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A STUDY ON THE PROBLEMS AND COUNTERMEASURES OF ENDOGENOUS CAPACITY OF FEMALE ECOLOGICAL MIGRANTS IN GUIZHOU PROVINCE, CHINA

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Abstract:
This study explores the endogenous development capacity of female ecological migrants in Guizhou Province, China. Using a quantitative survey of 945 female migrants, the research investigates the challenges in economic production, social participation, psychological adjustment, and household management. Results reveal that although these women possess strong ecological awareness and safety knowledge, they face significant limitations in production capacity, especially in agricultural production and entrepreneurial skills. Age and educational attainment are critical influencing factors; older women and those with lower educational attainment demonstrate weaker adaptive abilities. The study proposes a "problem-education-application" model and recommends vocational training, community-based education programs, and the creation of flexible employment opportunities. This research contributes to sustainable development discourse by providing practical policy recommendations to empower female ecological migrants and improve their quality of life in resettlement areas. Findings offer practical guidance for gender-sensitive ecological resettlement policies and sustainable capacity-building programs.
Keywords: *Female Ecological Migrants, Endogenous Capacity, Community Integration, Vocational Skills*

INTRODUCTION

Ecological migration is a key national strategy in China to alleviate poverty and protect fragile environments, especially in regions like Guizhou Province. By 2025, nearly 1.8 million residents had been resettled in the province. Among them, women face distinct challenges due to traditional roles, limited education, and a lack of transferable skills, making adapting to urban or semi-urban life particularly difficult (Anyanwu, Govender & Ngwenya, 2022). Female ecological migrants often encounter barriers in employment, financial management, and social participation. These issues reflect broader limitations in their endogenous capacity to adapt, learn, and build sustainable livelihoods. Structural factors, such as limited access to education, vocational training, and social support systems, further restrict their development and reinforce dependence on male family members (Samsul, 2025; Singh, 2025).

Existing research has paid limited attention to the multi-dimensional difficulties these women face. Drawing on capability deprivation theory (Sen,

1999), human capital theory (Schultz, 1961; Becker, 1993), and lifelong learning theory (Jarvis, 2009), this study explores how education, resilience, and institutional access shape female migrants' adaptive potential and long-term development.

Overlapping factors, including poverty, education, and social exclusion, influence the development capacity of female ecological migrants. Sen's Capability Deprivation Theory (1999) offers a foundational lens by conceptualizing poverty as the lack of basic capabilities rather than merely low income. In the context of ecological resettlement, many women face structural barriers such as limited access to healthcare, vocational training, and public services, which constrain their ability to participate meaningfully in new communities. These forms of deprivation are especially pronounced in unfamiliar urbanized environments where traditional support systems are disrupted.

Human Capital Theory (Schultz, 1961; Becker, 1993) further emphasizes education and training as essential investments that enhance individual adaptability and productivity (Sain et al., 2024). Many female migrants originate from rural areas with limited schooling opportunities, resulting in significant skill mismatches in labor markets at their resettlement destinations. Without targeted interventions, their economic potential remains untapped. Research confirms that education and vocational training significantly improve employment prospects and socio-economic mobility (Hanushek & Woessmann, 2012).

The Lifelong Learning perspective (Lengrand, 1975; Jarvis, 2009) adds that continuous learning opportunities are crucial for adults experiencing social transition. For many female migrants who have experienced disruptions in formal education, community-based adult education becomes essential for rebuilding self-efficacy and facilitating reintegration. Lifelong learning not only addresses skill gaps but also fosters adaptability and psychological resilience, both of which are critical for women navigating resettlement environments.

China's ecological migration programs have improved housing and infrastructure (Zhang et al., 2023), but gender disparities persist. Women face more pronounced challenges than men in accessing employment, education, and healthcare due to traditional gender roles and limited human capital (Chen, 2012; Wu et al., 2024). Gendered analyses (Kabeer, 2015; Eagly & Wood, 2012) reveal that women are often doubly marginalized both as migrants and as females. Many are confined to informal economic roles such as domestic work or small-scale trade, which offer limited mobility and reinforce dependency (Nguyahambi & Rugeiyamu, 2025).

Education has been identified as a key enabler of capacity development. Women with higher educational attainment are more likely to access stable employment, engage in community affairs, and maintain psychological well-being (Bussemakers, Tolsma, & Ruiter, 2017; Bernard & Bell, 2018). However, institutional barriers such as language differences and administrative exclusion continue to limit access to essential services in resettlement areas (Huang, Wu, & Chen, 2017; Ziersch, Walsh, Due, & Duivesteyn, 2020). Moreover, psychological resilience plays a decisive role in overcoming the disruptions of migration. As Siriwardhana and Stewart (2014) note, resilience helps displaced individuals manage uncertainty, rebuild social ties, and engage with new environments.

