

# Enhancing Rural Governance Effectiveness: The Role of Population Mobility and Social Capital in Zhejiang Province

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**Abstract:** Enhancing rural governance effectiveness is a core task of rural revitalization strategies. This study employs 2023 village-level survey data from Zhejiang Province to dissect the nuanced relationship between population mobility and governance performance, with a specific focus on the mediating role of social capital. Moving beyond a monolithic view of mobility as merely disruptive, we introduce and test the concept of mobility heterogeneity. The findings reveal a dual-path mechanism: while the mere existence of household mobility exerts a significant negative effect on governance  $\beta=-0.32, p<0.01$  by depleting local social capital, the direction of mobility critically moderates this outcome. Villages characterized by bidirectional mobility (featuring both inflow and return flows) exhibit significantly higher levels of social capital and show no significant governance loss, in stark contrast to villages with unidirectional outflow. This indicates that bidirectional flows can mitigate negative impacts by introducing external resources and reinforcing networks. Furthermore, high-frequency mobility is associated with greater volatility in governance outcomes. The study concludes that policy interventions should shift from simply counteracting mobility to strategically managing its forms—actively fostering bidirectional flows, cultivating context-specific social capital, and building adaptive governance systems resilient to population fluidity.

**Keywords:** Population Mobility; Rural Governance Effectiveness; Social Capital; Mediation Effect; Mobility Heterogeneity; Zhejiang Province

## 1. Introduction

The enhancement of rural governance effectiveness stands as a pivotal objective within

China's comprehensive rural revitalization strategy. In this context, large-scale population mobility, a defining feature of the nation's urbanization process, has profoundly reconfigured the demographic and social fabric of villages, presenting a fundamental challenge to traditional governance paradigms. A predominant strand of literature conceptualizes population outflow as a unilateral force of erosion, weakening the actor base for governance, straining public service provision, and thinning the dense social networks essential for collective action [1, 2]. Zhejiang Province, with its dynamic economy and marked regional disparities—where cities like Hangzhou attract talent while regions like Lishui experience sustained outflows—epitomizes these tensions [3].

However, the evolving nature of mobility suggests that the conventional “disruption narrative” may be incomplete. The rise of bidirectional mobility—encompassing return migration, circular movement, and the maintenance of strong urban-rural linkages—points to a more complex reality where mobility can also act as a conduit for resources, information, and innovation [4]. This phenomenon prompts a critical research question that moves beyond a binary assessment: How do different patterns of population mobility—specifically its existence, direction, and frequency—differentially impact rural governance effectiveness, and what role does social capital play in this process?

Social capital, comprising trust, norms, and social networks, is theorized as the key mediating tissue in this relationship [5]. It represents both the vulnerable resource susceptible to depletion from outflows and the potential asset that can be enriched and transformed by strategic inflows. Yet, the precise, dynamic pathway of “mobility pattern → social capital change → governance outcome” remains inadequately mapped, particularly in

regions experiencing diverse and complex flow patterns like Zhejiang.

To address this gap, this study leverages original 2023 village-level survey data from across Zhejiang Province. Its objectives are threefold: (1) to empirically establish the baseline impact of mobility existence and the mediating mechanism of social capital; (2) to deconstruct the heterogeneous effects of mobility direction (unidirectional vs. bidirectional) and frequency; and (3) to derive evidence-based policy implications for constructing governance resilience in an era of fluid populations. By doing so, this research aims to contribute a more granular and dynamic framework for understanding the co-evolution of mobility and governance in rural China.

## **2. Literature Review and Theoretical Framework**

### **2.1 The Conventional Lens: Mobility as a Governance Stressor**

A substantial body of research anchors the view of population mobility, particularly permanent or long-term outflow, as a primary stressor on rural governance. This perspective delineates several disruption pathways. First, it leads to a quantitative and qualitative shrinkage of governance actors, as the exodus of younger, more educated residents depletes the human capital necessary for leadership, innovation, and active civic participation [2]. Second, it risks attenuating social capital, as prolonged absence can erode the frequent, face-to-face interactions that sustain communal trust, reciprocity, and shared norms—a process analogous to the “thinning” of social fabric [1]. Third, it creates practical impediments for planning and delivering public services, as local governments grapple with fluctuating and uncertain resident populations [3]. This line of reasoning underpins our first two hypotheses: the existence of mobility will negatively affect governance effectiveness (H1), and this relationship will be mediated by a decline in social capital (H2).

