

Responses to Reviewers' Comments for Manuscript

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**Family-Oriented Migration and  
Entrepreneurship in Urban China: Evidence  
from the China Migrants Dynamic Survey**

Addressed Comments for Publication to

Review of Economics of the Household

by

Authors

Dear Dr. Leight,

Please find enclosed the revised version of our previous submission entitled “Family-Oriented Migration and Entrepreneurship in Urban China: Evidence from the China Migrants Dynamic Survey” with manuscript number bbdc29b8-5a4d-4f85-8ba9-19de64719906.

We are very grateful for the valuable comments from you and the reviewers, which help improving the quality of our manuscript. In this revision, we have carefully addressed all comments from the editor and reviewers.

The response document is organized as follows:

- **General Response to the Editor and Reviewers**
- **Authors' Response to the Editor**
- **Authors' Response to Reviewer 1**
- **Authors' Response to Reviewer 2**

We humbly hope that the revised manuscript has addressed your concerns and would be grateful for your further consideration. We look forward to your guidance and feedback.

Sincerely,

Authors

**Note:** To enhance the legibility of this response letter, all the editor's and reviewers' comments are typeset in boxes. Rephrased or added sentences are typeset in color.

## **General Response to the Editor and Reviewers**

We sincerely thank the editor and two anonymous reviewers for providing detailed, thorough, and constructive comments and suggestions on this research. Your professional guidance has not only helped us identify key issues in our study but also provided valuable directions for improvement, significantly enhancing the academic quality and theoretical contributions of this paper.

Before providing our point-by-point responses to your specific suggestions, we first outline the additional improvements we have proactively implemented while fully incorporating your professional opinions, which include:

1. **Empirical Analysis Updates:** Due to the implementation of Large Language Models (LLMs) for standardizing migrant workers' hukou registration text data, our research sample size has significantly expanded to 59920 observations. We have conducted comprehensive re-estimation of all empirical analyses to ensure the robustness and reliability of our results.
2. **Enhanced Identification Strategy:** After careful consideration of potential omitted variable concerns and full incorporation of both reviewers' professional opinions, we have implemented dual fixed effects in all regression analyses—destination city fixed effects and origin county fixed effects—significantly improving the rigor of causal identification. Based on computational efficiency considerations, this study employs OLS regression methods using `reghdfe`, which offers higher estimation efficiency with equivalent results to other estimation approaches. As documented in the literature, the strategy of estimating binary outcome variables using Linear Probability Models (LPM) is widely adopted in leading economics journals (Fisman et al., 2020; Hoopes et al., 2022). All regression analyses have been updated accordingly in terms of model specifications and sample sizes.
3. **Robustness Check Optimization:** Based on reviewers' suggestions regarding index construction, our newly implemented sensitivity tests based on two dimensions—kinship proximity and age-based economic functionality—effectively replace

and improve upon the robustness checks previously presented in sections 5.3.1 “Alternative Model Specifications” and 5.3.2 “Alternative Independent Variables” of the original manuscript. Therefore, we have removed the redundant original sections, making the paper structure more concise.

4. **Overall Quality Enhancement:** We have conducted paragraph-by-paragraph careful review of the entire manuscript, comprehensively refined language and expression to improve readability, and systematically verified and further supplemented references to ensure citation accuracy and currency.
5. **Revision Documentation:** Given that this revision involves substantial rewriting and updating of nearly the entire manuscript, extensive color-coding throughout the text would be of limited practical value, and track changes mode would lack substantive guidance utility. For minor modifications, we have presented specific changes under each question in our point-by-point response. For more extensive revisions, we have indicated the corresponding line number ranges for easy reference and comparison by the editor and reviewers.

We firmly believe that through this comprehensive and thorough revision, the paper has achieved significant improvements in theoretical contributions, empirical design, and analytical rigor. We extend our gratitude once again to the editor and reviewers for your patient guidance and professional suggestions, which have been invaluable for perfecting this research. We look forward to your further guidance on the revised manuscript and will continue our efforts to enhance the research quality.

## References

- Fisman, R., Shi, J., Wang, Y., & Wu, W. (2020). Social Ties and the Selection of China’s Political Elite. *American Economic Review*, 110(6), 1752–1781. <https://doi.org/10.1257/aer.20180841>
- Hoopes, J. L., Langetieg, P., Nagel, S., Reck, D., Slemrod, J., & Stuart, B. A. (2022). Who Sells During a Crash? Evidence from Tax Return Data on Daily Sales of Stock. *The Economic Journal*, 132(641), 299–325. <https://doi.org/10.1093/ej/ueab059>

## Authors' Response to the Editor

### Comment 1

First, the introduction should be rewritten to follow a more standard format: around one to three paragraphs of motivation, followed by an overview of this paper (the objectives, methodology, and findings), and its contribution to the literature. As it stands, the introduction is lengthy and hard to follow.

### Response:

We sincerely appreciate the editor's professional guidance regarding the introduction section. We fully concur with the editor's recommendation that the introduction should follow a standardized academic format: comprising 1-3 paragraphs of motivation, followed by a research overview (objectives, methodology, and findings), and concluding with contributions to the literature. We acknowledge that the original introduction suffered from excessive length and unclear logical flow, hindering readers' ability to quickly grasp the research core.

Based on the editor's professional recommendations, we have comprehensively restructured the introduction section, implementing systematic revisions strictly according to standard academic format. The specific improvements are as follows:

1. **Structural Standardization:** We reorganized the original five lengthy paragraphs into a standard academic introduction format—two paragraphs of motivation + two paragraphs of research overview + three paragraphs of marginal contributions. The word count was reduced from approximately 1800 to 1200 words, significantly enhancing readability.
2. **Precise Content Integration:** We systematically integrated the previously concise literature review and evaluation into the discussion of marginal contributions, defining our potential contributions through precise dialogue with existing literature while avoiding repetitive discourse and creating organic unity between literature review and research innovation.

- 3. Precise Contribution Positioning:** In response to Reviewer 1's suggestion to "more precisely define contributions and provide additional analysis to substantiate them," and building upon the additional analyses provided in the paper, we highlighted three core innovations in the introduction's marginal contribution section: (1) construction of a theory-driven family-oriented migration index with sensitivity analysis based on two dimensions—kinship proximity and age-based economic functionality; (2) identification of income growth motivation and social integration as key mediating mechanisms, with innovative incorporation of peer effect moderation and interaction analysis between mediating mechanisms; (3) employment of LLM methods to process large-scale hukou registration text data and construction of rigorous identification strategies, expanding the analytical sample to 59920 observations while achieving dual fixed effects control at destination-city and origin-county levels, effectively addressing the prevalent issues of insufficient fixed effects control precision and omitted variable bias in existing research.
- 4. Cultural Context Enhancement:** Responding to Reviewer 2's suggestion regarding discussion of Chinese family norms, we explicitly incorporated discourse on Confucian filial piety culture and family responsibilities in the second paragraph of the motivation section, emphasizing the importance of China's unique institutional and cultural environment to the research questions.

We extend our gratitude once again to the editor and reviewers for your patient guidance and professional suggestions, the comprehensively revised introduction section can be found in lines 30-124.

#### Comment 2

Second, the section providing the theoretical framework should be rendered more concise.

**Response:**

We sincerely appreciate your additional guidance, which directed our attention to refining the paper’s theoretical foundation—a point we agree was critical. Accordingly, we undertook a two-stage revision: first, we addressed the specific points from the reviewers to adjust the paper’s substantive content. Following that, guided by your advice, we thoroughly restructured the theoretical framework to ensure it is both compelling and concise.

**Regarding Reviewer 1’s Concerns:** Reviewer 1 precisely identified measurement validity issues with our original third mechanism (measuring family support through “the number of relatives employed in respondents’ entrepreneurial activities”). This variable fails to effectively distinguish whether relatives are integrated as productive resources or supported as family obligations, resulting in ambiguous explanatory power in mechanism testing. Moreover, the theoretical discourse for this mechanism overlapped with our explanation of coefficient differences between “necessity-driven” and “opportunity-driven” entrepreneurship in the baseline regression.

Based on considerations of measurement ambiguity and theoretical overlap, we believe that maintaining rigorous academic standards is more important than offering weak justifications. Therefore, we proactively removed the empirical analysis and related theoretical discourse of this mechanism, while adding theoretical analysis of peer effect moderation mechanisms not addressed in existing literature, and precisely positioned our research’s core innovations through targeted dialogue with existing literature in the “marginal contributions” section of the introduction.

Specifically, we state in the marginal contributions section:

“While previous research has identified roles for emotional support, human capital (Brannon et al., 2013; Hu et al., 2021), and community trust (Herrero, 2018; Liu et al., 2019), this study complements these findings by investigating the mediating effects of social integration and income motivation. More importantly, the analysis introduces the moderating role of peer effects, precisely measured at the destination-city and origin-county intersection,

and examines the interactions with the family-oriented migration and these mediating mechanisms.” (lines 101-106)

**Regarding Reviewer 2’s Suggestions:** Reviewer 2 recommended integrating multiple theoretical perspectives and employing conceptual model diagrams. We fully adopted this recommendation, deeply incorporating institutional theory, social capital theory, and role identity theory into our reconstructed theoretical framework, and creating a new Conceptual Model Diagram to deepen theoretical explanatory power and enhance readability.

After completing the above content modifications, we conducted thorough rewriting and logical restructuring of the entire theoretical framework to achieve your required conciseness objectives. The specific revisions can be found in Section 2, Theoretical Analysis and Research Hypotheses (lines 126-236).

We extend our sincere gratitude again for your meticulous guidance on enhancing the theoretical framework’s conciseness, which has been instrumental in significantly improving the paper’s overall quality and readability.

### Comment 3

Third, I do not find the instrumental variables strategy to be credible (as the referees also pointed out); I suggest this be dropped, and you focus more on developing the other robustness checks.

### Response:

We sincerely appreciate your and Reviewer 2’s candid comments regarding the instrumental variable strategy. We fully concur with your assessment that the current instrumental variable strategy indeed lacks sufficient credibility.

As Reviewer 2 pointed out, while housing stability as an instrumental variable possesses certain logical reasonableness, its exogeneity is indeed difficult to adequately guarantee, as it may likely correlate with unobserved factors affecting entrepreneurship, such

as wealth levels and social networks. Although theoretically we could explore other potential instrumental variables (such as hometown land ownership and local housing policies), we are well aware that high-quality instrumental variables that truly satisfy strict exogeneity requirements are extremely scarce—“quasi-natural experiment” style instrumental variables like birth year used by scholars such as Angrist are often elusive in empirical research (Angrist & Krueger, 1991).

Therefore, incorporating your and Reviewer 2’s professional suggestions, we have decided to abandon the instrumental variable testing strategy and instead adopt more robust and reliable identification methods:

1. **Sample Expansion and Data Quality Enhancement:** Through Large Language Model (LLM) standardization of hukou registration text information, we have further expanded the research sample to 59,920 observations.
2. **Stringent Fixed Effects Control:** We have enhanced the fixed effects specification throughout the paper to dual fixed effects control at destination-city and origin-county levels, effectively controlling for potential omitted variable bias at both destination and origin levels.
3. **Robustness Verification of Index Construction:** Through sensitivity tests based on two dimensions—kinship proximity and age-based economic functionality—we systematically verify the robustness and reliability of our proposed family-oriented migration index calculation method.
4. **Further Enhancement of Identification Strategy:** In robustness checks, we additionally control for hukou origin-destination paired fixed effects (FEIS) as well as dual county-level fixed effects. Through this multi-level nested fixed effects design, we further enhance the causal identification strength and robustness of our conclusions.

We believe this series of alternative identification strategies can more effectively alleviate endogeneity concerns and provide a more solid empirical foundation for our research conclusions. We are grateful for your and the reviewers’ guidance in steering us toward more

robust identification strategies, which has significantly strengthened the methodological rigor of our study.

#### Comment 4

Please ensure the results are accurately reported, any overstated conclusions are rewritten and the limitations of the work fully explained.

#### Response:

We sincerely appreciate your professional requirements regarding the accuracy of research results and the appropriateness of conclusion statements, which are essential for ensuring academic rigor.

First, we have conducted comprehensive verification of all empirical analysis results, data processing procedures, and reference citations to ensure data accuracy and consistency. Should you have any concerns regarding specific data processing or analytical results, we can provide complete Stata do-files and smcl log files for your review. Additionally, we have ensured that the statements regarding research findings in the abstract, introduction overview, and conclusion sections are fully consistent and have been synchronized accordingly.

