.1	22.8	13.0	34.6

Mean FCS	24.6	21.2	23.6	28.6	27.7
Poor consumption, FCS ≤ 21 (%)	49.1	55.0	52.2	34.4	40.0

Source: CRB household survey, 2026; MCA-HC. FCS: food consumption score.

Type 1, dead end (11.1%), groups households that report no possible strategy (93%). They use fewer than 1.5 strategies on average, sometimes barter or work for food (30%). They are the households most often headed by a woman (38.0%), the least often farming, the least often assisted (44.6%) and among the most exposed to shocks (3.3). Nearly half have poor consumption (49.1%).

Type 2, erosion of human capital and mobility (24.3%), reduces education spending (38.8%) and health spending (36.5%), sends a member to look for work elsewhere (34.3%), turns to barter or work for food (31.4%) and buys cheaper food (42.4%). These households receive little family help (13.8%) and few gifts (8.7%). Little exposed to direct shocks (2.1), they have the lowest consumption of all types (FCS = 21.2; 55.0% with poor consumption). This is the most common type in Atacora (33.8%).

Type 3, mobilization of own resources (21.5%), draws on savings (62.4%), sells assets (55.2%) and practises hunting, fishing or gathering (61.3%). These households are the least exposed to shocks (1.7), most often farmers (79.3%) and livestock owners (37.4%), and least often headed by a woman (20.9%). Their consumption remains low (FCS = 23.6): they are eating into a capital that is running out.

Type 4, accumulation of support (14.9%), combines the largest number of strategies (4.9): gifts (76.5%), borrowing (62.3%), family help (61.7%), food aid (48.1%), cheaper food (49.7%), community solidarity (35.5%) and day labour (32.0%). They are highly exposed (3.2 shocks), often refugees (45.4%) and best assisted (78.1%). Their consumption is the best (FCS = 28.6): the multiplication of external recourses compensates for the loss of own resources.

Type 5, family solidarity (28.2%), is the most frequent. It relies on help from family or friends (75.6%) and gifts (49.1%), with few erosive strategies. These households mostly stay at the stress level (65.6%) and keep an average consumption (FCS = 27.7). It is the dominant type in Borgou (34.6%).

3.4 A geography of strategies

Figure 6 maps the dominant type of each village and shows the distribution of types by commune.

Types are not distributed at random. Their association with the commune ($\chi^2 = 435.6$; df = 48; $p < 0.001$; V = 0.21) is stronger than with the department (V = 0.16) and especially with status (V = 0.11). At village scale, the share of each type is spatially autocorrelated: Moran's index is 0.343 for accumulation of support, 0.264 for own resources, 0.162 for family solidarity, 0.123 for dead end and 0.111 for erosion of human capital ($p < 0.01$ in all cases). Four territorial groups emerge. Kérou (55%), Cobly (38%) and Banikoara (29%) concentrate accumulation of support. Natitingou (47%), Kandi (39%), Péhunco (38%), Karimama (36%) and Malanville (30%) are characterized by the mobilization of own resources, linked to the river economy and gathering. Toucountouna (58%), Kandi (45%), Ségbana (41%) and Kalalé (35%) rely on family solidarity. Erosion of human capital dominates in Kérou (36%), Matéri (35%), Tanguiéta (34%) and Banikoara (33%), that is in communes bordering the Pendjari and W parks. Dead end is concentrated in Kalalé (15%), Matéri (14%), Malanville (11%) and Ségbana (10%), the communes that received the most recent or most massive arrivals. Types 1 and 2 are also the closest to the border (median distances of 16.3 and 14.8 km, against 19.8 to 21.6 km for the others; $p < 0.001$).