### **2.2 Towards a Nuanced Understanding: The Imperative of Mobility Heterogeneity**

Emerging scholarship advocates for a more differentiated analysis that recognizes the heterogeneity of mobility patterns. The direction and frequency of movement are critical

moderating variables. Unidirectional outflow aligns with the conventional disruption thesis. In contrast, bidirectional mobility represents a distinct phenomenon with potential generative capacities. Return migrants and circular movers often bring back not only financial capital but also new skills, updated information, managerial experience, and expanded social networks that bridge urban and rural spheres [4, 6]. This influx can replenish, diversify, and modernize local social capital, potentially fostering new forms of association and trust that extend beyond traditional kinship ties [7]. Consequently, the net governance impact in such villages may be neutral or even positive, as these “bridging” assets enhance problem-solving capacity and institutional innovation. We therefore hypothesize that bidirectional mobility mitigates the negative effects of mobility existence through the enhancement of social capital (H3).

Similarly, the frequency of mobility introduces a dimension of temporal stability. High-frequency churn, regardless of net direction, may prevent the consolidation of durable social ties, shared identities, and stable institutional arrangements, leading to governance volatility and adaptive challenges [8]. This leads to our fourth hypothesis: high-frequency mobility increases the volatility of rural governance effectiveness (H4).

### **2.3 Synthesizing the Framework: Social Capital as the Pivotal Mediator**

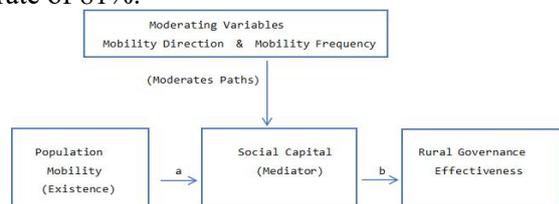
Our theoretical framework (Figure 1) positions social capital as the core mechanism through which the existence of mobility influences governance. Crucially, we propose that the direction and frequency of mobility are not merely control variables but fundamental moderators that condition the strength and even the valence of this mediation. The framework posits a dual-path possibility: a depletion path (dominant in unidirectional outflow) and a replenishment/mitigation path (possible in bidirectional contexts), with frequency affecting the stability of outcomes along either path.

## **3. Research Design**

### **3.1 Data Source and Sampling**

Data were drawn from a structured village-level survey on governance conducted in 2023 across 11 prefecture-level cities in Zhejiang Province.

A stratified random sampling method ensured representation of diverse geographical and economic contexts, covering both mountainous (45%) and plain (55%) villages. From 200 questionnaires distributed, 162 valid responses were obtained, yielding an effective response rate of 81%.



**Figure 1. Theoretical Framework: The Dual-Path Moderated Mediation Model of Population Mobility on Rural Governance Effectiveness**

**3.2 Variable Definitions and Measurement**

**Dependent Variable:** Governance Effectiveness. A composite index (0-10 scale) was constructed from four weighted dimensions: public service satisfaction (35%), level of social participation (30%), policy implementation and rule-of-law environment (20%), and performance of grassroots organizations (15%).

**Core Independent Variables:**

**Mobility Existence:** A binary variable (1=Yes, if any household member had migrated for work in the past year; 0=No).

**Mobility Direction:** For villages with mobility (N=110), coded as 1=Predominantly unidirectional outflow, 2=Significant bidirectional inflow/outflow or return flows.

**Mobility Frequency:** An ordinal variable based on the estimated turnover rate of migrant workers in the village (1=Low, 2=Medium, 3=High).

**Mediating Variable:** Social Capital. Measured using a validated scale (Cronbach’s  $\alpha=0.78$ ) integrating items on social network density (connections among residents), interpersonal trust, and recognition of communal norms and reciprocity.

**Control Variables:** Village total population, logarithm of per capita annual income, and geographic type (0=Mountainous, 1=Plain). Descriptive statistics are presented in Table 1.

**Table 1. Descriptive Statistics of Sample Variables**

Variable	Obs	Mean	SD	Min	Max
Governance effectiveness	162	6.5	1.2	3.8	9.1
Mobility existence (1=Yes)	162	0.68	0.47	0	1
Mobility direction*	110	1.45	0.50	1	2

Mobility frequency*	110	1.82	0.76	1	3
Social capital	162	7.1	1.5	4.0	9.5
Trust	162	4.2	0.8	2.0	5.0
Norm recognition	162	3.8	0.9	1.5	5.0
Population	162	1523	687	420	350
Income (log)	162	1.05	0.28	0.40	1.80
Geographic (Plain=1)	162	0.55	0.50	0	1

\*Only for villages with mobility (N=110).