Second, in response to your suggestions regarding the conclusion section, we have undertaken thorough self-examination and comprehensive revision. We deeply understand that the value of academic research lies not only in the importance of findings but also in the honest acknowledgment of research boundaries and applicability conditions. Taking into comprehensive consideration Reviewer 2's comments on the lack of specificity in policy recommendations, as well as Reviewers 1 and 2's suggestions regarding index construction and data structure, we have conducted substantial rewriting and improvement of both the policy implications section and the limitations discussion section. Our revision approach includes:

- 1. Policy Recommendations:** In response to Reviewer 2's concerns about overly broad policy recommendations, we have shifted our policy suggestions from general statements to more specific and actionable measures. The new policy recommendations section focuses on concrete dimensions including social integration, housing security, skill enhancement, and hukou system reform, proposing targeted implementation pathways and mechanism designs. We particularly delve deeply into the policy implications of our findings for China's hukou system reform.
- 2. Acknowledgment of Research Limitations:** We have added a comprehensive discussion of research limitations in the conclusion section, which primarily includes:  
(1) **Data timeliness constraints**—incorporating Reviewer 2's relevant suggestions, we acknowledge the temporal limitations of using 2017 cross-sectional data while providing brief analysis and outlook on post-pandemic migrant worker migration trends based on National Bureau of Statistics macro-level data and theoretical logic; (2) **Data structure limitations**—we candidly acknowledge that CMDS cross-sectional data cannot achieve dual fixed effects control for time and household, thereby limiting the robustness of causal identification; (3) **Methodological constraints in index construction**—we acknowledge that the weight assignments in our family-oriented migration index are based on theoretical assumptions rather than direct observation of true weights. Although sensitivity analyses confirm the robustness of core findings, this remains an important direction for future methodological improvement.

We hope that you find that our revision efforts meet your expectations. The statements in the revised manuscript are as follows:

**Policy Recommendations Section Revisions (lines 782-822):**

In light of the empirical results, several policy measures should be considered: In terms of social integration, communities serve as the “last mile” for policy implementation and represent a crucial arena for migrant populations to integrate into urban life, establish social capital, and develop a sense of belonging. At the community and neighborhood levels, governments should establish

refined and humanized service management systems for migrant populations, comprehensively understanding migrant workers' basic conditions, development needs, and service demands through precise registration and dynamic statistics. More importantly, systematic promotion of migrant population integration should be achieved through diverse community activities and institutionalized participation channels, enabling them to gradually develop community identification and ownership consciousness through participation, ultimately fostering genuine community belonging and urban identity. Regarding housing security, the fundamental supportive role of residential stability for family-based entrepreneurship must be fully recognized. In response to the special needs of family migration, higher standards of rental subsidies and differentiated policy support should be provided to such families, with priority inclusion in affordable rental housing coverage to ensure housing conditions can meet the dual needs of family life and business activities.

In terms of skill enhancement, migrant worker entrepreneurship often becomes trapped in intra-group "involution" and homogeneous competition due to insufficient human and social capital required for upward mobility. Therefore, support policies must shift from simple entrepreneurship funding to fundamental capacity building for migrant workers. A diversified re-education system should be established with participation from public schools, private institutions, and non-governmental organizations. Training content must keep pace with market demands, expanding from basic vocational skills to modern commercial skills such as digital marketing, online operations, and financial knowledge, aiming to broaden entrepreneurs' employment channels and development opportunities, effectively avoid homogeneous competition, and enhance entrepreneurship success rates and sustainability.

Regarding hukou system reform pathways, a phased and progressive strategy should be adopted, with priority given to achieving institutional breakthroughs in core public service domains such as education and healthcare. For mi-

grant worker children's educational access, an enrollment mechanism should be established that relies primarily on residence permits while incorporating supplementary points-based criteria, thereby completely severing the linkage between compulsory education eligibility and parental hukou status. Concurrently, inter-regional education cost-sharing mechanisms must be institutionalized to prevent destination governments from bearing disproportionate fiscal burdens. Regarding healthcare security for migrant elderly, cross-regional medical insurance portability and continuity should be accelerated, with the establishment of specialized community-based medical service networks in destination areas. Furthermore, comprehensive family support service systems that operate independently of hukou restrictions should be developed, with governments implementing targeted care and welfare policies for both migrant elderly and minors. Specifically, through fiscal subsidies and government procurement of services, the development of universal childcare facilities and elderly day-care centers within communities should be promoted to provide accessible and reliable social services for migrant families. These systematic reforms aim to eliminate institutional barriers that constrain family resources, thereby unleashing migrant workers' entrepreneurial potential and enabling more effective utilization of family-based migration's positive effects on business creation.

#### **Research Limitations Section Revisions (lines 823-833):**

Finally, we acknowledge several limitations of our study. First, our analysis relies on 2017 cross-sectional data, which predates the COVID-19 pandemic. Regarding potential concerns about data timeliness, we note that macro-level data from China's National Bureau of Statistics confirms that the fundamental trend of rural-to-urban migration remains stable and robust in the post-pandemic era. From a theoretical perspective, recent economic uncertainties may even amplify the family's role as a crucial unit for risk-pooling and resource consolidation. Second, as CMDS constitutes cross-sectional data, we

cannot employ time and household dual fixed effects that would be available with panel data, enabling more robust causal identification by simultaneously controlling for unobserved household heterogeneity and temporal variations. Third, the specific weight assignments involve certain assumptions about unobservable true weights. Although our sensitivity analyses demonstrate that core findings are robust to weight variations, this remains an area for further methodological refinement.

## References

- Angrist, J. D., & Krueger, A. B. (1991). Does compulsory school attendance affect schooling and earnings? *The Quarterly Journal of Economics*, 106(4), 979-1014.

**Concluding Response to the Editor.** We sincerely appreciate your thoughtful guidance throughout the revision process, which has significantly strengthened the quality and rigor of our manuscript. We look forward to your continued feedback and remain committed to further improving our research to meet the journal's high standards.

## Authors' Response to Reviewer 1

**General Comments.** This topic is valuable from theoretical, policy-maker, and academic perspectives. However, I remain concerned about the paper's overall contribution and methodological rigor. These comments are presented in the following numbered list.

### Response:

We are deeply grateful for your recognition of the theoretical, policy, and academic value of our research topic. Your encouragement provides strong motivation for our continued efforts to advance this important area of inquiry.

In response to your feedback, we have made significant efforts to more precisely articulate our unique contributions, particularly regarding the family-oriented migration index construction and the highlighting and refinement of our core mechanism contributions. We have also addressed the family member differentiation issue through comprehensive sensitivity analyses based on weighted adjustments and heterogeneous effects by family structure. While we acknowledge the inherent limitations of cross-sectional data, we have implemented additional robustness checks and enhanced analytical strategies to strengthen the credibility of our causal inferences.

Our detailed responses to each of your specific comments are provided below. We sincerely hope that our revisions have adequately addressed your concerns and look forward to your further guidance and feedback. Thank you again for your valuable time and insightful feedback!

## Major Comment 1

Many previous studies have already demonstrated the importance of family members in mediating the impact of migration on entrepreneurship. Consequently, the paper's stated contributions—three points listed in the introduction—appear to boil down to only two genuinely novel elements: the construction of a family-oriented migration index and the identification of income-growth motivation as a key dimension linking family migration to entrepreneurial activity. Overall, the authors should consider more precisely defining their contributions and providing additional analysis to substantiate them.

### Response:

We sincerely appreciate your professional expertise and precise guidance in this field. We fully agree with your assessment that making substantial marginal contributions to this research area requires deeper efforts in two key aspects: the construction of family-oriented migration indices and the identification of genuinely substantive mechanisms.

**Regarding family-oriented migration index construction,** traditional equal-weighting approaches in our original manuscript fail to adequately capture the heterogeneous contributions of different family members. This limitation may obscure important intra-household dynamics that influence migration behavior. Incorporating your suggestions in Major Comment 2 and Reviewer 2's recommendations regarding weighting schemes, we conducted extensive data processing and empirical work to construct a “Sensitivity Analysis Framework for Family-Oriented Migration Index Based on Weighted Adjustments.” We conducted a series of sensitivity analyses, grounded in the theoretical dimensions of kinship identity and economic functionality, to ensure our core findings are not driven by a specific construction method and to systematically address potential measurement bias. This rigorous approach not only assesses how different weighting schemes affect our estimates but also enhances our index with greater theoretical depth and explanatory power, thereby significantly strengthening our marginal contribution in

indicator development. The specific content appears in Section 4.2 “Sensitivity Analysis of the Family-Based Migration Index Based on Weighted Adjustments” (lines 440-505).

**Regarding substantive mechanism contributions**, following your suggestion in Minor Comment 2, we made important modifications to our mechanism analysis. We removed the “Family Resource Endowment” mechanism due to measurement validity concerns and instead leveraged the unique advantages of CMDS 2017 data—namely, its ability to identify and control for detailed county-level hukou information—to propose peer effects as a moderating mechanism not addressed in existing literature. The introduction of this new peer effects mechanism not only deepens our research but also reshapes and strengthens our marginal contribution in mechanism analysis, directly addressing your concerns regarding substantive mechanistic discoveries. We provide complete theoretical analysis (lines 197-236), variable definitions (lines 310-324), and mechanism testing (lines 535-599) in the main text.

Building on these improvements, we have rewritten the marginal contribution section to more precisely articulate our core contributions, the specific revisions are outlined below:

This study contributes to the literature on family migration and entrepreneurship in China in three important ways. First, prior research has been constrained by significant limitations in measurement approaches. Existing studies typically adopt one of two methodological strategies. The first employs binary indicators that classify migration as either family-oriented or individual-based (Wang & Ding, 2023), or relies on simple counts of co-migrating family members (Hu et al., 2021). This binary approach oversimplifies the complexity of family involvement while neglecting the heterogeneous impacts of different family compositions. The second strategy utilizes discrete categorizations of specific migration types (Wu et al., 2023; Tang et al., 2024). Although this approach offers richer descriptive detail, it constrains econometric modeling flexibility and limits the generalizability of findings across diverse contexts. Furthermore, most research focuses narrowly on nuclear families, overlooking the potential functions of extended kin networks in co-migration processes

and their influence on migrant entrepreneurship in urban settings, and lacking systematic analytical frameworks that compare the differential roles of core versus extended family members in shaping entrepreneurial outcomes (Liu et al., 2019; Hu et al., 2021; G. Wang & Ding, 2023; Wu et al., 2023). To address these limitations, this study constructs a comprehensive "Family-Oriented Migration Index" that incorporates both traditional equal-weighting and theoretically grounded weighted approaches, with the latter based on two key dimensions: kinship proximity and age-based economic functionality. This approach enables a more accurate and objective measurement of family migration, facilitating a comprehensive analysis of how varying levels of family migration influence migrant entrepreneurship in urban China.

**Second**, this study advances understanding of the mechanisms linking family migration to entrepreneurship. While previous research has identified roles for emotional support, human capital (Brannon et al., 2013; Hu et al., 2021), and community trust (Herrero, 2018; Liu et al., 2019), this study complements these findings by investigating the mediating effects of social integration and income motivation. More importantly, the analysis introduces the moderating role of peer effects, precisely measured at the destination-city and origin-county intersection, and examines the interactions with the family-oriented migration and these mediating mechanisms. This analytical framework enables more precise identification of the conditions under which family migration promotes or constrains entrepreneurial activity.

**Third**, this study addresses substantial data and identification challenges in the literature on family migration and entrepreneurship in China. The research faces significant methodological constraints as few Chinese databases are ideally suited for this topic, particularly those that combine panel structures across multiple waves with detailed records of family members' co-migration patterns. Existing studies based on cross-sectional data (e.g., CLDS) face multiple limitations: not only do they suffer from extremely small sample

sizes that allow for fixed effects control only at the provincial level, but they also encounter severe self-selection biases due to their ability to identify only migrants who have already obtained urban hukou status (Hu et al., 2021). To overcome these data limitations, this study employs LLM-based methods to standardize county-level hukou information, expanding the analytical sample to 59920 observations using CMDS 2017. This approach enables stringent dual fixed effects controls at both destination-city and origin-county levels while providing comprehensive information on situation of co-migration. The enhanced dataset allows for more rigorous identification strategies that address the omitted variable bias plaguing previous research. Multiple robustness checks—including propensity score matching, placebo tests, and models with stringent fixed effects—confirm the reliability of our findings and provide compelling evidence on the relationship between family-oriented migration and migrant entrepreneurship.

Following these systematic revisions and a restructured narrative, we believe the paper's contributions are now sharper, clearer, and more robust, directly addressing your concerns. We hope you find our revisions satisfactory and thank you again for your insightful feedback.

### Major Comment 2

Furthermore, existing literature differentiates among family members—such as spouses and children—when assessing their respective contributions to entrepreneurial outcomes, whereas this paper treats all family members as equally important. In addition, Section 3.3.2's use of a proportional measure to operationalize family-oriented migration is a reasonable approach but neglects the effects of family size. I recommend that the identities of family members be distinguished to some extent and that this discussion be incorporated into Section 6.

**Response:**

We greatly appreciate your valuable and insightful feedback. As you correctly pointed out, traditional equal-weighted indicator construction cannot adequately capture the heterogeneous effects of different family co-migration patterns.

While our original manuscript included alternative binary variables in Section 5.3.2 (Alternative Independent Variables) following existing literature approaches, which enables robustness checks and indirectly reflects heterogeneity, this approach sacrifices the measurement precision of the continuous family migration index we constructed and overlooks family size effects. Meanwhile, our heterogeneity analysis section also lacks systematic examination of different family structures.

Your valuable observations, combined with Reviewer 2's suggestion that "the construction of the family migration index needs more detailed justification. How is partial migration (e.g., some family members staying behind) weighted?", provide tremendous inspiration and guidance for our revision, offering substantive insights for enhancing the rigor of this indicator construction and enriching our heterogeneity analysis.