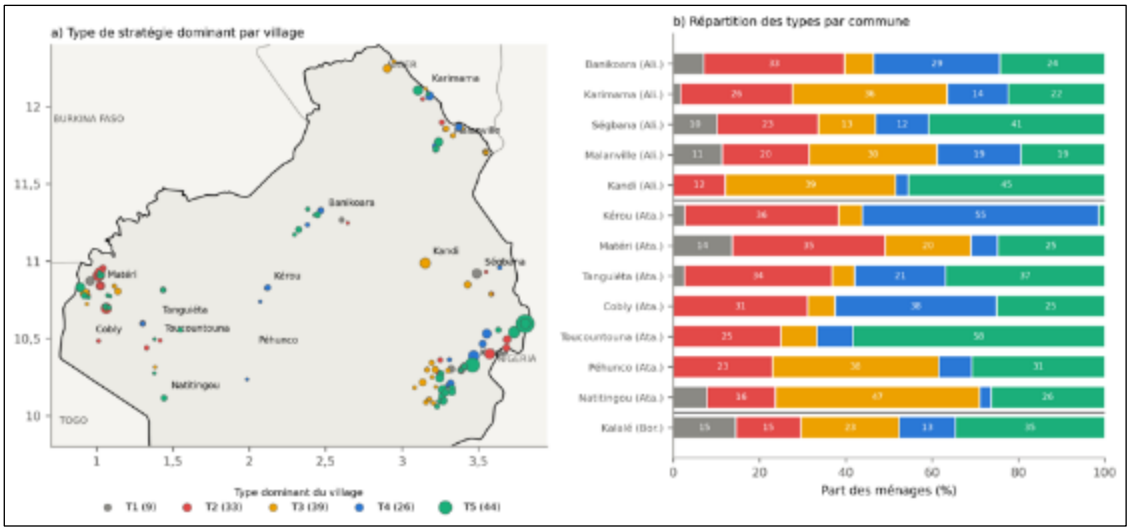

Figure 6: Dominant strategy type by village (a) and distribution of types by commune (b).

3.5 Determinants of type membership

Table 3 and Figure 7 give the relative risk ratios of the multinomial logit model, with family solidarity (T5) as the reference.

Table 3: Determinants of strategy types (multinomial logit, relative risk ratios).

Variable	T1 Dead end	T2 Erosion and mobility	T3 Own resources	T4 Accumulation of support
Atacora (ref. Alibori)	1.43	1.32	0.85	0.57**
Borgou	1.20	0.43***	1.01	0.39***
IDPs (ref. hosts)	0.70	0.86	1.27	0.73
Refugees and asylum seekers	0.94	0.74*	0.96	1.09
Female household head	1.10	0.86	0.65**	0.83
Head < 25 or ≥ 60 years	0.83	0.88	0.98	0.98
Household size (log)	0.88	0.89	1.14	0.85
Farming or livestock main activity	0.46***	0.96	0.95	0.55***
Access to land	0.68*	0.53***	0.65**	0.86
Owns livestock	1.17	1.06	1.72***	1.31
Number of shocks	1.04	0.98	0.86***	1.13***
Aid received	0.47***	0.73**	0.70**	1.93***

n = 2,435; McFadden pseudo-R^2 = 0.060; likelihood-ratio test: p < 0.001. Reference: T5 family solidarity. RRR > 1: higher risk of belonging to the type rather than to T5. *** p < 0.001; ** p < 0.01; * p < 0.05. Source: CRB household survey, 2026.

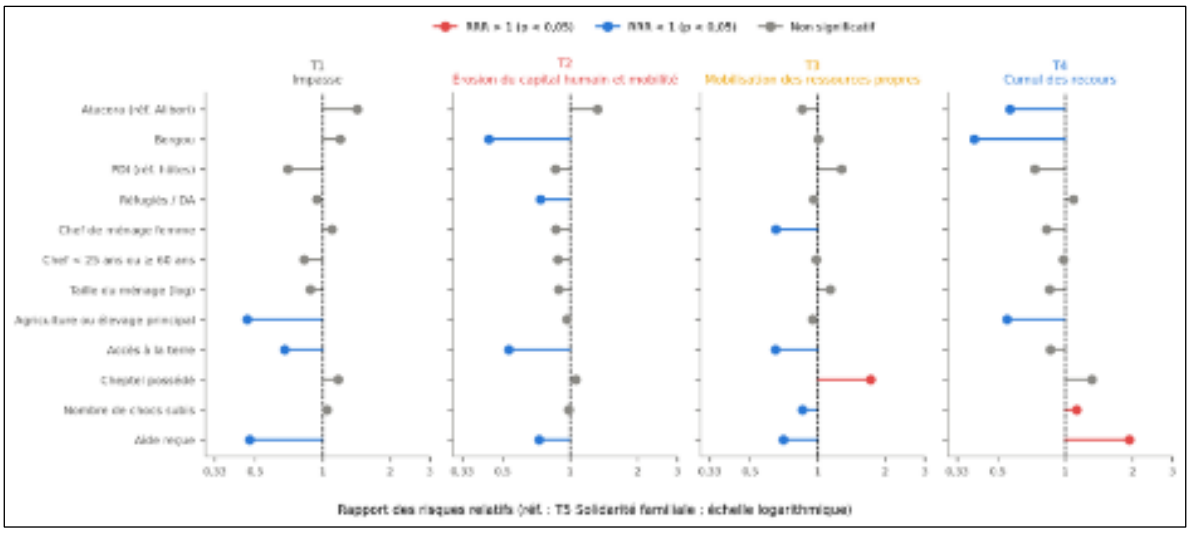

Figure 7: Relative risk ratios of the multinomial logit model (reference: family solidarity).