Overall, a more integrative and gender-sensitive framework is necessary to address the multi-dimensional constraints female ecological migrants face and to support their sustainable development. This study focuses on women aged 18–60 who were relocated to Guizhou between 2020 and 2025, examining their

economic, psychological, and social integration. It aims to provide insights for gender-sensitive policy improvements that support women's empowerment and contribute to sustainable resettlement outcomes.

RESEARCH METHODS

This study adopted a quantitative research approach to examine the endogenous development capacity of female ecological migrants in Guizhou Province. The purpose was to assess their capabilities in economic production, household management, psychological adjustment, and social participation, while analyzing how demographic variables such as age and education influence these capacities. A structured questionnaire was developed as the primary data collection tool, comprising six sections: demographic background, general capabilities, production capabilities, household management, psychological adjustment, and social participation. All capability dimensions were rated using a five-point Likert scale.

Stratified random sampling was used to ensure representativeness across age, education level, and resettlement regions. A total of 1,102 questionnaires were distributed, and 945 valid responses were collected after screening, accounting for approximately 0.1% of the total female ecological migrant population. The instrument's validity was confirmed through expert review using the Item Objective Congruence (IOC) method, and its reliability was established with a pilot test, yielding a Cronbach's alpha of 0.927. Factor analysis supported the construct validity, with a KMO value of 0.939 and a significant Bartlett's test result ($p < 0.05$).

Data were analyzed using SPSSAU. Descriptive statistics summarized sample characteristics, while t-tests and ANOVA explored group differences. Regression analysis was employed to identify key predictors of endogenous capacity, and confirmatory factor analysis confirmed the model's robustness (GFI = 0.934, RMSEA = 0.062, CFI = 0.953). This methodological framework provided empirical support for hypothesis testing and a reliable basis for understanding the structural and demographic influences on capacity development.

RESULTS AND DISCUSSION

Demographic Profile of Respondents

The study surveyed 945 female ecological migrants. The demographic structure is summarized as follows:

Table 4.1 Description and Analysis of Demographic Variables

Demographic Variables	Frequency	Percentage
1. Age		
1.1 18-22	103	10.90%
1.2 23-35	422	44.66%
1.3 36-59	406	42.96%
1.4 Over 60	14	1.48%
2. Education Level		
2.1 No formal education	50	5.29%
2.2 Primary school	279	29.52%
2.3 Middle school	490	51.85%
2.4 High school/Vocational school	77	8.15%

2.5 Post-secondary education	49	5.19%	

Table 4.1 summarizes the demographic characteristics of the respondents. Most participants were between 23 and 35 years old (44.66%), followed by those aged 36 to 59 (42.96%). Younger respondents aged 18 to 22 accounted for 10.90%, while only 1.48% were aged 60 or older, reflecting a predominantly middle-aged sample.

Regarding education, 51.85% had completed middle school, 29.52% had primary education, and 8.15% had attained high school or vocational training. Only 5.19% had post-secondary education, and 5.29% reported no formal education, indicating diverse educational backgrounds among the participants.

Analysis of the Impact of Age on Endogenous Development Capabilities

Table 4.2 Age Differences in General Capabilities

Item	Options	Age Group (%)				Total	χ2	*p*
		8–22 years	23-35 years	36–59 years	60 years and above			
Wealth Confidence	1	10(9.71)	37(8.77)	22(5.42)	1(7.14)	70(7.41)	28.174	0.005**
	2	5(4.85)	34(8.06)	29(7.14)	5(35.71)	73(7.72)		
	3	37(35.92)	107(25.36)	110(27.09)	4(28.57)	258(27.30)		
	4	23(22.33)	97(22.99)	110(27.09)	2(14.29)	232(24.55)		
	5	28(27.18)	147(34.83)	135(33.25)	2(14.29)	312(33.02)		
Total		103	422	406	14	945		
Ecological Outlook	1	3(2.91)	32(7.58)	16(3.94)	2(14.29)	53(5.61)	36.871	0.000**
	2	11(10.68)	20(4.74)	13(3.20)	1(7.14)	45(4.76)		
	3	27(26.21)	57(13.51)	77(18.97)	5(35.71)	166(17.57)		
	4	23(22.33)	108(25.59)	124(30.54)	3(21.43)	258(27.30)		
	5	39(37.86)	205(48.58)	176(43.35)	3(21.43)	423(44.76)		
Total		103	422	406	14	945		
Safety Awareness	1	4(3.88)	27(6.40)	18(4.43)	2(14.29)	51(5.40)	36.686	0.000**
	2	9(8.74)	25(5.92)	19(4.68)	0(0.00)	53(5.61)		
	3	13(12.62)	82(19.43)	79(19.46)	6(42.86)	180(19.05)		
	4	42(40.78)	93(22.04)	125(30.79)	6(42.86)	266(28.15)		
	5	35(33.98)	195(46.21)	165(40.64)	0(0.00)	395(41.80)		
Total		103	422	406	14	945		
Learning Capability	1	7(6.80)	28(6.64)	37(9.11)	1(7.14)	73(7.72)	21.249	0.047*
	2	13(12.62)	51(12.09)	63(15.52)	5(35.71)	132(13.97)		
	3	28(27.18)	124(29.38)	130(32.02)	6(42.86)	288(30.48)		
	4	30(29.13)	116(27.49)	111(27.34)	1(7.14)	258(27.30)		
	5	25(24.27)	103(24.41)	65(16.01)	1(7.14)	194(20.53)		
Total		103	422	406	14	945		