Therefore, our modifications to address this issue are organized into two complementary parts:

Part I: Sensitivity Analysis of the "Family-Oriented Migration Index" Based on Weighted Adjustments

Part II: Heterogeneous Effects by Family Structure

**Part 1. Sensitivity Analysis of the "Family-Oriented Migration Index"  
Based on Weighted Adjustments**

**1. Baseline Equal-Weighted Approach**

Following traditional and easily interpretable benchmarks, we employ an equal-weighted family-oriented migration index in the main empirical analysis (baseline model). The core concept of this indicator is to measure family migration completeness by calculating

the proportion of family members co-residing with the entrepreneur in the destination area relative to the total family network size.

This baseline indicator explicitly addresses the “partial migration” issue: it treats each family member (whether migrated or not) as an independent unit, quantifying the degree of migration by calculating the ratio of “migrated members” to “all members.” The specific calculation formula is:

$$\text{Family\_migration}_{\text{equal\_weighted}} = \frac{N_{\text{local\_kin}} + 1}{N_{\text{total\_kin}} + 1}$$

Where  $\text{Family\_migration}_{\text{equal\_weighted}}$  refers to the Family-oriented Migration Index, calculated for each respondent based on an equal-weighted aggregation of its components.  $N_{\text{local\_kin}}$  is the total number of kin (family members other than the respondent) who co-reside with the respondent in the destination city.  $N_{\text{total\_kin}}$  is the total number of kin identified for the respondent, regardless of their location.

While this baseline approach provides a foundational measure, we fully recognize that it may not capture the heterogeneous contributions of different family members that you and Reviewer 2 highlighted. Therefore, to ensure our core findings are not driven by specific index construction methods and to systematically address potential measurement concerns, we conducted extensive sensitivity analyses across two theoretically grounded dimensions.

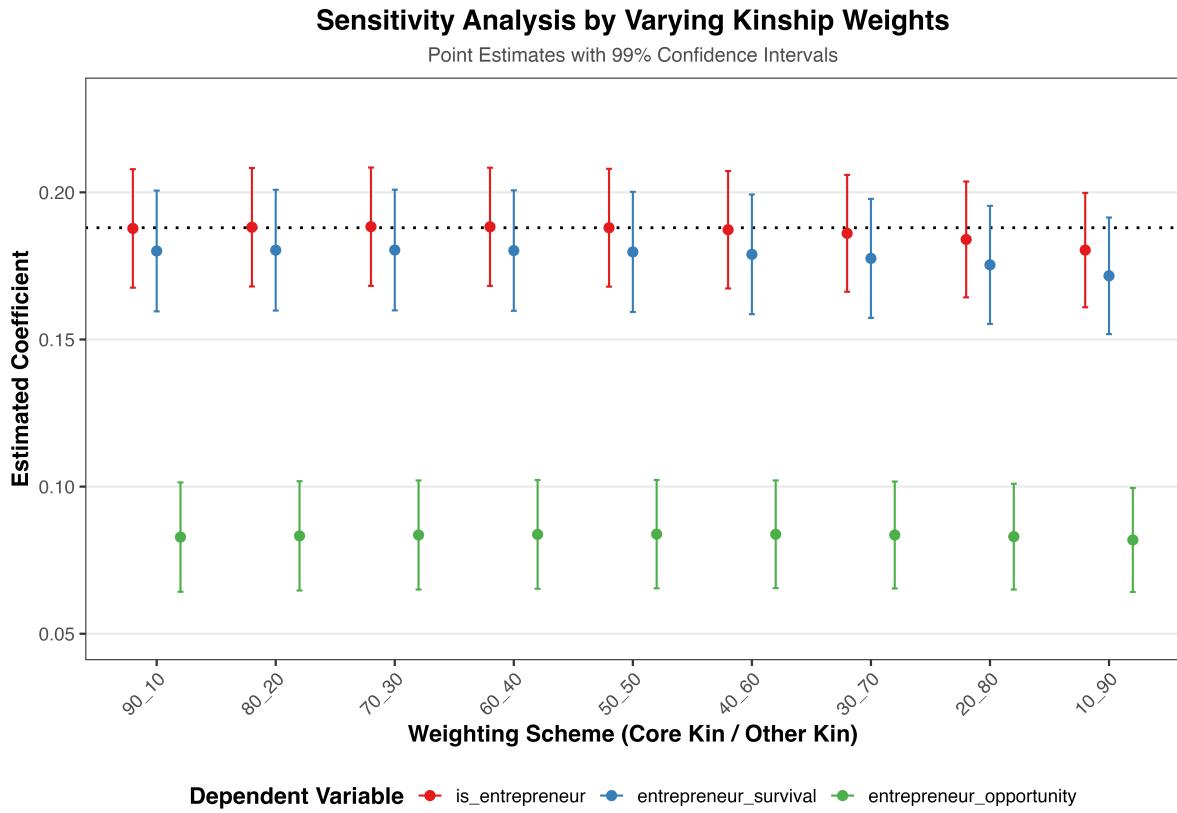
## **2. Sensitivity Analysis I: Weighting by Kinship Proximity**

Addressing kinship heterogeneity, we classified family members based on relationship closeness: core relatives (spouses, children, parents) versus other relatives (grandparents, grandchildren, siblings). We tested nine different weighting combinations ranging from 10/90 to 90/10 ratios using the formula:

$$\text{Family\_migration}_{\text{kinship\_weighted}} = \frac{(L_1 \times w_1) + (L_2 \times w_2) + w_1}{(N_1 \times w_1) + (N_2 \times w_2) + w_1}$$

where  $N_1$  and  $L_1$  represent the total and local numbers of core relatives,  $N_2$  and  $L_2$  represent the total and local numbers of other relatives, and  $w_1, w_2$  are the respective weights with  $w_1 + w_2 = 1$ .

However, when conducting preliminary tests on the full sample, we visualized regression coefficients under different weights and observed an unexpected result: the coefficient curves appeared nearly flat, with results remarkably insensitive to weight variations (see the following figure).



Through in-depth investigation, we confirmed this was not due to ineffective weight settings, but rather stemmed from two fundamental structural characteristics of the sample data:

1. **Homogeneity in family composition:** The vast majority of families (93.8%) are “pure core families,” containing no non-core relatives among migrating members.

**2. Consistency in migration patterns:** Even in the few “mixed-type families,” member migration decisions are highly consistent, generally exhibiting “all migrate or none migrate” patterns.

For these two dominant family types, regardless of weight adjustments, the final calculated family-oriented migration indices are mathematically identical. This directly results in extremely few effective samples capable of driving explanatory variable variation in the full sample, making regression coefficient fluctuations virtually unobservable.

We recognized that reporting a nearly flat coefficient plot would provide minimal valuable information gain. Therefore, to more authentically detect the substantial impact of weight variations, we adopted two deeper analytical strategies:

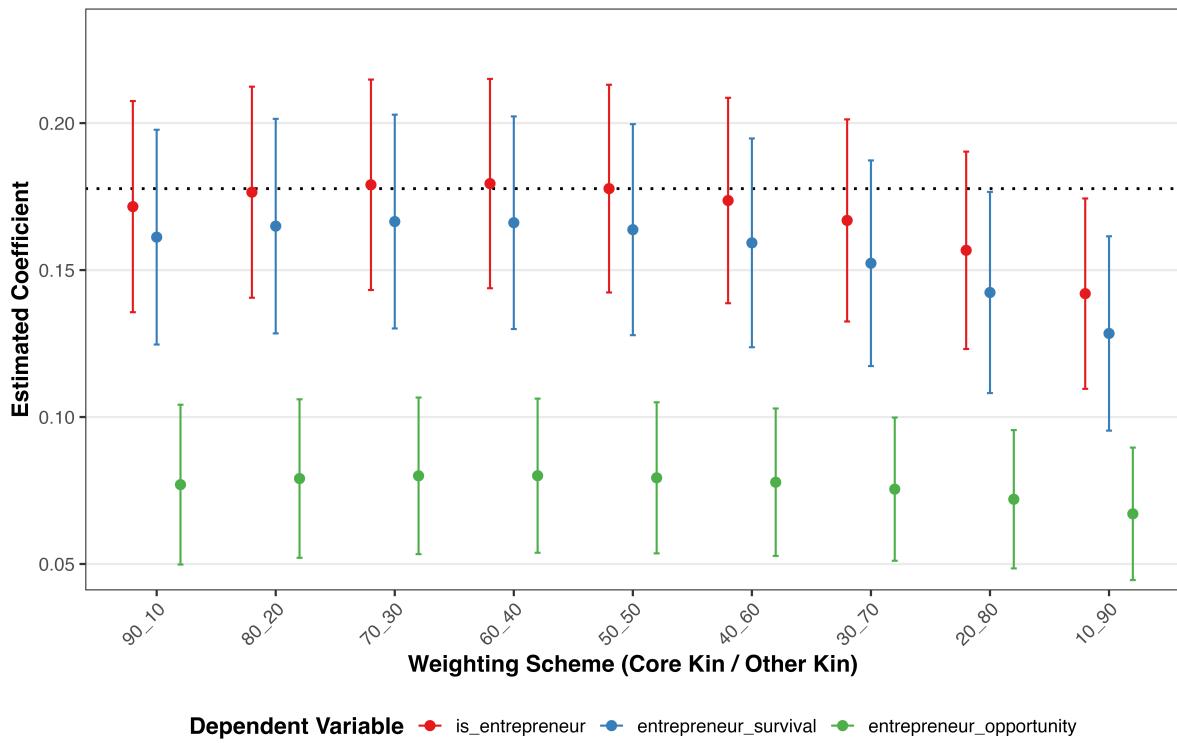
**First method: Sample-weighted analysis.** We precisely divided the sample into three categories based on family structure: “pure core families” (58,116 households, 93.80%), “pure non-core families” (880 households, 1.42%), and “mixed families” (2,962 households, 4.78%). Given the absolute numerical dominance of “pure core families,” we conducted weighted regression based on sample proportions ( $aw=1/\text{sample\_ratio}$ ), allowing smaller non-core and mixed-type families greater “voice” in the analysis. The visualization results are shown below:

**Second method: Mixed-family subsample analysis.** This approach most directly observes weight variation effects. However, due to small subsample size ( $N=2,962$ ), we cannot estimate while controlling for 2,333 degrees of freedom in “county-level origin fixed effects” (all variables omitted). Therefore, for this subsample analysis, we relaxed controls to “city-level destination fixed effects.” The visualization results are shown below:

Through these analyses, we reached a clear conclusion: when core family member weights are 50% or above, entrepreneurship-promoting effects remain stable; however, as core member weights decline (from 40% to 10%), the positive effect of family-oriented migration on entrepreneurship (especially necessity-driven entrepreneurship) significantly diminishes. This demonstrates that kinship proximity is indeed an important weighting factor and

### (A) Sensitivity Analysis by Varying Kinship Weights

Point Estimates with 99% Confidence Intervals



further highlights our study's differential conclusions and marginal contributions compared to existing literature.

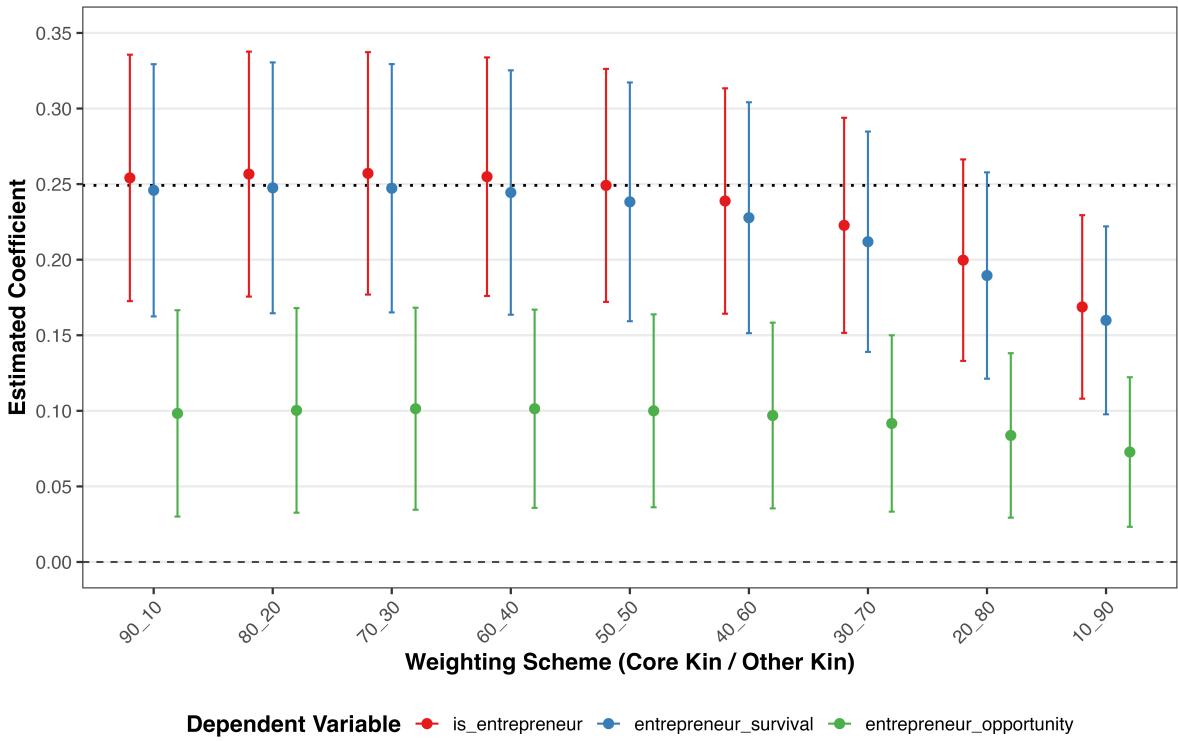
### 3. Sensitivity Analysis II: Weighting by Economic Functionality

We also constructed weights from an entirely new dimension—family members' economic functionality. Recognizing that entrepreneurship requires substantial time, energy, and financial investment, whether migrating family members are dependent (under 16 or over 60) or non-dependent (16-59 years old) differently impacts entrepreneurial decisions. Based on this concept, we again conducted nine weight combinations (dependent/non-dependent weights from 10/90 to 90/10) for sensitivity testing. The weighting formula is:

$$\text{Family\_migration}_{\text{age\_weighted}} = \frac{(L_D \times w_D) + (L_{ND} \times w_{ND}) + w_D}{(N_D \times w_D) + (N_{ND} \times w_{ND}) + w_D}$$

### (B) Sensitivity Analysis by Varying Kinship Weights

Point Estimates with 99% Confidence Intervals



where  $N_D$  and  $L_D$  represent the total and local numbers of dependent relatives,  $N_{ND}$  and  $L_{ND}$  represent the total and local numbers of non-dependent relatives, and  $w_D, w_{ND}$  are corresponding weights with  $w_D + w_{ND} = 1$ .

