Where Instability Hurts:

The Spatial Contingency of Employment Trajectories and Wellbeing across European Regions

Dr. Xiuxiang Pan[1]; Prof. Dimitris Ballas[1]

[1] Faculty of Spatial Sciences, University of Groningen, The Netherlands

1. Core Proposition and Theoretical Positioning

Central claim: *the wellbeing consequences of employment instability are fundamentally shaped by the spatial context in which they unfold.* Identical employment trajectories produce divergent wellbeing outcomes depending on whether they occur in urban, intermediate, or rural settings. This spatial contingency operates through (a) the structure of local labour markets, which determines opportunity spaces for re-employment and recovery, and (b) the place-specific meaning systems attached to employment experiences.

We add a spatial perspective to an implicit assumption in the employment–wellbeing literature that the relationship between labour market experience and welfare is *spatially invariant*. Existing work treats space as a control variable rather than a constitutive dimension. We argue that place is not merely where employment instability happens but a force that shapes how it translates into wellbeing damage.

First, our study engages with the 'geography of discontent' literature. Rodríguez-Pose (2018) argued that persistent economic stagnation and lack of opportunity in declining and lagging-behind regions have generated deep-seated discontent, expressed through populist voting—a phenomenon he termed the 'revenge of the places that don't matter.' His analysis illustrated this through aggregate electoral and GDP patterns at the regional scale. We provide a supplemental micro-level transmission mechanism: regional conditions affect individual wellbeing not simply by raising unemployment rates, but also by shaping the temporal structure of employment experience—sequences of stability, disruption, recovery, and entrapment—and by conditioning how those sequences translate into wellbeing damage.

Second, we complement regional difference in wellbeing research. Shucksmith, et al.'s (2009) analysis across European countries established that urban–rural quality-of-life differentials vary dramatically by national wealth. Their cross-sectional analysis is insufficient for elucidating why these gaps exist. We hypothesize that part of the answer lies in the spatially differentiated wellbeing consequences of employment instability: in thin rural labour markets of weaker economies, unstable trajectories are compounded by limited re-employment options and social visibility of failure; in dense urban markets, the same pattern may carry lower costs due to greater alternatives (better post-unemployment expectation) and normalization of job churn.

We additionally integrate three further strands. Kalleberg (2009, 2018) argued that the wellbeing effects of precarious employment are institutionally conditioned—but at the national level.

We extend this to the subnational spatial level, arguing that urban labour market thickness and diversification function as localized flexicurity. Giannakis and Bruggeman (2020) showed that regional economic resilience during the 2008 crisis varies systematically across the urban–rural divide at the NUTS-3 level; we apply the resilience concept at the individual level. Carr and Chung (2014) tested whether national labour market policies moderate the employment insecurity–life satisfaction link. We replace national policy moderation with regional development status moderation and point-in-time status with trajectory processes.

2. Literature Gap and Motivations of this Study

Firstly, there is a theoretical gap at three-literature intersection. The employment–wellbeing literature (Carr & Chung, 2014; Kalleberg, 2018) focuses on national institutional moderation using point-in-time employment states. The geography-of-discontent literature (Rodríguez-Pose, 2018; Dijkstra et al., 2020) operates at the macro-regional scale without micro-level mechanisms. The sequence analysis literature (Devillanova et al., 2019) links trajectories to health outcomes but largely misses spatial heterogeneity. Few studies combine individual employment trajectory analysis with spatial moderation and wellbeing outcomes.

Secondly, EU-SILC contains a monthly activity calendar (PL211A–L) recording each individual's main activity status in each of 12 months, available since 2003 across 30+ countries. Eurostat compresses this into annual summary indicators, discarding temporal ordering. To our knowledge, few studies exploit the monthly activity calendar for sequence-based employment trajectories in a cross-national setting.

Finally, this study responds to policy urgency. The EU's Long-Term Vision for Rural Areas and the European Pillar of Social Rights require evidence on whether 'one-size-fits-all' employment policies are adequate or whether place-sensitive approaches are needed.