**3.3 Analytical Strategy**

We employed multiple linear regression models for baseline estimation and subgroup heterogeneity analysis. The mediating role of social capital was rigorously tested using the Bootstrap method with 5,000 repetitions to obtain robust confidence intervals for indirect effects. To address potential endogeneity concerns (e.g., reverse causality where poor governance drives migration), we utilized an Instrumental Variable (IV) approach (IV-Probit and 2SLS), with results supporting the robustness of our core findings (available upon request).

**4. Empirical Results and Analysis**

**4.1 The Baseline Suppressive Effect and the Mediation Pathway**

Consistent with H1, the baseline regression confirms a significant negative relationship. The existence of population mobility in a village is associated with a notable decrease in governance effectiveness ( $\beta = -0.32, p < 0.01$ , Model 1 in Table 2). This validates the premise that, on average, the departure of community members undermines the foundational elements of local governance.

**Table 2. Baseline Regression and Mediation Test Results**

Variable	Model (1)	Model (2) (with Social Capital)
Mobility existence	-0.32**	-0.21*
Social capital	—	0.43**
Income (log)	0.18*	0.15*
Geographic (Plain=1)	0.25†	0.19
Population	-0.03	-0.01
Constant	4.76	3.82
Observations	162	162
R <sup>2</sup>	0.28	0.38

†p<0.1, \*p<0.05, \*\*p<0.01

The introduction of social capital in Model 2 provides compelling support for H2. The coefficient for mobility existence diminishes (from -0.32 to -0.21), while the coefficient for

social capital is positive and highly significant ( $\beta = 0.43, p < 0.01$ ). The model's explanatory power increases substantially ( $R^2$  from 0.28 to 0.38). Formal mediation analysis reveals a significant indirect effect: mobility reduces social capital (path a:  $\beta = -0.35, p < 0.01$ ), and lower social capital in turn reduces governance effectiveness (path b:  $\beta = 0.43, p < 0.01$ ). The indirect effect accounts for approximately 46.9% of the total effect. This empirically substantiates that the erosion of social capital is a primary mechanism through which population mobility impairs governance. The outflow disrupts the relational infrastructure necessary for cooperation, making collective action for public goods and rule enforcement more challenging.

#### 4.2 Heterogeneous Effects: The Critical Moderating Role of Mobility Direction

Disaggregating the sample by mobility direction unveils the core nuance of our study, strongly supporting H3. The results, presented in Table 3, reveal a stark dichotomy.

**Table 3. Regression Results by Mobility Direction Subgroup**

Variable	Unidirectional (N=89)	Bidirectional (N=49)
Mobility existence	-0.38**	-0.11
Social capital	0.36*	0.51**
Controls	Included	Included
R <sup>2</sup>	0.31	0.42

In villages dominated by unidirectional outflow, the suppressive effect of mobility is most acute ( $\beta = -0.38, p < 0.01$ ). Here, the story aligns with the depletion narrative. In striking contrast, for villages characterized by bidirectional mobility, the direct negative effect of mobility becomes statistically insignificant ( $\beta = -0.11, p > 0.1$ ). Moreover, the coefficient linking social capital to governance is larger and more robust in these villages (0.51,  $p < 0.01$ ). This analytical finding is reinforced by descriptive statistics showing a significantly higher mean social capital score in bidirectional villages (6.9 vs. 6.1,  $t=2.45, p=0.016$ ).

This constitutes the pivotal contribution of our analysis. It demonstrates that bidirectional mobility represents a qualitatively distinct phenomenon with the capacity to foster governance resilience. The likely mechanism is that return migrants and circular movers act as "social brokers" and "resource conduits." By maintaining strong ties to both the village and the city, they facilitate the flow of information,

capital, and innovative practices back to the countryside [6, 7]. This does not merely preserve traditional social capital but can actively transform and enrich it, creating networks that are more outward-looking and adaptive. Consequently, the governance system in such villages can draw upon these renewed and diversified social resources to maintain or even enhance its effectiveness, effectively offsetting the potential negatives of population churn.

#### 4.3 The Destabilizing Influence of High-Frequency Mobility

Our analysis also supports H4, highlighting the temporal dimension of mobility. Villages experiencing high-frequency mobility exhibit significantly greater variance in their governance effectiveness scores (Standard Deviation = 1.5) compared to those with low-frequency mobility (SD = 0.9), a difference that is statistically significant ( $t = 3.82, p < 0.01$ ). This finding underscores that rapid population turnover, irrespective of net direction, introduces instability and uncertainty into the governance environment. Constant flux hinders the development of deep, trusting relationships, complicates the identification of stable service needs, and prevents the maturation of collaborative norms. Governance in such contexts becomes more volatile, oscillating in response to demographic shifts rather than following a stable developmental trajectory [8].