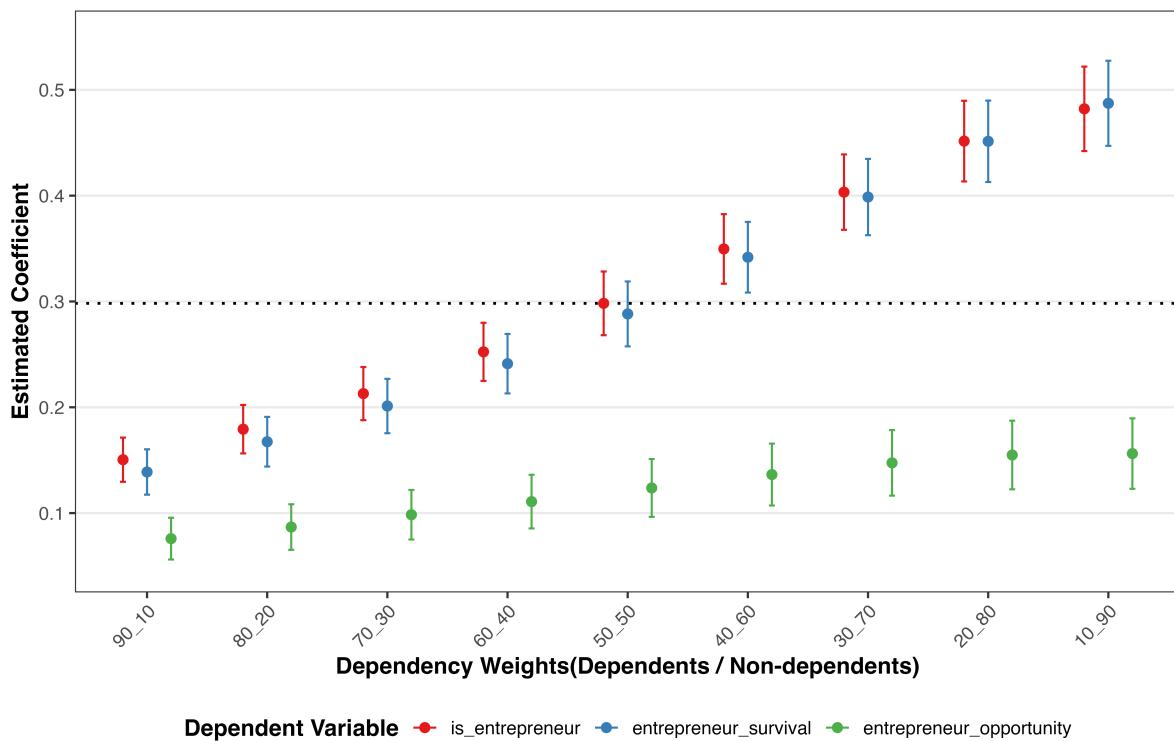
The visualization results of this new sensitivity analysis are shown below:

The empirical results demonstrate remarkable consistency and clear monotonic patterns: as dependent member weights continuously decrease (i.e., economically active member weights increase), the positive effect of family-oriented migration on entrepreneurship significantly and steadily strengthens. This provides valuable marginal contribution insights from the economic attributes of migrating members.

In summary, we have conducted comprehensive and in-depth justification of family-oriented migration index construction through a framework of “clear baseline model + two systematic, deeply excavated weighted sensitivity analyses.” These analyses not only demonstrate the robustness of our baseline model results but also reveal heterogeneous

### (C) Sensitivity Analysis by Varying Dependency Weights

Point Estimates with 99% Confidence Intervals



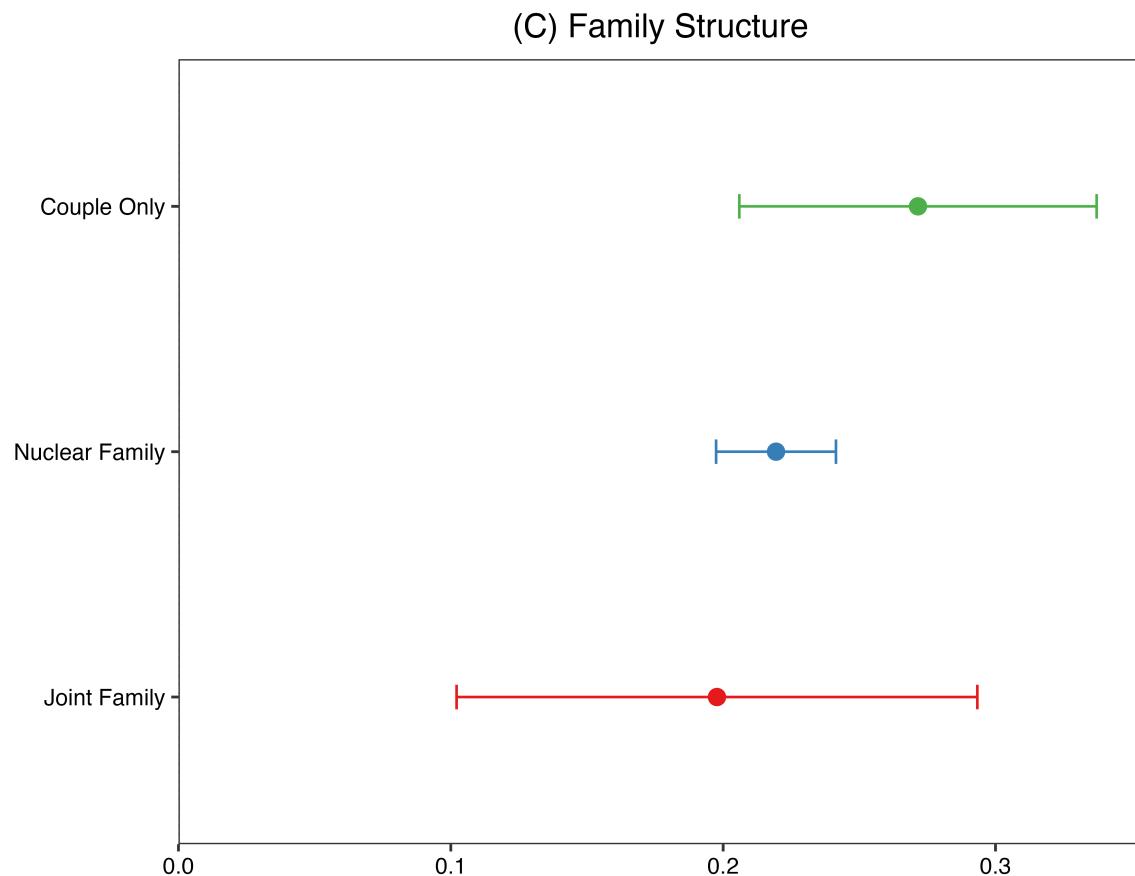
relationships between migrating family member and entrepreneurship, providing deeper theoretical insights for our research.

## Part 2. Heterogeneous Effects by Family Structure

When categorizing family structures, we first balanced theoretical representativeness with data feasibility. We found that some structures, such as single-parent or skip-generation households, had sample sizes that were too small ( $n < 100$ ) to yield robust estimates under our stringent dual fixed-effects model (at the destination-city and origin-county levels). Therefore, to ensure the validity and stability of our empirical results, we focused on three typical structures with sufficient sample sizes that clearly represent key stages of the family life cycle: Couple-Only, Nuclear Family, and Joint Family households.

Our analysis (as shown in the figure below) confirms the paper's core conclusion: the positive effect of family migration on entrepreneurship is robust across all three major

family structures. More importantly, we identified significant differences in the magnitude of this effect, revealing a clear descending trend: Couple-Only > Nuclear Family > Joint Family.



Furthermore, this finding bridges our two sensitivity analyses based on kinship proximity and "age-based functional roles." This heterogeneity analysis corroborates and enriches our previous findings by demonstrating the interactive effects of both dimensions, further substantiating that even within close-knit family ties, the economic dependency of co-migrating members is a key moderating factor, which explains why more complex family structures—those including dependent children, elderly requiring care, and non-core relatives—tend to weaken the pro-entrepreneurship effect of family migration.

We believe that through this revision, the heterogeneity and sensitivity analyses now mutually reinforce each other, enabling our paper to offer novel conclusions that extend

beyond the existing literature. We are deeply grateful for your invaluable guidance in achieving these theoretical and methodological advances.

### Major Comment 3

I question the validity of relying solely on cross-sectional data to understand how family migration drives entrepreneurial transitions, despite the authors' inclusion of length of residence in Section 5.3.3. Structural heterogeneity—such as source-region economic conditions, the strength of clan culture, and the destination's market environment—cannot be comprehensively controlled for in a cross-sectional framework, yet these factors are critical determinants of the migration–entrepreneurship linkage. Extending the analysis to panel data could yield more robust and credible results.

#### Response:

We are very grateful for your insightful comments. We fully agree with your point that a panel data model with two-way fixed effects (TWFE) is the ideal approach for this line of research, as it can effectively control for time-invariant unobservable variables at the individual or household level.

Before outlining our revision approach, we sincerely apologize for the lack of detail regarding our data source in the initial manuscript. As you noted in **Minor Comment 1**, we not only overlooked the description of the sampling process and the visualization of sample distributions, but we also failed to sufficiently elaborate on the overall attributes of the China Migrants Dynamic Survey (CMDS) dataset. This oversight was our responsibility, and we are grateful for your guidance in identifying this deficiency.

In the revised manuscript, we have made corresponding additions to the data section and have also briefly clarified in the third paragraph of the introduction our rationale for choosing the CMDS, despite it being a cross-sectional dataset.

The core reasons are as follows:

- The CMDS offers unparalleled advantages in terms of data representativeness and comprehensiveness. It is currently the survey with the broadest coverage, largest sample size, and most comprehensive design specifically for the migrant population in China. Based on a PPS sampling method, it includes intensified sampling in regions with high migrant inflows, such as the eastern coastal provinces and Xinjiang in the west, ensuring the national representativeness of the sample. Furthermore, it covers a wide array of multidimensional personal and household information at both the destination and the hukou origin.
- There is a significant dearth of high-quality panel data in China suitable for this specific research topic. We evaluated other mainstream panel datasets (e.g., CFPS, CLDS) and found that applying them to the specific topic of “family migration and entrepreneurship” would result in an effective panel sample size of far less than 1000, which is insufficient to support robust econometric analysis, and are unable to precisely identify rural-to-urban migrant workers as our specific research population.

Therefore, although we could not obtain ideal panel data, we have made our utmost effort to leverage the unique strengths of the CMDS cross-sectional data and have enhanced the reliability of our conclusions through a series of rigorous robustness checks. Specifically, we employed the following analytical strategies:

**First**, at the data processing level, we innovated our methodology to simulate the control effects of a quasi-panel setup. We innovatively employed Large Language Model (LLM) techniques to accurately identify non-standardized hukou location texts. This approach yielded a dual advantage:

- It significantly increased the effective sample size and enabled us to control for hukou-origin fixed effects at the level of 2333 counties/districts. This allowed us to implement dual fixed effects at the destination-city and origin-county levels within a cross-sectional framework, thereby more robustly addressing potential omitted variable bias arising from regional heterogeneity (e.g., local culture, economic traditions).

- The precise county-level hukou data also created the opportunity to investigate migrant entrepreneurship from the new dimension of peer effects, greatly enriching our analysis of mechanisms.

**Second**, we leveraged the unparalleled richness of the CMDS data in the family dimension. The CMDS provides detailed records of co-migrating extended kin, including siblings and nephews/nieces, a feature that is difficult for other databases to match. This unique data allowed us to innovatively conduct weighted sensitivity analyses based on kinship proximity, leading to the conclusion about the importance of core family members—an analytical dimension that previous studies could rarely incorporate due to data constraints.

**Third**, in our robustness analysis, we incorporated even more stringent fixed effects than in traditional models. (lines 652-665) These include:

- An origin-destination pair fixed-effects model to absorb all unique, unobserved common factors within each specific migration corridor.
- We also replaced the prefecture-level city fixed effects from the baseline regression with more fine-grained county-level fixed effects to achieve a stricter control for omitted variable bias.