3. Research Questions

RQ1: How are employment trajectory types distributed across urban, intermediate, and rural areas in Europe? Do different spatial contexts 'produce' distinct trajectory patterns, and how does this spatial patterning vary across countries?

RQ2: Does space amplify, buffer, or qualitatively transform the trajectory–wellbeing relationship? Does the wellbeing consequence of a given employment trajectory type depend on the place types of cities, small towns or villages? and does the relationship vary across countries with different welfare regimes and labour market structures?

RQ3: Do economic and psychological wellbeing exhibit different spatial contingency patterns? If so, what does this divergence reveal about distinct mechanisms through which place shapes material versus subjective welfare?

4. Expected Contributions

- **To economic geography: from 'place-based disadvantage' to 'place-contingent trajectories.'** We provide the micro-level mechanism linking the 'places that don't matter'

thesis to individual suffering: places shape not just the temporal pattern of instability of people's employment experience, but also how that pattern translates into wellbeing.

- **To wellbeing research: from 'who is vulnerable' to 'where vulnerability hurts most.'** We redirect heterogeneity analysis from individual moderators (gender, education) to spatial attributes, extending Shucksmith et al.'s (2009) static urban–rural wellbeing gaps by revealing the dynamic employment processes underlying them.
- **Cross-national moderation.** By examining whether spatial contingency patterns vary across European welfare regimes, we test whether the spatial moderation of trajectory–wellbeing links is a universal structural feature or is itself institutionally conditioned.

5. Research Design

5.1 Data

Source: EU-SILC Longitudinal UDB, 2024 release. EU-SILC follows a 4-year rotational panel design: each individual is observed for a maximum of four consecutive years.

Temporal order design

To mitigate reverse causality (wellbeing → employment), employment trajectories are constructed from the 4-year panel window, while wellbeing outcomes are measured at the end year of the sequence's period. The pooled analysis combines multiple entry cohorts:

- **Cohort A:** Enters sample in 2018 → employment sequence 2018–2021 (48 months) → Y measured in 2021
- **Cohort B:** Enters sample in 2019 → employment sequence 2019–2022 (48 months) → Y measured in 2022
- **Cohort C:** Enters sample in 2020 → employment sequence 2020–2023 (48 months) → Y measured in 2023

Robustness: Earlier entry cohorts (e.g., entering 2010–2012 or 2014–2016) provide analogous 4-year sequences with Y measured at period end. These serve as temporal replication windows. Consistent results across windows strengthen generalizability; divergence—especially between pre- and post-COVID cohorts—is itself informative.

Spatial Heterogeneity: All EU members providing PL211A–L in the longitudinal component (≈20–25 countries). This provides cross-national variation in welfare regimes, labour market structures, and urban–rural configurations.

Sample: Working-age adults 25–59 at panel entry, excluding education-dominated and retirement-transition sequences.

5.2 Variables

A. Employment Trajectory

Constructed from the monthly activity calendar (e.g., full-time employed, part-time employed, self-employed and unemployed). Twelve-month calendars concatenated into 48-month sequences. Final alphabet will be decided after inspecting state frequencies. If self-employment or part-time employed are rare, simplified 4-state version (Employed/Unemployed/Inactive/Training) may be used.

B. Wellbeing Outcomes (DVs)

All outcomes measured in the end year of the 4-year employment sequence (temporal lag design). Two dimensions of wellbeing:

Economic wellbeing (available annually):

- **Material deprivation index.** Constructed from 9 enforced-lack items: arrears on mortgage/rent, arrears on utility bills, arrears on hire purchase/loans, inability to afford one-week holiday, inability to afford a meal with meat/fish every second day, inability to face unexpected expenses, inability to keep home warm, lack of a washing machine, lack of a car. Count of deprivations (0–9); binary threshold at ≥3 for severe material deprivation.
- **Economic strain (ability to make ends meet).** Ordinal 1–6: 'with great difficulty' to 'very easily.' Captures subjective household financial pressure complementing the objective deprivation count.