#### 5. Conclusion and Policy Implications

This study has systematically deconstructed the complex relationship between population mobility and rural governance effectiveness in Zhejiang Province. By empirically testing a framework centered on social capital mediation and mobility heterogeneity (direction and frequency), we move past a simplistic "good or bad" assessment. Our findings confirm a dual-path reality: the baseline path of depletion via social capital erosion, and a contingent mitigation path enabled by bidirectional flows that enrich social resources.

The key theoretical insight is that the governance impact of mobility is not predetermined but is actively shaped by the pattern of movement. Bidirectional mobility, often overlooked in pessimistic narratives, emerges as a potential asset for governance renewal. However, high-frequency mobility poses a distinct challenge of systemic volatility.

These conclusions lead to targeted and differentiated policy implications:

**Strategic Steering of Mobility Patterns:** Policy should actively transition from passively managing outflow to proactively encouraging and facilitating bidirectional flows. This involves creating an enabling ecosystem for return migration and rural entrepreneurship (e.g., through tailored financial products, skill recognition, and business incubation), strengthening digital infrastructure to support remote work and sustained urban-rural connections, and formally engaging migrant associations as partners in village development.

**Context-Specific Cultivation of Social Capital:** Interventions to bolster social capital must be precision-targeted. In villages suffering from severe unidirectional hollowing out, the priority is to sustain basic connective tissue through digital governance platforms that maintain communication, and by empowering left-behind groups (e.g., elders, women) to lead community activities. In villages with active bidirectional flows, policy should focus on integrating and leveraging new capital by creating formal channels for return migrants to participate in governance, supporting new types of cooperatives or social enterprises they initiate, and fostering spaces for knowledge exchange between “new” and “old” villagers.

**Building Adaptive Governance for an Era of Fluidity:** Governance systems must institutionalize adaptability. This requires developing dynamic monitoring tools to track population flows in near real-time, designing modular and scalable public services that can flex with changing demand, and exploring innovative governance structures (e.g., hybrid online-offline participation, rotational representative roles) that remain functional and legitimate even with a partially absent or transient population.

In summary, the path to resilient rural governance in contemporary China lies not in resisting the inevitability of population mobility but in developing the sophistication to harness its diverse forms. Recognizing the potential embedded in bidirectional flows and building institutional capacity to navigate the churn of high-frequency movement are essential steps toward forging sustainable and effective rural governance for the future.

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### **References**

- [1] Putnam RD. Bowling Alone: America's Declining Social Capital. *Journal of Democracy*. 1995; 6(1): 65–78.
- [2] Shi Y, Sun Y. Construction and operation analysis of evaluation index system of rural social governance effectiveness in China. *Public Management and Policy Review*. 2016; 5(01): 17–25.
- [3] Dai Z, Zeng Q, Pan W. Analysis of the influence of social capital on farmers' willingness to participate in the supply of public goods in villages. *Research of Agricultural Modernization*. 2020; 41(2): 303–311. DOI: 10.13872/j.1000-0275.2019.0107.
- [4] Yin J, Sun B, Chen Q, et al. Market Mechanism, Social Capital and Common Prosperity—From the Perspective of China's Multi-dimensional Poverty Governance. *China Journal of Economics*. 2023;10(2):276-307. DOI:10.26599/CJE.2023.9300210.
- [5] Liu Y, Liu Z, Liu J, et al. Research on the Impact of Members' Social Capital within Agricultural Cooperatives on Their Adoption of IPM in China. *International Journal of Environmental Research and Public Health*. 2022;19(18):11538. DOI:10.3390/ijerph191811538.
- [6] Lin L. A review of rural household energy poverty and its governance. *Agriculture (MDPI)*. 2023; 13(12): 2185.
- [7] Yang C, Zhou D, Zou M, et al. The impact of social capital on rural residents' income and its mechanism analysis—Based on the intermediary effect test of non-agricultural employment. *Heliyon*. 2024; 10(14): e34228. DOI: 10.1016/j.heliyon.2024.e34228.
- [8] Miao S. Urban-rural population mobility, government governance and regional coordinated development. *Journal of Urban Affairs*. 2025-07-01. DOI: 10.1016/j.sosci.2025.105905.