**Furthermore**, following the editor's suggestion, we have included a frank discussion in the concluding section of the paper acknowledging the limitations of using cross-sectional data as a primary shortcoming of this study. At the same time, we would like to emphasize the unique strengths we have uncovered in using this dataset and how these strengths have provided strong support for the depth and reliability of our findings, ultimately helping us to derive profound and insightful conclusions that have been previously untouched by the existing literature.

Finally, please allow us to express our sincerest gratitude one last time. Every one of your comments was pertinent and has been instrumental in enhancing the quality of this paper. We have done our utmost to revise the manuscript accordingly. It is with sincere regret that, due to unavoidable data constraints, we were unable to implement

one of your most insightful suggestions. We hope for your understanding regarding this objective limitation and trust that our alternative methodological approaches to address omitted variable bias can partially compensate for this shortcoming.

### Minor Comment 1

The authors should provide a map of the CMDS survey locations (and by households) to support the claim that the survey is representative of China. Also, there should add a few sentences to describe the sampling procedure of the survey.

### Response:

Thank you for this constructive feedback. We agree that this information is crucial for establishing the survey's representativeness. In the revised manuscript, we have made the following changes in the **Data** section:

First, we have added a map to visually demonstrate the extensive national coverage of the CMDS survey locations.

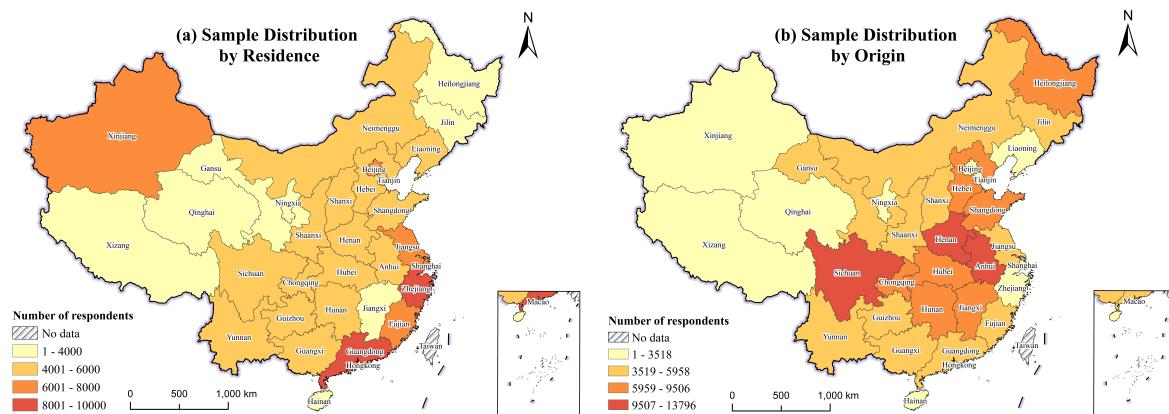


Figure 1: \*

### Sample Distribution by Residence and Origin

Second, we have included a description of the stratified, multi-stage Probability Proportional to Size (PPS) sampling method to clarify the sampling procedure. The specific modifications in the revised manuscript are as follows:

This study utilizes data from the 2017 wave of the China Migrants Dynamic Survey (CMDS), the largest annual cross-sectional survey of China's migrant population conducted by the National Health Commission. The 2017 wave is uniquely suited for our analysis as it is the only year collecting detailed county-level hukou and destination information crucial for our identification strategy, along with comprehensive family migration data. As shown in the map above, the survey achieves extensive national coverage, with migrants originating from across China and currently residing primarily in major urban centers and economically developed regions.

The 2017 survey employed a stratified, multi-stage Probability Proportional to Size (PPS) sampling method, with a focus on major urban areas, it gathered data on approximately 170000 migrants and their families. Our final analytical sample was constructed through the following steps: First, we restricted the sample to rural-to-urban migrants by selecting individuals with rural hukou surveyed in urban neighborhood committees. Second, we retained only those who migrated for employment or business purposes, excluding the unemployed. Third, we applied a text analysis approach using Large Language Models to clean and identify non-standardized hukou location texts, significantly improving county-level origin data precision (de Kok, 2025). Finally, single-person households were excluded due to family migration status measurement issues. After these procedures and listwise deletion of missing values, our final sample comprises 59920 valid observations.

We believe these additions effectively address your concerns and strengthen the paper.  
Thank you again for your thorough review.

## Minor Comment 2

It is unclear why Family Resource Endowment is measured by the number of relatives employed in the respondent's entrepreneurial activities. In many cases, entrepreneurs hire family members as an act of altruistic support rather than as beneficiaries of resource endowments.

### **Response:**

We sincerely appreciate your meticulous review and valuable feedback. You precisely identified a potential issue in our original manuscript regarding the measurement of "Family Resource Endowment." We completely agree with your assessment that using "the number of relatives employed in the respondent's entrepreneurial activities" to measure "Family Resource Endowment" indeed contains the ambiguity you identified.

The primary concerns stem from several sources. In many contexts, this behavior could reflect either family investment as a productive resource or altruistic supportive behavior. Following Reviewer 2's suggestions, we further discovered that the question regarding "number of relatives employed in entrepreneurial activities" was only collected from a subset of opportunity-driven entrepreneurs. We also recognized that the theoretical analysis of this mechanism exhibits considerable logical and semantic overlap with our baseline regression explanations for the coefficient differences between "necessity-driven" and "opportunity-driven" entrepreneurship.

After carefully searching our CMDS dataset, we were unable to identify a more precise alternative variable to address this measurement issue. Therefore, we preferred to adopt a rigorous and pragmatic approach toward serious revision rather than remaining focused on explaining or defending our original formulation.

Regarding the mechanism measurement validity issue you raised, we have decided to remove the original mechanism and integrate the theoretical analysis into our baseline regression explanation of coefficient differences between necessity-driven and opportunity-driven entrepreneurship.

To introduce new mechanisms that deepen our research and reshape our marginal contribution narrative, leveraging the unique advantages of CMDS data, we have incorporated "Peer Effects" as a new moderating mechanism and conducted empirical testing of the relevant mechanisms and their interactive influences. This addition substantially strengthens our marginal contribution to mechanism analysis and addresses your concerns regarding substantive mechanistic discoveries. The theoretical analysis appears in lines 197-236, variable definitions in lines 310-324, and mechanism analysis in lines 535-599.

To strengthen dialogue with existing literature and better highlight our contributions, we have added analytical content to the introduction's marginal contribution section that engages with mechanisms already addressed in existing research, further emphasizing our unique findings and contributions regarding core mechanisms (lines 100-108).

We hope you find that our revision meets your expectations. Thank you once again for your constructive guidance, which has significantly enhanced the theoretical rigor and empirical precision of our work.

### Minor Comment 3

The authors have not provided an explanation for the observed disparity in coefficients between necessity-driven and opportunity-driven entrepreneurship in Table 3.

#### Response:

We sincerely appreciate your meticulous review and valuable feedback. You astutely identified that we failed to adequately explain the coefficient disparity between necessity-driven and opportunity-driven entrepreneurship in our analysis of Table 3. We completely agree with your assessment.

In our initial draft, we developed the theoretical analysis and hypothesis for the "family resource endowment" mechanism while concurrently proposing the hypothesis regarding coefficient disparity between necessity-driven and opportunity-driven entrepreneurship,

based on the rationale that family-oriented migration's promotion of family resource allocation inherently reflected greater positive effects on necessity-driven entrepreneurship. However, as you pointed out in your valuable minor comment 1, our measurement of "family resource endowment" indeed contains significant shortcomings. This made us realize that our original explanatory pathway lacked clarity and robustness. Furthermore, considering that this mechanism itself does not constitute a substantive innovation, we decided to abandon this mechanism and integrate the beneficial theoretical insights from its analysis into the explanation of coefficient differences.

Based on this recognition, we explain the coefficient differences between entrepreneurship types from two perspectives: the unique advantages of family labor and the core requirements of necessity-driven entrepreneurship. The specific modifications are as follows:

"Columns (4) and (5) use necessity-driven and opportunity-driven entrepreneurship, respectively, as dependent variables. The results show that family-oriented migration positively affects both types of entrepreneurship, with a more pronounced impact on necessity-driven entrepreneurship. This finding can be explained by the unique advantages of family-based labor. By providing low-cost, trusted, and flexible workers, family involvement significantly reduces operational costs and transaction risks (Rath & Swagerman, 2016). These benefits are especially critical in necessity-driven sectors like retail and services, where business models are built upon stringent cost control and resilience. The natural alignment between the strengths of family labor and the core demands of such ventures makes it a particularly powerful driver for necessity-driven entrepreneurship (Bird & Wennberg, 2016; Kraus et al., 2018)."

We are grateful once again for your valuable suggestion.

**Concluding Response.** We are deeply grateful for your thorough and insightful review. Your observations about contribution precision, family member differentiation, and cross-sectional analysis challenges have fundamentally elevated our research. Your guidance—from refining our family-oriented migration index through systematic sensitivity analyses to introducing peer effects as a novel mechanism—has strengthened this study considerably. We acknowledge that one suggested modification could not be implemented due to data limitations and seek your understanding of this constraint. We hope that our alternative methodological approaches to address omitted variable bias can partially compensate for this shortcoming and would be grateful for your further consideration.

## Authors' Response to Reviewer 2

### Comment 1

The paper effectively uses the family embeddedness perspective and NELM, but could further integrate other relevant theories (e.g., social capital theory, institutional theory) to provide a more comprehensive explanation of the mechanisms. Perhaps a clearer conceptual model (e.g., a diagram) could help readers visualize the hypothesized relationships.

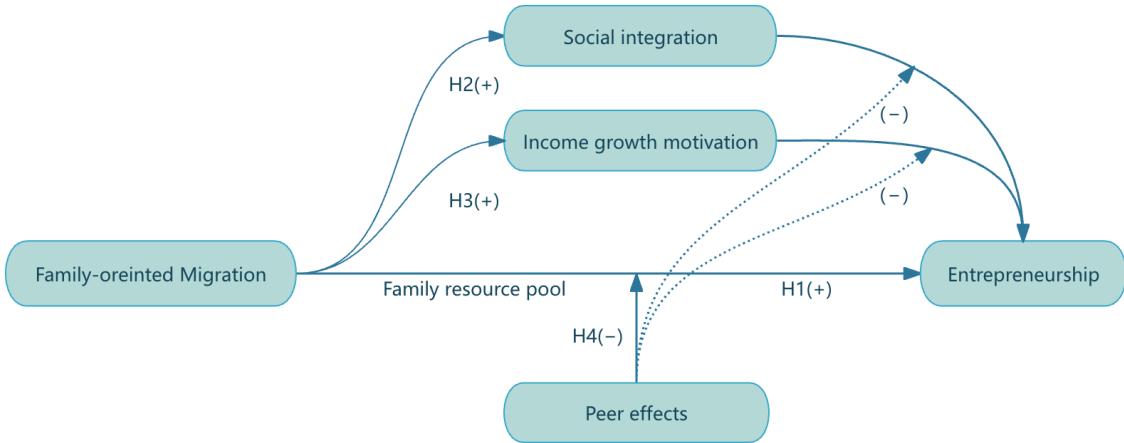
### Response:

We greatly appreciate your insightful feedback regarding the theoretical integration and conceptual clarity of our framework.

Following your recommendation, we have developed a more integrated theoretical framework. Our approach draws on Institutional Theory to establish the structural foundation, explaining how formal and informal constraints limit migrant resource access. We then incorporate Social Capital Theory to understand how migration disrupts traditional support networks while highlighting the emergence of hometown-based peer networks as critical sources of entrepreneurial information. Role Identity Theory helps explain the psychological mechanisms facilitating urban integration, while Shared Mental Models Theory addresses how families navigate collective entrepreneurial decisions under uncertainty.

Furthermore, we have included a **Conceptual Framework diagram** in the revised manuscript to facilitate reader comprehension of the multi-dimensional relationships within our theoretical framework.

The revised theoretical framework is presented in lines 126-236 of the updated manuscript. Thank you for your valuable suggestions.



## The Role of Family-Oriented Migration in Shaping Migrant Entrepreneurship: A Conceptual Framework

### Comment 2.1

The construction of the family-oriented migration index needs more detailed justification. How are partial migrations (e.g., some family members staying behind) weighted?

### Response:

We sincerely appreciate your valuable and insightful feedback. We fully agree that the construction of the family-oriented migration index constitutes a core component of this paper and requires more comprehensive and detailed justification.

Your question regarding how “partial migration” is quantified and weighted, along with Reviewer 1’s observation that “existing literature differentiates among family members—such as spouses and children—when assessing their respective contributions to entrepreneurial outcomes, whereas this paper treats all family members as equally important,” prompted us not only to provide detailed mathematical formulations for our traditional equal-weighted indicators rather than mere textual descriptions, but also to conduct comprehensive sensitivity analyses to ensure the robustness of our findings.

Below, we provide a detailed explanation of our methodological approach and specific modifications:

## Baseline Equal-Weighted Approach

Following traditional and easily interpretable benchmarks, we employ an equal-weighted family-oriented migration index in the main empirical analysis (baseline model). The core concept of this indicator is to measure family migration completeness by calculating the proportion of family members co-residing with the entrepreneur in the destination area relative to the total family network size.