Psychological wellbeing: Life satisfaction (PW010, 0–10) — primary psychological outcome

C. Spatial Context (Moderator 1): Three categories—densely populated (cities), intermediate density (towns/suburbs), thinly populated (rural)—using the harmonized EU-wide classification. It's determined by the modal place type across an individual's panel years.

D. National Context (Moderator 2)

Cross-national variation is examined via a two-stage approach. The main model includes country fixed effects, which absorb all between-country variation and preclude direct estimation of country-level coefficients. We therefore adopt a second stage: country-specific trajectory × urbanization interaction effects are extracted from the fixed-effects model and regressed on national institutional indicators (e.g., GDP per capita, unemployment rate) to test whether the spatial moderation pattern is itself institutionally conditioned.

E. Individual Controls: Age, gender, education (ISCED), migration background, household size, presence of children, partnership status.

F. Regional Controls: Regional indicators are used as controls/mechanism proxies (where available at comparable NUTS levels), while the main specification relies on country fixed effects rather than region random effects to avoid instability from heterogeneous regional granularity.

Given shared resources and stress exposure, we model individuals as nested within households via a household random intercept (or household-clustered SEs as robustness)

5.3 Analytical Strategy

Step 1: Sequence Analysis

Using TraMineR (Gabadinho et al., 2011), we construct 48-month sequences and compute pairwise dissimilarities via OMspell (sensitive to both state ordering and spell duration). Sensitivity checks: Hamming distance and Longest Common Subsequence.

Step 2: Cluster Analysis

Ward's hierarchical clustering on the dissimilarity matrix. Cluster quality assessed via ASW, PBC, and Hubert's C (WeightedCluster package; Studer, 2013). We expect 4–8 trajectory types.

Step 3: Descriptive Spatial Geography (RQ1)

Cross-tabulations of trajectory types × urbanization × country. Chi-square tests and correspondence analysis to map the spatial distribution of employment trajectory patterns across Europe.

Step 4: Spatially contingent wellbeing effect of employment trajectory

We estimate mixed-effects regression models in which wellbeing is regressed on employment-trajectory type, the degree of urbanization, and their interaction, controlling for baseline sociodemographic characteristics and household conditions. To account for shared resources and unobserved household-level stressors, individuals are modelled as nested within households via a household random intercept, while country fixed effects absorb time-invariant national differences in welfare institutions, labor-market structures, and reporting styles. The main specification is:

$$WB_{ihc} = \alpha_c + b_h + \beta_1 Traj_i + \beta_2 RegionType_i + \beta_3(Traj_i \times RegionType_i) + \gamma X_i + \eta H_h + \varepsilon_{ihc},$$

where (α_c) denotes country fixed effects and (b_h) a household random intercept. Mechanism tests extend this model by adding housing cost burden, deprivation/arrears, and unmet medical needs to assess whether—and through which channels—place contexts condition the wellbeing penalty of disadvantageous trajectories. Cross-national heterogeneity is examined as a secondary extension by extracting country-specific estimates from the fixed-effects model and regress them on national institutional indicators in a second stage, testing whether the spatial moderation of trajectory–wellbeing links varies systematically across welfare regimes.

Step 5: Robustness

(1) Replicate Stages 2–4 on earlier entry cohorts as temporal robustness checks (pre-COVID vs. COVID-era)

(2) Stratified SA: separate analyses within dense/intermediate/sparse areas to compare trajectory typologies

(3) Alternative distance metrics (Hamming, LCS), alternative k (±1), pooled vs. country-specific SA

(4) **We re-estimate the main models using only countries with 5/6-year EU-SILC longitudinal panels**, which allow wellbeing outcomes to be measured one year after the completion of the 48-month employment sequence. This restricted-sample design provides a stronger temporal ordering (trajectory → later wellbeing) and helps assess whether the core spatial moderation results are robust to a stricter lag structure, albeit with reduced country coverage.

(5) We check whether the results remain consistent for alternative measurement of place type by replacing the majority place type with baseline year place type.