The model is globally significant ($p < 0.001$), but its explanatory power remains modest (pseudo-$R^2 = 0.060$), as is common for multiple strategy choices. Three sets of determinants emerge. First, productive resources: access to land lowers the risk of dead end (RRR = 0.68) and of erosion of human capital (0.53), livestock ownership steers toward the mobilization of own resources (1.72), and farming protects against dead end (0.46). Second, aid and shocks: aid received lowers the risk of dead end (0.47) and raises that of accumulation of support (1.93), which also rises by 13% with each shock, whereas each shock lowers by 14% the probability of mobilizing own resources. Third, territory: households in Borgou have a markedly lower risk of erosion of human capital (0.43) and of accumulation of support (0.39) than those in Alibori. Displacement status has almost no effect of its own: only refugees are slightly less exposed to erosion of human capital (0.74). Households headed by women mobilize their own resources less often (0.65), for lack of assets in their name.

3.6 Strategies and food security

Strategy type is associated with food consumption (Kruskal-Wallis, $H = 76.8$; $p < 0.001$). Other characteristics being equal, and relative to family solidarity, the FCS is lower by 5.7 points in type 2 ($p < 0.001$), by 4.8 points in type 3 ($p < 0.001$) and by 2.4 points in type 1 ($p = 0.026$); it does not differ significantly in type 4 (+1.4; $p = 0.17$). Each additional shock lowers the FCS by 0.8 points, and households headed by women have an FCS lower by 2.6 points. Strategies based on networks and aid (types 4 and 5) therefore protect consumption better than those that draw on own resources or human capital (types 2 and 3).

4 DISCUSSION

4.1 Relational rather than market-based strategies

The first lesson is the central place of social networks: family help, borrowing and gifts are the three most frequent strategies, and family solidarity forms the most common type. This agrees with work on the moral economy of Sahelian and Sudanian communities, where mutual aid and lending structure the response to shocks [6]. It also confirms what the focus group discussions of the same assessment describe: sharing of rooms, land, water and utensils between hosts and displaced people [19]. But these relational resources have limits. Where they run out, households slide toward dead end or toward strategies that erode their human capital.

4.2 Strategies that depend on resources more than on status

The initial hypothesis is confirmed: displacement status explains little of the choice of strategies, whereas available resources and territory explain more. Land, livestock and aid steer trajectories. A household that still owns livestock can sell it; a household with no land and no aid is left with labour migration, cuts in school spending or dead end. This logic fits the gradation of strategies described by Corbett [7] and Maxwell [8], where the order of recourse depends on what the household can still mobilize. It also agrees with Brück et al. [11], for whom resilience to conflict rests first on assets and access to transfers.

The result on severity deserves attention. Refugees stay at the stress level more often than IDPs, not because they are less vulnerable but because they have no assets left to sell. The CARI scale, designed for households that still hold some

wealth, therefore underestimates the distress of those who have lost it. The typology, which includes the absence of strategy and external recourses, accounts better for these situations.

4.3 Territories of adaptation

The geography of types reveals territories of adaptation. The communes bordering the Pendjari and W parks (Matéri, Tanguiéta, Kérou, Banikoara) combine erosion of human capital and, for Kérou and Banikoara, accumulation of support: restricted access to fields and to the Pendjari pushes households toward labour migration and spending cuts. The Niger valley and the Atacora hinterland (Karimama, Malanville, Natitingou, Péhunco, Kandi) mobilize more of their own resources, including fishing and gathering, which the river and vegetation make possible. Borgou and some communes of Atacora and Alibori (Kalalé, Toucountouna, Ségbana) rely on family solidarity, which can draw on long-standing ties of kinship or neighbourhood between displaced people and hosts. Dead end is concentrated in communes of massive and recent reception (Kalalé, Matéri). These territories result from the meeting of environmental resources (river, forests, land), the intensity of the crisis and the density of social networks.

4.4 Implications for action

These results suggest targeting aid by profile and territory. For type 1 (dead end), concentrated in Kalalé and Matéri, direct food assistance and priority inclusion of female-headed households are needed, since these have neither strategy nor aid. For type 2 (erosion of human capital), dominant in border Atacora, cash transfers conditional on school attendance and access to care could halt school dropout and the forgoing of care. For type 3 (own resources), assets should be rebuilt (small livestock, seeds, tools) and negotiated access to land secured before savings and herds are exhausted. For types 4 and 5, support should go to host families and community mechanisms, which are the pivots of adaptation, to keep them from running dry.