* $p<0.05$ ** $p<0.01$

Table 4.3 Age Differences in Production Capabilities

Item	Options	Age Group(%)				Total	χ2	*p*
		8–22 years	23-35years	36–59 years	60 years and above			
Agricultural Productivity	1	19(18.45)	118(27.96)	74(18.23)	4(28.57)	215(22.75)	19.987	0.067
	2	24(23.30)	96(22.75)	83(20.44)	5(35.71)	208(22.01)		
	3	33(32.04)	124(29.38)	151(37.19)	3(21.43)	311(32.91)		
	4	19(18.45)	65(15.40)	71(17.49)	1(7.14)	156(16.51)		

	5	8(7.77)	19(4.50)	27(6.65)	1(7.14)	55(5.82)		
Total		103	422	406	14	945		
Factory Work Capacity	1	16(15.53)	89(21.09)	64(15.76)	5(35.71)	174(18.41)	14.118	0.293
	2	23(22.33)	71(16.82)	68(16.75)	2(14.29)	164(17.35)		
	3	31(30.10)	133(31.52)	120(29.56)	5(35.71)	289(30.58)		
	4	23(22.33)	81(19.19)	97(23.89)	2(14.29)	203(21.48)		
	5	10(9.71)	48(11.37)	57(14.04)	0(0.00)	115(12.17)		
Total		103	422	406	14	945		
Service Work Capacity	1	14(13.59)	102(24.17)	76(18.72)	4(28.57)	196(20.74)	10.185	0.6
	2	21(20.39)	74(17.54)	71(17.49)	2(14.29)	168(17.78)		
	3	34(33.01)	128(30.33)	135(33.25)	5(35.71)	302(31.96)		
	4	21(20.39)	80(18.96)	84(20.69)	1(7.14)	186(19.68)		
	5	13(12.62)	38(9.00)	40(9.85)	2(14.29)	93(9.84)		
Total		103	422	406	14	945		
Entrepreneurial Capacity	1	17(16.50)	118(27.96)	114(28.08)	8(57.14)	257(27.20)	20.503	0.058
	2	27(26.21)	70(16.59)	80(19.70)	3(21.43)	180(19.05)		
	3	31(30.10)	132(31.28)	103(25.37)	2(14.29)	268(28.36)		
	4	16(15.53)	65(15.40)	64(15.76)	1(7.14)	146(15.45)		
	5	12(11.65)	37(8.77)	45(11.08)	0(0.00)	94(9.95)		
Total		103	422	406	14	945		

* $p<0.05$ ** $p<0.01$

Table 4.4 Age Differences in Household Management Capabilities

Indicator	Options	Age Group(%)				Total	χ^2	p
		8–22 years	23-35years	36–59 years	60 years and above			
Economic Planning Ability	1	10(9.71)	39(9.24)	24(5.91)	3(21.43)	76(8.04)	30.665	0.002**
	2	12(11.65)	43(10.19)	40(9.85)	1(7.14)	96(10.16)		
	3	33(32.04)	164(38.86)	106(26.11)	5(35.71)	308(32.59)		
	4	30(29.13)	99(23.46)	135(33.25)	4(28.57)	268(28.36)		
	5	18(17.48)	77(18.25)	101(24.88)	1(7.14)	197(20.85)		
Total		103	422	406	14	945		
Health Management Ability	1	9(8.74)	28(6.64)	12(2.96)	2(14.29)	51(5.40)	25.257	0.014*
	2	8(7.77)	35(8.29)	23(5.67)	2(14.29)	68(7.20)		
	3	30(29.13)	133(31.52)	104(25.62)	2(14.29)	269(28.47)		
	4	25(24.27)	118(27.96)	130(32.02)	6(42.86)	279(29.52)		
	5	31(30.10)	108(25.59)	137(33.74)	2(14.29)	278(29.42)		
Total		103	422	406	14	945		
Family Relationship Management Ability	1	10(9.71)	27(6.40)	15(3.69)	3(21.43)	55(5.82)	22.664	0.031*
	2	7(6.80)	33(7.82)	23(5.67)	1(7.14)	64(6.77)		
	3	32(31.07)	139(32.94)	114(28.08)	6(42.86)	291(30.79)		
	4	32(31.07)	123(29.15)	134(33.00)	3(21.43)	292(30.90)		
	5	22(21.36)	100(23.70)	120(29.56)	1(7.14)	243(25.71)		
Total		103	422	406	14	945		
Children's Education Ability	1	10(9.71)	36(8.53)	26(6.40)	5(35.71)	77(8.15)	35.91	0.000**
	2	16(15.53)	49(11.61)	37(9.11)	1(7.14)	103(10.90)		
	3	25(24.27)	163(38.63)	121(29.80)	3(21.43)	312(33.02)		
	4	30(29.13)	111(26.30)	135(33.25)	3(21.43)	279(29.52)		
	5	22(21.36)	63(14.93)	87(21.43)	2(14.29)	174(18.41)		
Total		103	422	406	14	945		