This baseline indicator explicitly addresses the “partial migration” issue: it treats each family member (whether migrated or not) as an independent unit, quantifying the degree of migration by calculating the ratio of “migrated members” to “all members.” The specific calculation formula is:

$$\text{Family\_migration}_{\text{equal\_weighted}} = \frac{N_{\text{local\_kin}} + 1}{N_{\text{total\_kin}} + 1}$$

Where  $\text{Family\_migration}_{\text{equal\_weighted}}$  refers to the Family-oriented Migration Index, calculated for each respondent based on an equal-weighted aggregation of its components.  $N_{\text{local\_kin}}$  is the total number of kin (family members other than the respondent) who co-reside with the respondent in the destination city.  $N_{\text{total\_kin}}$  is the total number of kin identified for the respondent, regardless of their location.

While this baseline approach provides a foundational measure, we fully recognize that it may not capture the heterogeneous contributions of different family members that you and Reviewer 1 highlighted. Therefore, to ensure our core findings are not driven by a specific index construction method and to systematically address potential measurement concerns, we conducted extensive sensitivity analyses across two theoretically grounded dimensions.

## Sensitivity Analysis I: Weighting by Kinship Proximity

To address kinship heterogeneity, we classified family members based on relationship closeness: core relatives (spouses, children, parents) versus other relatives (grandparents, grandchildren, siblings). We tested nine different weighting combinations ranging from 10/90 to 90/10 ratios using the formula:

$$\text{Family\_migration}_{\text{kinship\_weighted}} = \frac{(L_1 \times w_1) + (L_2 \times w_2) + w_1}{(N_1 \times w_1) + (N_2 \times w_2) + w_1}$$

where  $N_1$  and  $L_1$  represent the total and local numbers of core relatives,  $N_2$  and  $L_2$  represent the total and local numbers of other relatives, and  $w_1, w_2$  are the respective weights with  $w_1 + w_2 = 1$ .

However, when conducting preliminary tests on the full sample, we visualized regression coefficients under different weights and observed an unexpected result: the coefficient curves appeared nearly flat, with results remarkably insensitive to weight variations (see the following figure).

Through in-depth investigation, we confirmed this was not due to ineffective weight settings, but rather stemmed from two fundamental structural characteristics of the sample data:

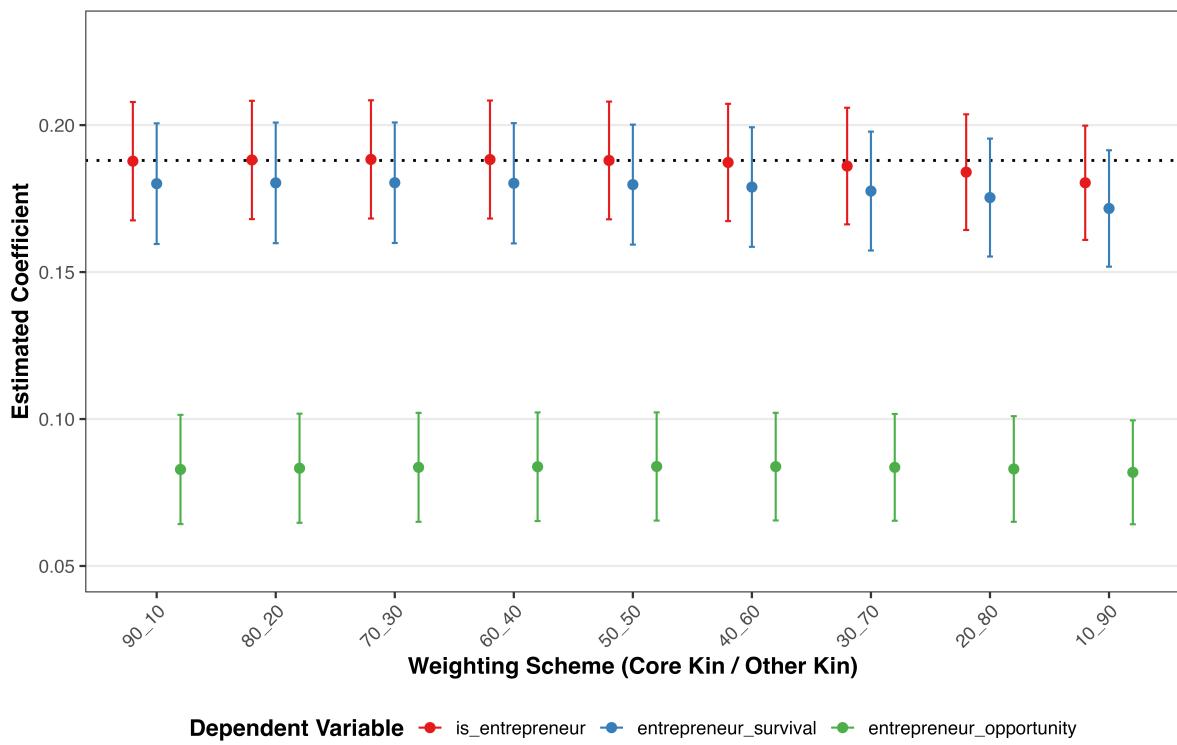
1. **Homogeneity in family composition:** The vast majority of families (93.8%) are “pure core families,” containing no non-core relatives among migrating members.
2. **Consistency in migration patterns:** Even in the few “mixed-type families,” member migration decisions are highly consistent, generally exhibiting “all migrate or none migrate” patterns.

For these two dominant family types, regardless of weight adjustments, the final calculated family-oriented migration indices are mathematically identical. This directly results in extremely few effective samples capable of driving explanatory variable variation in the full sample, making regression coefficient fluctuations virtually unobservable.

We recognized that reporting a nearly flat coefficient plot would provide minimal valuable **information gain**. Therefore, to more authentically detect the substantial impact of weight variations, we adopted two deeper analytical strategies:

## Sensitivity Analysis by Varying Kinship Weights

Point Estimates with 99% Confidence Intervals

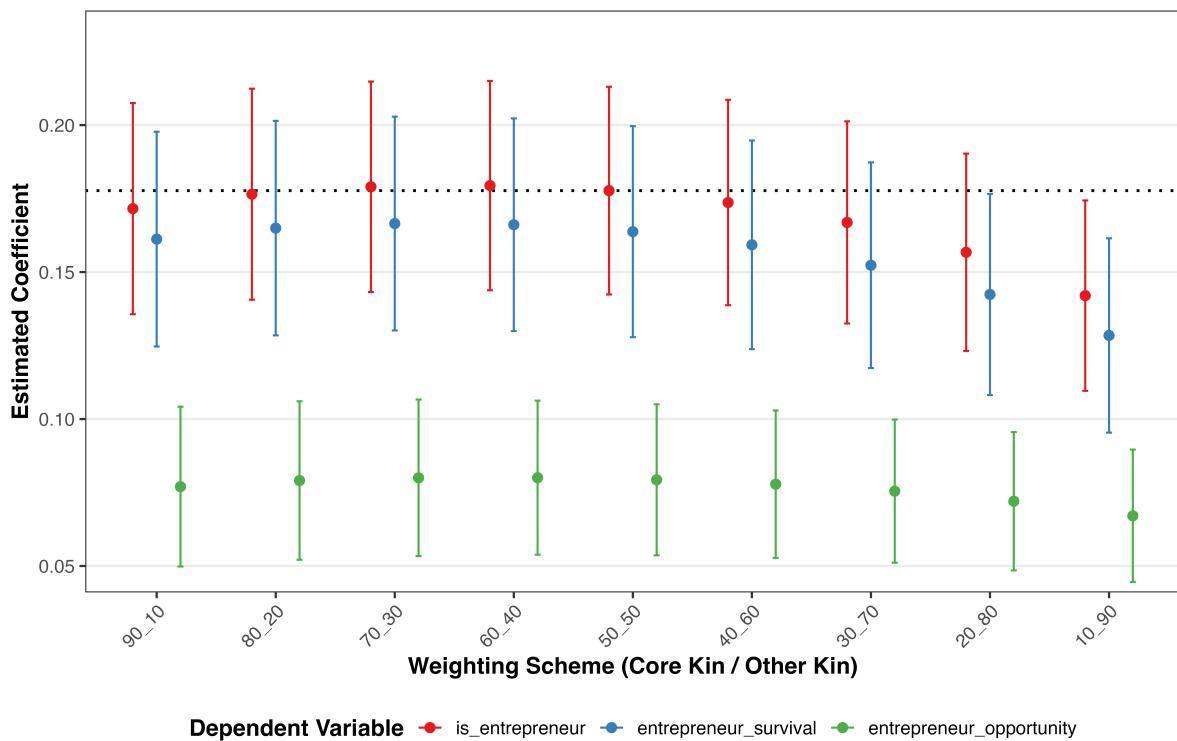


**First method: Sample-weighted analysis.** We precisely divided the sample into three categories based on family structure: “pure core families” (58,116 households, 93.80%), “pure non-core families” (880 households, 1.42%), and “mixed families” (2,962 households, 4.78%). Given the absolute numerical dominance of “pure core families,” we conducted weighted regression based on sample proportions ( $aw=1/\text{sample\_ratio}$ ), allowing smaller non-core and mixed-type families greater “voice” in the analysis. The visualization results are shown below:

**Second method: Mixed-family subsample analysis.** This approach most directly observes weight variation effects. However, due to small subsample size ( $N=2,962$ ), we cannot estimate while controlling for 2,333 degrees of freedom in “county-level origin fixed effects” (all variables omitted). Therefore, for this subsample analysis, we relaxed controls to “city-level destination fixed effects.” The visualization results are shown below:

### (A) Sensitivity Analysis by Varying Kinship Weights

Point Estimates with 99% Confidence Intervals



**Dependent Variable** ● is\_entrepreneur ● entrepreneur\_survival ● entrepreneur\_opportunity

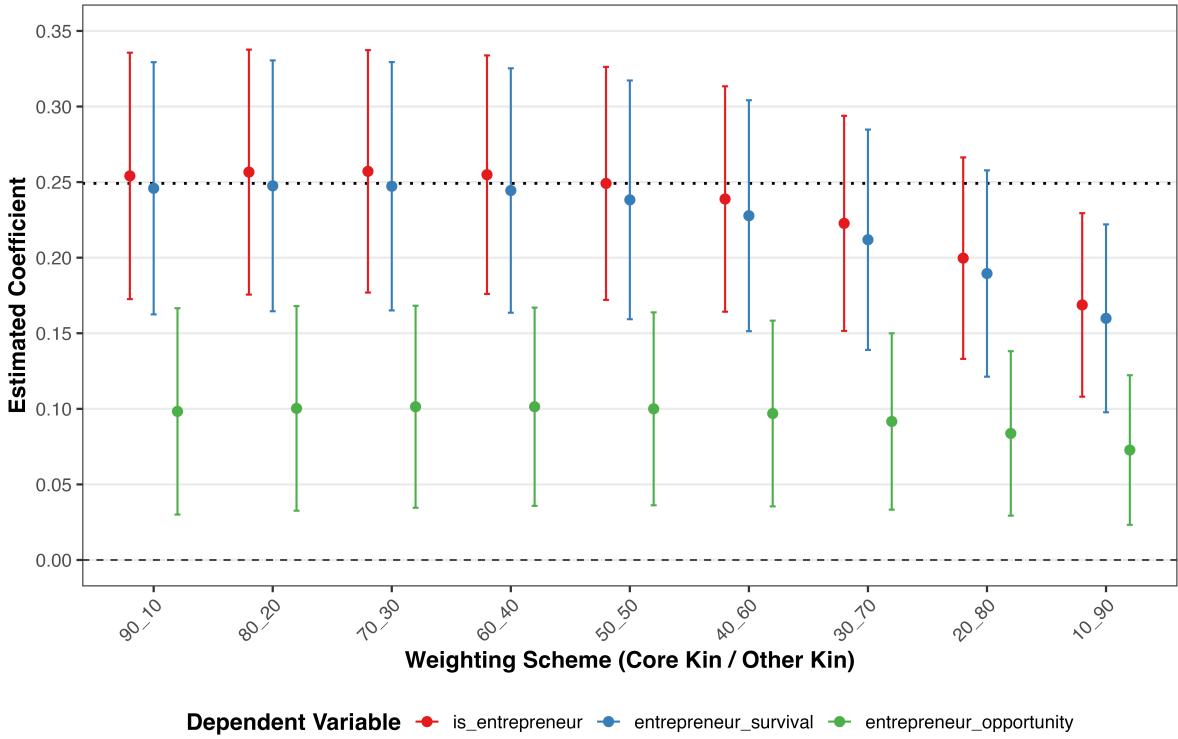
Through these analyses, we reached a clear conclusion: when core family member weights are 50% or above, entrepreneurship-promoting effects remain stable; however, as core member weights decline (from 40% to 10%), the positive effect of family-oriented migration on entrepreneurship (especially necessity-driven entrepreneurship) significantly diminishes. This demonstrates that kinship proximity is indeed an important weighting factor and further highlights our study's differential conclusions and marginal contributions compared to existing literature.