4.5 Limitations

Strategies are self-reported, with no indication of their intensity, duration or order, and some, such as begging or dangerous activities, are probably under-reported. The questions used have different reference periods (current crisis, previous two weeks, previous seven days). The list of strategies does not fully reproduce the WFP CARI indicator, which limits comparison with other assessments. The explanatory power of the multinomial model remains modest, and the cross-sectional survey does not allow observation of transitions between types. Finally, the spatial analysis covers only georeferenced households (66.5%).

5 CONCLUSION

Facing the security crisis, households in northern Benin first mobilize their social networks, then their own resources and, failing that, their human capital. Close to half reach the crisis level, and one in ten reports no possible strategy. Five profiles emerge: dead end, erosion of human capital and mobility, mobilization of own resources, accumulation of support and family solidarity. They are determined more by access to land, livestock and aid, and by territory, than by displacement status. Their geography outlines territories of adaptation, where environmental resources, crisis intensity and the density of solidarities combine. Profiles that erode human capital or own resources are associated with the lowest food consumption.

These results call for assistance that targets adaptation profiles and territories rather than status alone, and that supports local solidarities before they run dry. A longitudinal follow-up of the same households would make it possible to observe trajectories between profiles and to anticipate the slide toward dead end.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

The author declares that there is no conflict of interest.

Statement of informed consent

Informed consent was obtained from all participating households before the survey.

REFERENCES

[1] Clingendael Institute. Dangerous liaisons: exploring the risk of violent extremism along the border between Northern Benin and Nigeria. The Hague: Clingendael; 2024.

[2] ACAPS. Benin: conflict in Alibori and Atacora. Briefing note. Geneva: ACAPS; 2025 Feb 7.

[3] ACLED. New frontlines: jihadist expansion is reshaping the Benin, Niger, and Nigeria borderlands. Armed Conflict Location & Event Data Project; 2025.

[4] Croix-Rouge Béninoise. Termes de référence : évaluation multisectorielle des besoins des populations touchées par la situation sécuritaire dans les départements de l'Atacora, de l'Alibori et du Borgou. Porto-Novo: CRB; 2026. (in French)

[5] Chambers R, Conway G. Sustainable rural livelihoods: practical concepts for the 21st century. IDS Discussion Paper 296. Brighton: Institute of Development Studies; 1992.

[6] Scoones I. Sustainable rural livelihoods: a framework for analysis. IDS Working Paper 72. Brighton: Institute of Development Studies; 1998.

[7] Corbett J. Famine and household coping strategies. World Dev. 1988;16(9):1099-112.

[8] Maxwell DG. Measuring food insecurity: the frequency and severity of "coping strategies". Food Policy. 1996;21(3):291-303.

[9] WFP. Consolidated Approach for Reporting Indicators of Food Security (CARI). Technical guidance. 3rd ed. Rome: World Food Programme; 2021.

[10] Lautze S, Raven-Roberts A. Violence and complex humanitarian emergencies: implications for livelihoods models. Disasters. 2006;30(4):383-401.

[11] Brück T, d'Errico M, Pietrelli R. The effects of violent conflict on household resilience and food security: evidence from the 2014 Gaza conflict. World Dev. 2019;119:203-23.

[12] Cochran WG. Sampling techniques. 3rd ed. New York: John Wiley & Sons; 1977.

[13] Ward JH. Hierarchical grouping to optimize an objective function. J Am Stat Assoc. 1963;58(301):236-44.

[14] Lebart L, Piron M, Morineau A. Statistique exploratoire multidimensionnelle : visualisation et inférence en fouilles de données. 4th ed. Paris: Dunod; 2006. (in French)

[15] Husson F, Lê S, Pagès J. Exploratory multivariate analysis by example using R. 2nd ed. Boca Raton: CRC Press; 2017.

[16] Benzécri JP. Sur le calcul des taux d'inertie dans l'analyse d'un questionnaire. Cah Anal Donnees. 1979;4(3):377-8. (in French)

[17] Moran PAP. Notes on continuous stochastic phenomena. Biometrika. 1950;37(1-2):17-23.

[18] WFP. Food consumption analysis: calculation and use of the food consumption score in food security analysis. Rome: World Food Programme; 2008.

[19] Croix-Rouge Béninoise. Rapport complémentaire : synthèse des discussions de groupe (FGD). Draft version of 24 September 2026. Porto-Novo: CRB; 2026. (in French)