* $p<0.05$ ** $p<0.01$

Table 4.5 Age Differences in Psychological Adjustment Ability

Indicator	Options	Age Group(%)				Total	χ2	*p*
		8–22 years	23-35years	36–59 years	60 years and above			
Cultural and Sports Participation Ability	1	5(4.85)	28(6.64)	14(3.45)	0(0.00)	47(4.97)	15.894	0.196
	2	10(9.71)	29(6.87)	25(6.16)	2(14.29)	66(6.98)		
	3	25(24.27)	143(33.89)	126(31.03)	6(42.86)	300(31.75)		
	4	36(34.95)	104(24.64)	122(30.05)	2(14.29)	264(27.94)		
	5	27(26.21)	118(27.96)	119(29.31)	4(28.57)	268(28.36)		
Total		103	422	406	14	945		
Emotional Control Ability	1	8(7.77)	24(5.69)	14(3.45)	1(7.14)	47(4.97)	21.996	0.038*
	2	16(15.53)	24(5.69)	35(8.62)	3(21.43)	78(8.25)		
	3	27(26.21)	154(36.49)	132(32.51)	4(28.57)	317(33.54)		
	4	32(31.07)	135(31.99)	136(33.50)	5(35.71)	308(32.59)		
	5	20(19.42)	85(20.14)	89(21.92)	1(7.14)	195(20.63)		
Total		103	422	406	14	945		
Proactive Communication Ability	1	9(8.74)	26(6.16)	15(3.69)	2(14.29)	52(5.50)	25.351	0.013*
	2	11(10.68)	23(5.45)	31(7.64)	4(28.57)	69(7.30)		
	3	24(23.30)	126(29.86)	112(27.59)	5(35.71)	267(28.25)		
	4	31(30.10)	122(28.91)	133(32.76)	2(14.29)	288(30.48)		
	5	28(27.18)	125(29.62)	115(28.33)	1(7.14)	269(28.47)		
Total		103	422	406	14	945		

* $p<0.05$ ** $p<0.01$

Table 4.6 Age Differences in Psychological Adjustment Ability

Indicator	Options	Age Group(%)				Total	χ2	*p*
		8–22 years	23-35years	36–59 years	60 years and above			
Cultural and Sports Participation Ability	1	5(4.85)	28(6.64)	14(3.45)	0(0.00)	47(4.97)	15.894	0.196
	2	10(9.71)	29(6.87)	25(6.16)	2(14.29)	66(6.98)		
	3	25(24.27)	143(33.89)	126(31.03)	6(42.86)	300(31.75)		
	4	36(34.95)	104(24.64)	122(30.05)	2(14.29)	264(27.94)		
	5	27(26.21)	118(27.96)	119(29.31)	4(28.57)	268(28.36)		
Total		103	422	406	14	945		
Emotional Control Ability	1	8(7.77)	24(5.69)	14(3.45)	1(7.14)	47(4.97)	21.996	0.038*
	2	16(15.53)	24(5.69)	35(8.62)	3(21.43)	78(8.25)		
	3	27(26.21)	154(36.49)	132(32.51)	4(28.57)	317(33.54)		
	4	32(31.07)	135(31.99)	136(33.50)	5(35.71)	308(32.59)		
	5	20(19.42)	85(20.14)	89(21.92)	1(7.14)	195(20.63)		
Total		103	422	406	14	945		
Proactive Communication Ability	1	9(8.74)	26(6.16)	15(3.69)	2(14.29)	52(5.50)	25.351	0.013*
	2	11(10.68)	23(5.45)	31(7.64)	4(28.57)	69(7.30)		
	3	24(23.30)	126(29.86)	112(27.59)	5(35.71)	267(28.25)		
	4	31(30.10)	122(28.91)	133(32.76)	2(14.29)	288(30.48)		
	5	28(27.18)	125(29.62)	115(28.33)	1(7.14)	269(28.47)		
Total		103	422	406	14	945		