6. Expected Findings

6.1 Trajectory Typology

We anticipate 5–7 types: (1) **Stable full-time:** dominant in urban areas, Western/Northern Europe; (2) **Stable part-time:** concentrated in intermediate/rural areas, more common among women; (3) **Unemployment–reemployment cycling:** more prevalent in urban areas with flexible labour markets; (4) **Employment-to-inactivity slide:** potentially concentrated in deindustrializing intermediate zones; (5) **Persistent unemployment/inactivity:** expected in rural areas of Southern/Eastern Europe; (6) **Education-to-work transition:** relevant for younger segment (25–30)

6.2 Spatial Contingency

Three competing hypotheses:

- **Amplification:** Unstable trajectories carry *larger* wellbeing penalties in rural/small town areas—thin labour markets, limited re-employment pathways, social visibility of failure. Aligns with 'places that don't matter.'
- **Buffering:** Unstable trajectories carry *smaller* penalties in rural/small town areas—lower living costs, informal support networks, subsistence strategies.
- **Decoupling:** Opposite directions for economic vs. psychological WB.
    - Urban: greater economic costs (high living costs) but lower psychological costs (anonymity).
    - Rural/small town: lower economic costs but higher psychological costs (community stigma). Most theoretically generative finding.

6.3 Cross-National Variation

The two-stage design allows us to test whether extracted country-specific interaction effects correlate with institutional generosity. We expect weaker spatial moderation in countries with strong social protection (e.g., Scandinavian regimes), where institutional safety nets partially substitute for the buffering role of local labour market thickness, and stronger spatial moderation in countries with weaker protection (Southern/Eastern regimes), where urbanization level becomes a more consequential determinant of how employment instability translates into wellbeing.

7. Key References

Carr, E., & Chung, H. (2014). Employment insecurity and life satisfaction: The moderating influence of labour market policies across Europe. *Journal of European Social Policy*, *24*(4), 383–399. https://doi.org/10.1177/0958928714538219

Devillanova, C., Raitano, M., & Struffolino, E. (2019). Longitudinal employment trajectories and health in middle life: Insights from linked administrative and survey data. *Demographic Research*, *40*, 1375–1412. https://doi.org/10.4054/DemRes.2019.40.47

Dijkstra, L., Poelman, H., & Rodríguez-Pose, A. (2020). The geography of EU discontent. *Regional Studies*, *54*(6), 737–753. https://doi.org/10.1080/00343404.2019.1654603

Gabadinho, A., Ritschard, G., Müller, N. S., & Studer, M. (2011). Analyzing and Visualizing State Sequences in R with TraMineR. *Journal of Statistical Software*, *40*, 1–37. https://doi.org/10.18637/jss.v040.i04

Giannakis, E., & Bruggeman, A. (2020). Regional disparities in economic resilience in the European Union across the urban–rural divide. *Regional Studies*, *54*(9), 1200–1213. https://doi.org/10.1080/00343404.2019.1698720

Kalleberg, A. L. (2009). Precarious Work, Insecure Workers: Employment Relations in Transition. *American Sociological Review*, *74*(1), 1–22. https://doi.org/10.1177/000312240907400101

Kalleberg, A. L. (2018). JOB INSECURITY AND WELL-BEING IN RICH DEMOCRACIES. *The Economic and Social Review*, *49*(3), 241–258.

Raab, M., & Struffolino, E. (2022). *Sequence Analysis*. SAGE Publications, Inc. https://doi.org/10.4135/9781071938942

Ritschard, G., Liao, T. F., & Struffolino, E. (2023). Strategies for Multidomain Sequence Analysis in Social Research. *Sociological Methodology*, *53*(2), 288–322. https://doi.org/10.1177/00811750231163833

Rodríguez-Pose, A. (2018). The revenge of the places that don't matter (and what to do about it). *Cambridge Journal of Regions, Economy and Society*, *11*(1), 189–209. https://doi.org/10.1093/cjres/rsx024

Shucksmith, M., Cameron, S., Merridew, T., & Pichler, F. (2009). Urban–Rural Differences in Quality of Life across the European Union. *Regional Studies*, *43*(10), 1275–1289. https://doi.org/10.1080/00343400802378750

Studer, M. (n.d.). *WeightedCluster Library Manual*.