## Sensitivity Analysis II: Weighting by Economic Functionality

We also constructed weights from an entirely new dimension—family members' economic functionality. Recognizing that entrepreneurship requires substantial time, energy, and financial investment, whether migrating family members are **dependent** (under 16 or over 60) or **non-dependent** (16-59 years old) differently impacts entrepreneurial decisions. Based on this concept, we again conducted nine weight combinations (dependent/non-

### (B) Sensitivity Analysis by Varying Kinship Weights

Point Estimates with 99% Confidence Intervals



dependent weights from 10/90 to 90/10) for sensitivity testing. The weighting formula is:

$$\text{Family\_migration}_{\text{age\_weighted}} = \frac{(L_D \times w_D) + (L_{ND} \times w_{ND}) + w_D}{(N_D \times w_D) + (N_{ND} \times w_{ND}) + w_D}$$

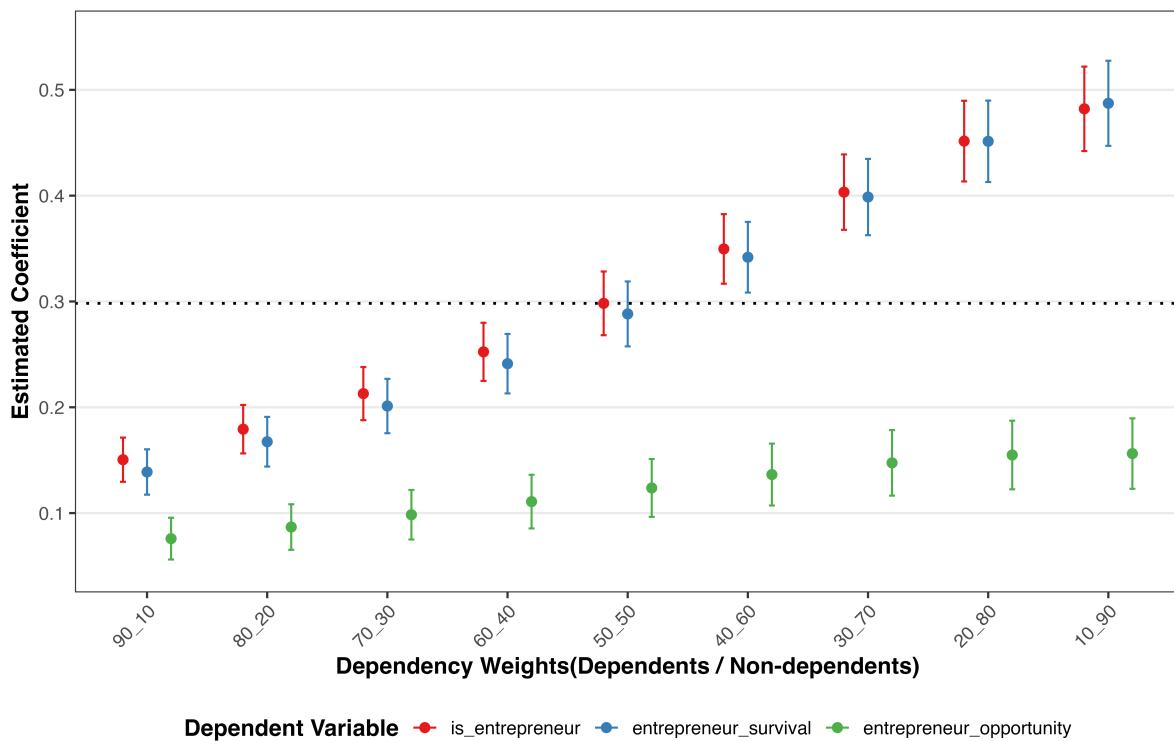
where  $N_D$  and  $L_D$  represent the total and local numbers of dependent relatives,  $N_{ND}$  and  $L_{ND}$  represent the total and local numbers of non-dependent relatives, and  $w_D, w_{ND}$  are corresponding weights with  $w_D + w_{ND} = 1$ .

The visualization results of this new sensitivity analysis are shown below:

The empirical results demonstrate remarkable consistency and clear monotonic patterns: as dependent member weights continuously decrease (i.e., economically active member weights increase), the positive effect of family-oriented migration on entrepreneurship (especially necessity-driven entrepreneurship) significantly and steadily strengthens. This provides valuable marginal contribution insights from the economic attributes of migrating members.

### (C) Sensitivity Analysis by Varying Dependency Weights

Point Estimates with 99% Confidence Intervals



**Dependent Variable** • is\_entrepreneur • entrepreneur\_survival • entrepreneur\_opportunity

In summary, we have conducted comprehensive and in-depth justification of family-oriented migration index construction through a framework of “clear baseline model + two systematic, deeply excavated weighted sensitivity analyses.” These analyses not only demonstrate the robustness of our baseline model results but also reveal heterogeneous relationships between migrating family member weights and entrepreneurship, providing deeper theoretical insights for our research agenda.

We believe that through this revision, we have thoroughly addressed your concerns. We once again thank you for your valuable feedback, which has greatly enhanced the rigor and depth of our research.

## Comment 2.2

Besides, the distinction between necessity-driven vs. opportunity-driven entrepreneurship is useful, but the classification could be further validated (e.g., are self-employed migrants truly necessity-driven, or could some be opportunity-driven?).

### Response:

We sincerely appreciate your valuable feedback. You correctly identified a critical issue with how we defined and measured different types of entrepreneurship, emphasizing the need for empirical evidence to validate our classification approach.

In our initial design, we constructed two binary dependent variables based on the 2017 survey question “What is your current employment status? (A: Employee with fixed employer; B: Worker without fixed employer; C: Employer; D: Self-employed)”:

- **Opportunity-driven Entrepreneurship:** Coded as 1 when respondents answered “C: Employer,” and 0 when answered “A” or “B.” Respondents answering “D: Self-employed” were excluded from this analysis.
- **Necessity-driven Entrepreneurship:** Coded as 1 when respondents answered “D: Self-employed,” and 0 when answered “A” or “B.” Respondents answering “C: Employer” were excluded from this analysis.

Following your suggestion, we conducted systematic validity checks to demonstrate that our two groups exhibit significantly different characteristics across theoretically expected dimensions. After carefully examining all relevant survey variables, we identified Q212 (number of wage-earning employees currently employed) and Q212A (number of relatives currently employed) as direct indicators of business expansion potential and employment formalization, which align closely with our theoretical expectations. If our classification is valid, opportunity-driven entrepreneurs should demonstrate distinct patterns compared to necessity-driven entrepreneurs in the following ways:

1. Exhibit stronger market-oriented hiring behavior, showing greater propensity to employ non-family members as wage earners.

2. Demonstrate more formalized and open employment practices, establishing formal employment relationships even with family members and accessing external labor markets rather than relying solely on unpaid family labor.

Our validation analysis (detailed results in appendix validation\_entrepreneur\_type.smcl) reveals the following key findings:

- **For necessity-driven entrepreneurs:** Stata showed “no observations” for both wage-earning non-relatives (Q212) and relatives (Q212A), confirming that self-employed individuals in our classification employ no wage-earning workers, consistent with the small-scale, informal characteristics of necessity-driven entrepreneurship.
- **For opportunity-driven entrepreneurs :** Non-relative employment (Q212): Clear hiring behavior with 4459 observations, ranging from 1 to 450 employees. Approximately 17% employ more than 5 workers, indicating scale expansion and market orientation; Relative employment (Q212A): About 50.07% employ no relatives as wage earners, demonstrating reduced dependence on family labor and greater reliance on external labor markets.

Based on these validation results, we have revised the methodology section to include this classification validity explanation. The following revisions have been made to the manuscript:

To validate this classification, we examined the employment structures of the two groups using survey data on the number of paid employees (Q212) and paid kin employees (Q212A). The analysis confirms a sharp distinction: necessity-driven entrepreneurs (the self-employed) reported hiring zero paid employees, consistent with the profile of small-scale, non-waged ventures. In contrast, opportunity-driven entrepreneurs (employers) demonstrated significant hiring activity, with a substantial portion hiring non-kin employees and half relying entirely on the external labor market. These clear, theoretically-consistent differences in hiring practices lend strong empirical support to our

classification, allowing us to confidently assess the heterogeneous impacts on these distinct entrepreneurial types. (lines 272-279)

Thank you again for your insightful and constructive feedback!

### Comment 3

The choice of housing stability as an IV is reasonable but requires stronger justification for exogeneity. Could housing stability correlate with unobserved factors (e.g., wealth, social networks) that also affect entrepreneurship? Alternative IVs (e.g., hometown land ownership, local housing policies) could be explored for robustness

### Response:

We sincerely appreciate your astute observation regarding the exogeneity concerns of our instrumental variable strategy. You correctly identified that housing stability may correlate with unobserved factors such as wealth and social networks that also affect entrepreneurship, which fundamentally undermines the validity of our identification approach.

The editor has concurred with your assessment in comment 3, noting that the instrumental variable strategy lacks credibility and should be dropped in favor of developing other robustness checks. We fully agree with both your and the editor's professional judgment on this matter.

Although theoretically we could explore other potential instrumental variables, we are well aware that high-quality instrumental variables that truly satisfy strict exogeneity requirements are extremely scarce—"quasi-natural experiment" style instrumental variables like those used by scholars such as Angrist and Krueger (1991) are often elusive in empirical research. Furthermore, the editor has specifically recommended abandoning the instrumental variable strategy based on the journal's empirical standards and requirements.

Therefore, incorporating your and the editor's professional suggestions, we have finally decided to abandon the instrumental variable testing strategy and instead adopt more robust and reliable identification methods, including:

1. **Sample Expansion and Data Quality Enhancement:** Through Large Language Model (LLM) standardization of hukou registration text information, we have further expanded the research sample to 59,920 observations.
2. **Stringent Fixed Effects Control:** We have enhanced the fixed effects specification throughout the paper to dual fixed effects control at destination-city and origin-county levels, effectively controlling for potential omitted variable bias at both destination and origin levels.
3. **Robustness Verification of Index Construction:** Through sensitivity tests based on two dimensions—kinship proximity and age-based economic functionality—we systematically verify the robustness and reliability of our proposed family-oriented migration index calculation method.
4. **Further Enhancement of Identification Strategy:** In robustness checks, we additionally control for hukou origin-destination paired fixed effects (FEIS) as well as dual county-level fixed effects. Through this multi-level nested fixed effects design, we further enhance the causal identification strength and robustness of our conclusions.

We believe this series of alternative identification strategies can more effectively alleviate endogeneity concerns and provide a more solid empirical foundation for our research conclusions. We are grateful for your guidance in steering us toward more robust identification strategies, which has significantly strengthened the methodological rigor of our study.

#### **References:**

Angrist, J. D., & Krueger, A. B. (1991). Does Compulsory School Attendance Affect Schooling and Earnings? *The Quarterly Journal of Economics*, 106(4), 979-1014.

#### **Comment 4**

The three mechanisms (income motivation, social integration, family resources) are well-identified, but their interactions are not discussed. For example, does social integration strengthen the effect of family resources?

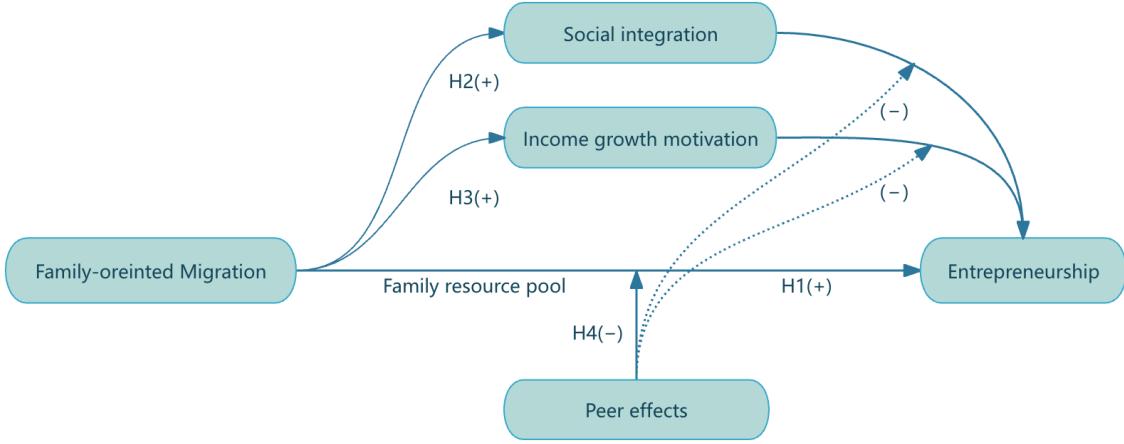
#### **Response:**

We sincerely thank you for raising this insightful question. We fully agree that exploring the interactions among mechanisms could provide a more nuanced understanding of how different factors jointly shape migrant workers' entrepreneurial behavior.

As pointed out by Reviewer 1, we also recognize the ambiguity associated with using "the number of relatives employed in respondents' businesses" as a proxy for family resource endowment. This variable may reflect either the productive deployment of family labor or an altruistic act of helping kin, which introduces potential measurement issues. Furthermore, while addressing your Comment 2, we discovered that the question regarding the number of relatives employed was only answered by a subset of respondents engaged in opportunity-driven entrepreneurship. Additionally, our theoretical discussion of family resources partially overlaps with our explanation of the divergent coefficients for necessity versus opportunity entrepreneurship in the benchmark model.