* $p<0.05$ ** $p<0.01$

Table 4.7 Differences in General Capability Based on Educational Attainment

Indicator	Options	Educational Attainment(%)					Total	χ2	*p*
		No formal Education	Primary School	Middle School	High School	University School			
Wealth Confidence	1	6(12.00)	24(8.60)	35(7.14)	5(6.49)	0(0.00)	70(7.41)	33.827	0.006**
	2	7(14.00)	30(10.75)	31(6.33)	3(3.90)	2(4.08)	73(7.72)		
	3	14(28.00)	81(29.03)	141(28.78)	12(15.58)	10(20.41)	258(27.30)		
	4	11(22.00)	59(21.15)	115(23.47)	30(38.96)	17(34.69)	232(24.55)		
	5	12(24.00)	85(30.47)	168(34.29)	27(35.06)	20(40.82)	312(33.02)		
Total		50	279	490	77	49	945		
Ecological Outlook	1	3(6.00)	15(5.38)	31(6.33)	4(5.19)	0(0.00)	53(5.61)	30.283	0.017*
	2	3(6.00)	20(7.17)	21(4.29)	1(1.30)	0(0.00)	45(4.76)		
	3	11(22.00)	59(21.15)	81(16.53)	5(6.49)	10(20.41)	166(17.57)		
	4	18(36.00)	77(27.60)	126(25.71)	23(29.87)	14(28.57)	258(27.30)		
	5	15(30.00)	108(38.71)	231(47.14)	44(57.14)	25(51.02)	423(44.76)		
Total		50	279	490	77	49	945		
Safety Awareness	1	4(8.00)	14(5.02)	31(6.33)	2(2.60)	0(0.00)	51(5.40)	34.575	0.005**
	2	5(10.00)	20(7.17)	25(5.10)	2(2.60)	1(2.04)	53(5.61)		
	3	16(32.00)	64(22.94)	86(17.55)	8(10.39)	6(12.24)	180(19.05)		
	4	8(16.00)	82(29.39)	138(28.16)	21(27.27)	17(34.69)	266(28.15)		
	5	17(34.00)	99(35.48)	210(42.86)	44(57.14)	25(51.02)	395(41.80)		
Total		50	279	490	77	49	945		
Learning Capability	1	9(18.00)	26(9.32)	35(7.14)	3(3.90)	0(0.00)	73(7.72)	121.257	0.000**
	2	13(26.00)	64(22.94)	51(10.41)	3(3.90)	1(2.04)	132(13.97)		
	3	12(24.00)	99(35.48)	162(33.06)	10(12.99)	5(10.20)	288(30.48)		
	4	8(16.00)	53(19.00)	142(28.98)	35(45.45)	20(40.82)	258(27.30)		
	5	8(16.00)	37(13.26)	100(20.41)	26(33.77)	23(46.94)	194(20.53)		
Total		50	279	490	77	49	945		

* $p<0.05$ ** $p<0.01$

Table 4.8 Differences in Production Capability Based on Educational Attainment

Indicator	Options	Educational Attainment(%)					Total	χ2	*p*
		No Formal Education	Primary School	Middle School	High School	University School			
Agricultural Enhancement Capability	1	12(24.00)	64(22.94)	115(23.47)	17(22.08)	7(14.29)	215(22.75)	18.275	0.308
	2	16(32.00)	65(23.30)	104(21.22)	10(12.99)	13(26.53)	208(22.01)		
	3	9(18.00)	94(33.69)	167(34.08)	27(35.06)	14(28.57)	311(32.91)		
	4	9(18.00)	41(14.70)	77(15.71)	19(24.68)	10(20.41)	156(16.51)		
	5	4(8.00)	15(5.38)	27(5.51)	4(5.19)	5(10.20)	55(5.82)		
Total		50	279	490	77	49	945		
Factory Work Capability	1	13(26.00)	44(15.77)	99(20.20)	12(15.58)	6(12.24)	174(18.41)	21.743	0.152
	2	13(26.00)	59(21.15)	77(15.71)	8(10.39)	7(14.29)	164(17.35)		
	3	11(22.00)	90(32.26)	146(29.80)	24(31.17)	18(36.73)	289(30.58)		
	4	9(18.00)	49(17.56)	110(22.45)	24(31.17)	11(22.45)	203(21.48)		
	5	4(8.00)	37(13.26)	58(11.84)	9(11.69)	7(14.29)	115(12.17)		
Total		50	279	490	77	49	945		
Service Work Capability	1	9(18.00)	70(25.09)	103(21.02)	9(11.69)	5(10.20)	196(20.74)	33.36	0.007**
	2	16(32.00)	48(17.20)	89(18.16)	9(11.69)	6(12.24)	168(17.78)		
	3	17(34.00)	86(30.82)	157(32.04)	23(29.87)	19(38.78)	302(31.96)		

	4	4(8.00)	48(17.20)	95(19.39)	27(35.06)	12(24.49)	186(19.68)		
	5	4(8.00)	27(9.68)	46(9.39)	9(11.69)	7(14.29)	93(9.84)		
Total		50	279	490	77	49	945		
Entrepreneurial Capability	1	17(34.00)	89(31.90)	130(26.53)	16(20.78)	5(10.20)	257(27.20)	41.14	0.001**
	2	14(28.00)	60(21.51)	94(19.18)	4(5.19)	8(16.33)	180(19.05)		
	3	7(14.00)	76(27.24)	137(27.96)	30(38.96)	18(36.73)	268(28.36)		
	4	8(16.00)	27(9.68)	82(16.73)	17(22.08)	12(24.49)	146(15.45)		
	5	4(8.00)	27(9.68)	47(9.59)	10(12.99)	6(12.24)	94(9.95)		
Total		50	279	490	77	49	945		

* $p<0.05$ ** $p<0.01$

Table 9 Differences in Household Management Capabilities Based on Educational Attainment

Indicator	Options	Educational Attainment(%)					Total	χ^2	p
		No Formal Education	Primary School	Middle School	High School	University School			
Economic Planning Capability	1	5(10.00)	20(7.17)	45(9.18)	4(5.19)	2(4.08)	76(8.04)	19.101	0.263
	2	6(12.00)	40(14.34)	39(7.96)	5(6.49)	6(12.24)	96(10.16)		
	3	13(26.00)	81(29.03)	169(34.49)	27(35.06)	18(36.73)	308(32.59)		
	4	14(28.00)	74(26.52)	146(29.80)	24(31.17)	10(20.41)	268(28.36)		
	5	12(24.00)	64(22.94)	91(18.57)	17(22.08)	13(26.53)	197(20.85)		
Total		50	279	490	77	49	945		
Health Management Capability	1	4(8.00)	18(6.45)	26(5.31)	3(3.90)	0(0.00)	51(5.40)	17.403	0.36
	2	3(6.00)	21(7.53)	36(7.35)	2(2.60)	6(12.24)	68(7.20)		
	3	10(20.00)	78(27.96)	144(29.39)	19(24.68)	18(36.73)	269(28.47)		
	4	17(34.00)	73(26.16)	144(29.39)	31(40.26)	14(28.57)	279(29.52)		
	5	16(32.00)	89(31.90)	140(28.57)	22(28.57)	11(22.45)	278(29.42)		
Total		50	279	490	77	49	945		
Family Relationship Management Capability	1	3(6.00)	18(6.45)	29(5.92)	4(5.19)	1(2.04)	55(5.82)	31.715	0.011*
	2	6(12.00)	32(11.47)	18(3.67)	2(2.60)	6(12.24)	64(6.77)		
	3	14(28.00)	81(29.03)	153(31.22)	22(28.57)	21(42.86)	291(30.79)		
	4	15(30.00)	76(27.24)	165(33.67)	26(33.77)	10(20.41)	292(30.90)		
	5	12(24.00)	72(25.81)	125(25.51)	23(29.87)	11(22.45)	243(25.71)		
Total		50	279	490	77	49	945		
Child Education Capability	1	5(10.00)	32(11.47)	34(6.94)	3(3.90)	3(6.12)	77(8.15)	19.1	0.264
	2	7(14.00)	31(11.11)	57(11.63)	2(2.60)	6(12.24)	103(10.90)		
	3	16(32.00)	89(31.90)	166(33.88)	23(29.87)	18(36.73)	312(33.02)		
	4	12(24.00)	77(27.60)	146(29.80)	32(41.56)	12(24.49)	279(29.52)		
	5	10(20.00)	50(17.92)	87(17.76)	17(22.08)	10(20.41)	174(18.41)		
Total		50	279	490	77	49	945		

* $p<0.05$ ** $p<0.01$

Table 10 Differences in Household Management Capabilities Based on Educational Attainment