Based on your valuable suggestions, as well as those from Reviewer 1, we have decided to remove the family resource mechanism and incorporated the moderating effect of peer influence into the mechanism interaction analysis. Our revised mechanism framework is as follows:

We fully acknowledge that there is likely correlation in the residuals across different mediation regressions. In our case, the mechanisms are measured using multiple interrelated variables, and the potential interaction types and quantities between these mechanisms are numerous, making it challenging to comprehensively present and test them all within a single study. For this reason, we chose not to systematically examine all potential interaction effects. Instead, we focus on theoretically meaningful mechanism interactions for further analysis.



From a theoretical perspective, within the collective decision-making framework of family-based migration, peer effects exert critical influence at the final decision-making stage of entrepreneurship—specifically moderating the pathway from motivational mechanisms to entrepreneurial outcomes. While families may develop entrepreneurial motivations through income improvement aspirations or social integration needs, the translation of these motivations into actual entrepreneurial behavior is significantly influenced by peer networks during the final decision phase. Migrant families rely heavily on peer observations and comparisons for risk assessment when facing uncertain entrepreneurial choices. Therefore, peer effects serve as a moderator in the mechanism-to-outcome pathway of family entrepreneurial decision-making. We re-estimate the extended model to test whether peer effects moderate the role of other mechanisms as follows:

$$\begin{aligned} \text{is\_entrepreneur}_{ich} = & \alpha_0 + \alpha_1 \text{family\_migration}_i + \alpha_2 \text{peer\_high}_{ich} + \alpha_3 \text{mediator}_i \\ & + \alpha_4 (\text{mediator}_i \times \text{peer\_high}_{ich}) + \alpha_5 \text{cv}_i + \text{city}_c + \text{Hukou}_h + \varepsilon_i \end{aligned}$$

where  $\text{mediator}_i$  denotes either social integration or income motivation, and  $\text{peer\_high}_{ich}$  represents peer influence. This specification allows us to examine whether the effects of social integration and income motivation on entrepreneurial decisions are moderated by peer effects.

We conducted separate tests for social integration and income motivation, as detailed in the revised manuscript (lines 572-599, Section 5.3.2 Moderating Effects with Social Integration and Income Motivation). Thank you for your valuable suggestions.

### Comment 5

I feel that the policy recommendations are somewhat generic. More targeted suggestions (e.g., housing subsidies for migrant families, skill training for low-skilled entrepreneurs) would strengthen the paper's practical contribution. How do the findings inform China's hukou reform? This could be discussed in greater depth.

### Response:

We sincerely appreciate your insightful observation regarding the generic nature of our original policy recommendations. You are absolutely correct that more targeted and actionable suggestions would significantly enhance the paper's practical contribution.

Our enhanced policy implications specifically include:

- **Social integration initiatives:** Establishing refined community service management systems with dynamic statistics and institutionalized participation channels to foster genuine community belonging and urban identity
- **Housing subsidies for migrant families:** Differentiated rental subsidies and priority inclusion in affordable housing programs that recognize the dual residential and business needs of family-oriented migrants
- **Skill training for low-skilled entrepreneurs:** Diversified re-education systems incorporating digital marketing, online operations, and financial knowledge to reduce homogeneous competition
- **Deeper Discussion of Hukou Reform Implications:** We propose a phased hukou reform that prioritizes decoupling core public services, like education and

healthcare, from one's registered residence. This involves establishing enrollment based on physical residence, supported by an inter-regional cost-sharing system, and developing hukou-independent family support services to dismantle institutional barriers and unleash migrant entrepreneurial potential.

These comprehensive revisions can be found in **Section 7: Policy Implications** (lines 782-822). Thank you again for this valuable guidance, which has significantly strengthened the practical importance of our research.

#### Comment 6.1

The study relies on 2017 CMDS data—would the results hold for post-pandemic migration trends? A brief discussion on data timeliness would be helpful.

#### Response:

We deeply appreciate the reviewer's important observation. The reviewer accurately identified a potential limitation of our study, namely that our research data originates from the pre-pandemic period (2017 CMDS). Given the pandemic's impact on China's population mobility patterns, examining the applicability of our research conclusions in the post-pandemic era is indeed crucial.

First, at the macro level, the fundamental trend of rural-to-urban migration remains consistently robust. According to the National Bureau of Statistics' "Monitoring Survey Report on Migrant Workers," the total number of migrant workers nationwide has continuously grown from 286.5 million in 2017 to 299.7 million by early 2024. The scale of out-migrant workers, after experiencing brief pandemic-related fluctuations, has also resumed growth, increasing from 171.9 million in 2022 to 178.7 million in 2024. Official data confirms that large-scale population migration remains a fundamental characteristic of China's socioeconomic landscape.

Second, from a theoretical perspective, the core mechanisms identified in our study demonstrate robustness. The family as a unit for risk-sharing and resource integration—a

core principle of New Economics of Labor Migration—represents a fundamental factor driving migrant population behavior. The economic uncertainties of the post-pandemic era may further accentuate the importance of family functions.

Therefore, based on the continuity of macro trends and the robustness of core theoretical mechanisms, our research findings can still provide valuable insights for understanding contemporary entrepreneurial dynamics among China's migrant population.

We have incorporated the above discussion regarding data timeliness into the research limitations section, with the specific statement in the revised manuscript as follows:

Finally, we acknowledge several limitations of our study. First, our analysis relies on 2017 cross-sectional data, which predates the COVID-19 pandemic. Regarding potential concerns about data timeliness, we note that macro-level data from China's National Bureau of Statistics confirms that the fundamental trend of rural-to-urban migration remains stable and robust in the post-pandemic era. From a theoretical perspective, recent economic uncertainties may even amplify the family's role as a crucial unit for risk-pooling and resource consolidation.

#### Data Sources:

1. **2017 Monitoring Survey Report on Migrant Workers:** [https://www.gov.cn/xinwen/2018-04/28/content\\_5286523.htm](https://www.gov.cn/xinwen/2018-04/28/content_5286523.htm)
2. **2022 Monitoring Survey Report on Migrant Workers:** [https://www.gov.cn/lianbo/2023-04/28/content\\_5753682.htm](https://www.gov.cn/lianbo/2023-04/28/content_5753682.htm)
3. **2023 Monitoring Survey Report on Migrant Workers:** [https://www.gov.cn/lianbo/bumen/202405/content\\_6948813.htm](https://www.gov.cn/lianbo/bumen/202405/content_6948813.htm)
4. **2024 First Quarter Monitoring Survey Report on Migrant Workers (Partial Data):** [https://www.gov.cn/lianbo/bumen/202504/content\\_7021923.htm](https://www.gov.cn/lianbo/bumen/202504/content_7021923.htm)

We are grateful for your scholarly expertise and detailed feedback, which have been crucial for the advancement of our work.

## Comment 6.2

The high proportion of complete family migration (63.5%) may limit generalizability.

Are there regional or economic biases in the sample?

### Response:

We sincerely appreciate your valuable observation regarding “the high proportion of complete family migration (63.5%) potentially limiting generalizability.” Your astute observation prompted us to conduct a more thorough examination and explanation of our sample definition and indicator validity.

The 63.5% proportion was calculated within our effective sample after excluding single-person households ( $Q100==1$ ) that exhibited measurement validity concerns. We acknowledge this proportion is relatively high and appreciate the opportunity to provide more detailed justification and evidence.

We excluded single-person households from our main analysis because this subsample likely suffers from underreporting of core family members left behind. We provide two compelling pieces of evidence from our data:

1. **Family structure perspective:** Among the 9295 single-person households in our sample, 92.94% were “never married,” with the remainder being divorced or widowed. This indicates they structurally lack spouses as core co-migration family members.
2. Age composition perspective: This is a very young cohort with median birth years between 1992-1993. For this predominantly post-1980s and post-1990s generation, we can confidently infer that their parents are very likely still alive. However, we suspect that because respondents may have misunderstood the survey as focusing only on their destination-city family circumstances, information about core family members (parents) left behind was underreported.

This information gap prevents us from calculating valid “family-oriented migration” indices for this subsample (their indices would be artificially and inaccurately calculated

as 1). Based on these data incompleteness and measurement validity concerns, we excluded these 9295 single-person household samples from our main analysis.

To comprehensively address your concerns and enhance research transparency, we conducted additional robustness tests. In these tests, we re-included the excluded single-person household samples for calculation. As shown in our supplementary file `validation_complete_family_migration.smcl`, whether using raw data or cleaned data retaining single-person households, the complete family migration proportion consistently stabilizes around 55%. We have supplemented the manuscript with values calculated when retaining `Q100=1` (potentially underreporting) samples.

This result demonstrates high consistency with existing literature. Wu et al. (2023) report: “In the final sample, 14.9% migrated individually, 30.4% lived as a couple without their children, and 54.7% lived with their entire family,” further confirming our sample’s representativeness.

Beyond data validation, the validity of these proportions could also be explained by both macro-level empirical trends in contemporary China and the systematic representativeness embedded in CMDS sampling methodology.

- First, whole-family migration appears to have become increasingly common in contemporary China. The National Bureau of Statistics’ "2024 Monitoring Survey Report on Migrant Workers" indicates that among 178.7 million out-migrant workers, whole-family migration has emerged as a preferred strategy to address urban challenges including living costs, children’s education, and elderly care, which may contribute to the observed proportions in our sample.
- Second, the CMDS employs PPS (Probability Proportional to Size) sampling methodology, which enhances representativeness for major cities and key migration destinations. Since family-oriented migration patterns tend to be more prevalent in these urban centers, this sampling approach might slightly elevate family migration proportions compared to a purely random national sample.

Therefore, we believe that the 63.5% or 55% family migration proportion in our sample largely reflects the empirical characteristics of contemporary Chinese migrant worker migration, demonstrating considerable representativeness and general applicability.

We are profoundly grateful for the time and effort you dedicated to reviewing our paper. Your guidance was instrumental in refining our research.

**Reference:**

Wu, Y., Coulter, R., & Dennett, A. (2023). Understanding the relationships between the family structures and destinations of married migrants with children in China. *Applied Geography*, 160, 103102. <https://doi.org/10.1016/j.apgeog.2023.103102>

**Comment 7**

The role of Chinese family norms (e.g., filial obligations, collective decision-making) in shaping entrepreneurship could be discussed more explicitly.

**Response:**

We sincerely appreciate the reviewer's important suggestion. We fully concur with your observation that Chinese family norms, as deep-rooted cultural institutions, constitute a crucial element for understanding migrant workers' entrepreneurial behavior and require more explicit and detailed elaboration. Following comprehensive revisions, we have systematically discussed the shaping effects of Chinese family norms on entrepreneurship throughout the manuscript:

1. In the introduction section, we systematically elaborate on the deep constraining mechanisms of Confucian filial piety culture. We explicitly indicate that within China's distinctive family culture, migrant workers' entrepreneurial decisions are "often driven by dual aspirations: achieving economic advancement and social status enhancement for the entire family unit," transcending purely economic motivations. Traditional filial piety culture creates "strong expectations for caring for aging

parents and parental care for minor children,” leading “many rural families to choose joint migration and view separation as a violation of fundamental family values.” Family-oriented migration under this cultural context “transcends mere economic optimization and reflects deeper cultural imperatives that prioritize family unity and intergenerational responsibility,” fundamentally reshaping the motivational structure and goal orientation of entrepreneurship. (lines 45-60)

2. In the peer effects mechanism analysis section, we integrate “shared mental model” theory to deeply analyze the operational mechanisms of Chinese family norms. We define families as “cognitive decision-making units” whose decisions are profoundly influenced by internal shared beliefs. Strong family responsibility consciousness makes them “prioritize stability and loss minimization, with collective decision-making processes tending toward conservative consensus, often sacrificing innovation for the sake of security.” This risk-averse family unit functions as a “cognitive filter,” selectively amplifying negative information from peer networks, transforming peer effects into an “inhibiting force” for entrepreneurship, exemplifying the unique constraining and shaping mechanisms of Chinese family culture on entrepreneurial behavior. (lines 197-236)

We extend our heartfelt gratitude once again for your insightful comments that have substantially contributed to the improvement of this paper.

#### Comment 8

The placebo test and alternative model specifications are excellent. However, additional robustness checks (e.g., subsample analysis by region, gender differences) could further validate the findings.

#### Response:

Thank you for your wonderful insights regarding the need for additional robustness checks. We greatly appreciate your recognition of our placebo tests and alternative

model specifications, and we fully agree that subsample analyses can further validate our findings.

In response to your suggestion, we have substantially expanded our robustness checks beyond the initial scope:

1. We have not only incorporated regional and gender heterogeneity analyses as you suggested, but also integrated family structure heterogeneity analysis in response to Reviewer 1's Comment 2.2.
2. To minimize the reading burden that extensive tabular presentations might impose, we have presented these empirical results in visualized formats that facilitate clearer interpretation and comparison across different subgroups while maintaining analytical rigor.

These substantial additions can be found in **Section 6: Heterogeneity Analysis**. We believe these enhancements significantly strengthen the empirical findings of our study and thank you for this valuable suggestion.

**Concluding Response.** We are deeply grateful for your exceptionally thorough and insightful review. Your astute observations about mechanism interactions, the nuanced treatment of partial migration weighting, and the need for more targeted policy implications have fundamentally strengthened our research. Your constructive guidance spanning theoretical integration to methodological refinements has transformed this study into a more robust and theoretically grounded contribution to the migration-entrepreneurship literature.