Indicator	Options	Educational Attainment(%)					Total	χ^2	p
		No Formal Education	Primary School	Middle School	High School	University School			
Economic Planning Capability	1	5(10.00)	20(7.17)	45(9.18)	4(5.19)	2(4.08)	76(8.04)	19.101	0.263
	2	6(12.00)	40(14.34)	39(7.96)	5(6.49)	6(12.24)	96(10.16)		
	3	13(26.00)	81(29.03)	169(34.49)	27(35.06)	18(36.73)	308(32.59)		
	4	14(28.00)	74(26.52)	146(29.80)	24(31.17)	10(20.41)	268(28.36)		
	5	12(24.00)	64(22.94)	91(18.57)	17(22.08)	13(26.53)	197(20.85)		
Total		50	279	490	77	49	945		

Health Management Capability	1	4(8.00)	18(6.45)	26(5.31)	3(3.90)	0(0.00)	51(5.40)	17.403	0.36
	2	3(6.00)	21(7.53)	36(7.35)	2(2.60)	6(12.24)	68(7.20)		
	3	10(20.00)	78(27.96)	144(29.39)	19(24.68)	18(36.73)	269(28.47)		
	4	17(34.00)	73(26.16)	144(29.39)	31(40.26)	14(28.57)	279(29.52)		
	5	16(32.00)	89(31.90)	140(28.57)	22(28.57)	11(22.45)	278(29.42)		
Total		50	279	490	77	49	945		
Family Relationship Management Capability	1	3(6.00)	18(6.45)	29(5.92)	4(5.19)	1(2.04)	55(5.82)	31.715	0.011*
	2	6(12.00)	32(11.47)	18(3.67)	2(2.60)	6(12.24)	64(6.77)		
	3	14(28.00)	81(29.03)	153(31.22)	22(28.57)	21(42.86)	291(30.79)		
	4	15(30.00)	76(27.24)	165(33.67)	26(33.77)	10(20.41)	292(30.90)		
	5	12(24.00)	72(25.81)	125(25.51)	23(29.87)	11(22.45)	243(25.71)		
Total		50	279	490	77	49	945		
Child Education Capability	1	5(10.00)	32(11.47)	34(6.94)	3(3.90)	3(6.12)	77(8.15)	19.1	0.264
	2	7(14.00)	31(11.11)	57(11.63)	2(2.60)	6(12.24)	103(10.90)		
	3	16(32.00)	89(31.90)	166(33.88)	23(29.87)	18(36.73)	312(33.02)		
	4	12(24.00)	77(27.60)	146(29.80)	32(41.56)	12(24.49)	279(29.52)		
	5	10(20.00)	50(17.92)	87(17.76)	17(22.08)	10(20.41)	174(18.41)		
Total		50	279	490	77	49	945		

* $p<0.05$ ** $p<0.01$

Table 11 Differences in Psychological Adjustment Capability by Educational Attainment

Indicator	Options	Educational Attainment(%)					Total	$\chi2$	p
		No Formal Education	Primary School	Middle School	High School	University School			
Participation in Cultural and Sports Activities	1	2(3.23)	47(9.61)	34(4.10)	7(4.83)	2(2.35)	92(5.71)	36.971	0.002**
	2	7(11.29)	41(8.38)	57(6.88)	5(3.45)	6(7.06)	116(7.20)		
	3	18(29.03)	146(29.86)	264(31.85)	37(25.52)	27(31.76)	492(30.56)		
	4	13(20.97)	122(24.95)	245(29.55)	50(34.48)	31(36.47)	461(28.63)		
	5	22(35.48)	133(27.20)	229(27.62)	46(31.72)	19(22.35)	449(27.89)		
Total		62	489	829	145	85	1610		
Emotional Regulation Capability	1	2(3.23)	43(8.79)	32(3.86)	10(6.90)	2(2.35)	89(5.53)	57.44	0.000**
	2	15(24.19)	41(8.38)	57(6.88)	5(3.45)	5(5.88)	123(7.64)		
	3	17(27.42)	159(32.52)	285(34.38)	37(25.52)	30(35.29)	528(32.80)		
	4	16(25.81)	132(26.99)	272(32.81)	61(42.07)	31(36.47)	512(31.80)		
	5	12(19.35)	114(23.31)	183(22.07)	32(22.07)	17(20.00)	358(22.24)		
Total		62	489	829	145	85	1610		
Proactive Communication Capability	1	3(4.84)	39(7.98)	38(4.58)	7(4.83)	1(1.18)	88(5.47)	41.818	0.000**
	2	11(17.74)	41(8.38)	63(7.60)	4(2.76)	5(5.88)	124(7.70)		
	3	15(24.19)	134(27.40)	227(27.38)	28(19.31)	28(32.94)	432(26.83)		
	4	18(29.03)	136(27.81)	259(31.24)	62(42.76)	35(41.18)	510(31.68)		
	5	15(24.19)	139(28.43)	242(29.19)	44(30.34)	16(18.82)	456(28.32)		
Total		62	489	829	145	85	1610		

* $p<0.05$ ** $p<0.01$

Table 12 Differences in Community Integration Capability by Educational Attainment

Indicator	Options	Educational Attainment(%)					Total	$\chi2$	p
		No Formal Education	Primary School	Middle School	High School	University School			
Public Order Maintenance Capability	1	2(4.00)	18(6.45)	25(5.10)	3(3.90)	0(0.00)	48(5.08)	25.487	0.062
	2	5(10.00)	29(10.39)	29(5.92)	3(3.90)	3(6.12)	69(7.30)		

	3	14(28.00)	69(24.73)	113(23.06)	9(11.69)	13(26.53)	218(23.07)		
	4	13(26.00)	64(22.94)	126(25.71)	18(23.38)	10(20.41)	231(24.44)		
	5	16(32.00)	99(35.48)	197(40.20)	44(57.14)	23(46.94)	379(40.11)		
Total		50	279	490	77	49	945		
Folk Custom Socialization Capability	1	6(12.00)	29(10.39)	32(6.53)	3(3.90)	0(0.00)	70(7.41)	32.678	0.008**
	2	7(14.00)	37(13.26)	54(11.02)	5(6.49)	3(6.12)	106(11.22)		
	3	16(32.00)	81(29.03)	129(26.33)	11(14.29)	13(26.53)	250(26.46)		
	4	10(20.00)	63(22.58)	129(26.33)	24(31.17)	16(32.65)	242(25.61)		
	5	11(22.00)	69(24.73)	146(29.80)	34(44.16)	17(34.69)	277(29.31)		
Total		50	279	490	77	49	945		
Participatory Decision-Making Capability	1	2(4.00)	16(5.73)	22(4.49)	2(2.60)	0(0.00)	42(4.44)	20.309	0.207
	2	3(6.00)	24(8.60)	36(7.35)	4(5.19)	3(6.12)	70(7.41)		
	3	16(32.00)	52(18.64)	97(19.80)	8(10.39)	14(28.57)	187(19.79)		
	4	13(26.00)	76(27.24)	125(25.51)	20(25.97)	10(20.41)	244(25.82)		
	5	16(32.00)	111(39.78)	210(42.86)	43(55.84)	22(44.90)	402(42.54)		
Total		50	279	490	77	49	945		

* $p<0.05$ ** $p<0.01$

The analysis results confirm that female ecological migrants in Guizhou Province generally exhibit weak endogenous capacity, particularly among older and less-educated groups. While indicators such as ecological outlook and health management show moderate to high scores, dimensions like learning capability, vocational and entrepreneurial skills, and participation in community affairs remain relatively low. These limitations reflect the constraints posed by inadequate education, limited training, and insufficient access to social resources.

Furthermore, the data reveal a clear positive relationship between educational attainment and various capacities. Women with higher levels of education consistently demonstrate stronger skills in production, psychological resilience, and social integration. These findings underscore the critical role of education in fostering self-development and suggest that expanding access to education and training is essential to enhancing the overall capacity of female ecological migrants.

The findings reveal that female ecological migrants in Guizhou Province possess only partial endogenous capacity. While their awareness of ecological and safety issues is relatively strong—likely due to governmental and NGO-driven education—their vocational skills, learning adaptability, and psychological resilience remain limited. These deficiencies, particularly in production and community participation, are rooted in structural constraints, including limited education, a lack of training opportunities, and weak social engagement mechanisms.

Moreover, challenges in community integration persist, with difficulties in cultural adaptation, minimal public participation, and weakened social networks, especially evident among older and less educated women. Education is a key factor in enhancing capacity, aligning with Human Capital and Lifelong Learning theories. However, the study cautions that education alone is insufficient without corresponding employment pathways and inclusive social structures. Overall, the research refines Capability Deprivation Theory by showing that resettlement efforts must move beyond material support toward holistic, gender-sensitive capacity development.

CONCLUSION

The study reveals that female ecological migrants in Guizhou Province continue to face significant limitations in their endogenous capacity, shaped by structural inequities and contextual barriers associated with migration and resettlement. While improvements in living standards are evident, these have not been matched by corresponding gains in capacity development, particularly in areas such as production skills, household management, psychological adjustment, and community participation. The research underscores the urgent need to reorient resettlement policies toward comprehensive capacity-building strategies that integrate education, employment, and social participation. Enhancing the sustainable livelihoods of this group will require coordinated efforts across government, community, and civil society to foster equitable access to education, promote flexible employment opportunities, and cultivate inclusive community structures. Future research could extend this inquiry through longitudinal studies that examine the long-term impact of targeted capacity-enhancement programs on the well-being and development of female ecological migrants.

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