

Decentralized Agricultural Extension System and Job Satisfaction among Extension Agents of Nepal

Manita Thapa, The Ohio State University

Annie R. Specht, The Ohio State University,

Binod Ghimire, Ministry of Agriculture, Land Management and Cooperatives, Nepal

Sagar Ghimire, Ministry of Agriculture and Livestock Development, Nepal

Job satisfaction refers to the collection of feelings people have about their jobs. Understanding job satisfaction status and factors that drive such is important because it has an impact on organizational efficiency and productivity. Grounded on Organizational Support Theory (OST), this study explored the status and drivers of job satisfaction among extension agents in Nepal. Convenience and snowball sampling methods were used to select 210 agents, of which 31.90% were working at the federal, 34.29% at the provincial, and 33.81% at the local tier. Multinomial regression was used to assess the factors driving job satisfaction. A factorial ANOVA was then used to assess whether the effect of organizational support on satisfaction varies across three government tiers. Results showed that higher organizational support significantly decreased the chance of medium and low job satisfaction compared to the high, indicating that a better work environment enhances job satisfaction. The interaction between organizational support and the government tier was significant. Pairwise comparisons revealed that higher support raised satisfaction significantly only at the provincial level, but no significant differences were found in the federal or local tiers. The finding demonstrated the need for support mechanisms to enhance agents' morale in the delivery of extension services, particularly where agents are generally equipped with limited resources. The results support the main contention of OST that perceived organizational support enhances job satisfaction, while structural and systemic barriers hinder service effectiveness, necessitating targeted reforms recommended through the strategic framework.

Keywords: Decentralized Extension, Job Satisfaction, Multinomial Regression, Organizational Support

Introduction

Over the past two decades, many developing countries have restructured their governance systems through federalization and administrative decentralization. This restructuring is viewed as a strategy to bring decision-making closer to citizens, increase accountability for service delivery, and improve responsiveness to local needs (Kyambo, 2023; Lameck, 2017; Mphepo & Urassa, 2023). In South Asia and Sub-Saharan Africa, federalization has influenced agricultural extension systems through redistribution of resources and responsibilities across central, regional, and local governments. In some countries, national-level policies have established a decentralized agricultural extension system in which public, private, and civil-society actors provide collective services through district- and community-level structures (Kyambo, 2023; Mphepo & Urassa, 2023). For instance, devolution under the 2010 Constitution of Kenya transferred primary responsibility for extension to county governments. Studies have linked this provision to higher agricultural productivity and increased farm incomes, but have also documented challenges such as delayed salaries, weak coordination between county and national functions, and unclear terms of service and promotion (Kyambo, 2023; Ogola et al., 2023).

Nepal has transitioned to a federalized governance structure with three tiers of government: federal, seven provinces, and 753 local units, as outlined by the nation's 2015 constitution. The agricultural sector is under the concurrent responsibility of all three tiers, with extension services being the exclusive jurisdiction of the local government (Burlakoti & Nettle, 2024; Thapa et al., 2025a). This decentralized extension system presented both opportunities and challenges in the agricultural extension service delivery system in Nepal (Dahal et al., 2020). The opportunities foreseen were the diffusion of power, increased citizen participation, enhanced service coverage, and efficiency of government functionalities (Dahal et al., 2020). However, after nearly a decade of this provision, some of the consequences have already become apparent, including inconsistent policy environments, insufficient resources for service delivery, poor coordination, and duplication of programs across tiers (Dahal et al., 2020; Thapa et al., 2025a; Thapa et al., 2025b; Timsina et al., 2018).

Studies have shown that decentralization is not only associated with greater service proximity to communities but also with differences in institutional capacities and funding arrangements across government tiers (Khan, 2021; Lameck, 2017). For instance, a study in Khyber Pakhtunkhwa province, Pakistan, found that, a decade after devolution, some districts experienced substantial improvements in wellbeing outcomes, whereas others suffered from weak central-local relations, political polarization, and rigid bureaucratic procedures limiting the expected gains (Khan, 2021). In Nepal, local extension units continue to struggle due to limited administrative capacity, inadequate funding, and a lack of experienced and trained agents (Timsina et al., 2023). The farmers lack access to timely and credible agricultural information. This is also evidenced by the fact that extension services in Nepal cover only 25% of farm households (Ghimire et al., 2021; Thapa et al., 2025a), and just 10% of research-based information and resources reach them (Timsina et al., 2023).

Extension agents are the intermediaries who facilitate the transfer of agricultural knowledge and innovations from research institutions to the public (Pun et al., 2023; Thapa et al., 2025a). The restructuring of the administrative frameworks not only had effects at the organizational level but also affected the extension agents' efficiency. During the initial deployment into the new federalized structure, extension agents were hesitant to be installed at the provincial and local tiers because of uncertainty over professional and personal development

opportunities and roles (Tamang et al., 2020). Despite this, the standard prescribed by the government required their placement across three tiers, with forced deployment to the majority. In general, agents at provincial and local levels are meant to perform their duties with limited resources and institutional backstopping. The absence of institutional support, coupled with poor infrastructure, resulted in dissatisfaction among agents (Chaudhary & Adhikari, 2021; Tamang et al., 2020). These systemic issues, including weak research-extension-education linkages, most likely render it challenging for agents to work in a good environment, leading to role ambiguity, increased workload, and reduced job satisfaction (Shrestha, 2023). Most importantly, extension agents working at local tiers experience a lack of clarity in their roles, coupled with uncertain career paths (e.g., no formal competency upgrades at the local level), leading to dissatisfaction and demotivation (Tamang et al., 2020).

Job satisfaction refers to the collection of feelings people have about their current jobs through evaluation of their characteristics (George & Jones, 2008; Robbins & Judge, 2009). Studies of the decentralized extension system have frequently reported that extension agents are dissatisfied with their current job. For instance, Chaudhary and Adhikari (2021) conducted a satisfaction survey in Arghakhanchi district and found significant dissatisfaction among government employees due to the transition of Nepal's federal structure, particularly regarding organizational structure, transfer mechanisms, and salary increments. Similarly, Pun et al. (2023) examined job satisfaction status among officer-level agents and found dissatisfaction with capacity building and promotion opportunities. These findings present the need for understanding how this transition has impacted the efficiency of extension agents and, by extension, the quality of service provided to farmers. Even after almost a decade of such a system, there is not any study intended to understand what drives the job satisfaction of extension agents in federalized structures (Chaudhary & Adhikari, 2021; Pun et al., 2023).

This study examines the factors driving job satisfaction among extension agents of Nepal. Understanding the status of job satisfaction and factors that drive such is important because it has an impact on efficiency, productivity, absenteeism in the workplace, and commitment to organizational goals (Kassa 2016; Okwoche et al., 2015). This study holds significance because job satisfaction for extension agents cannot be overstated, as it directly impacts their performance, retention, and the success of agricultural development programs and extension (Chaudhary & Adhikari, 2021; Pun et al., 2023).

This study makes the following contributions. First, it provides national-level empirical evidence of extension agents' job satisfaction in a newly decentralized developing country, drawing on data from agents working at the federal, provincial, and local tiers. This presents a broader perspective of agents' experiences under Nepal's decentralized system than has been available in earlier studies. The findings from the study will inform actionable strategies and required interventions to improve extension agents' well-being in Nepal's context. Second, the study applies Organizational Support Theory to a federalized extension setting to connect job satisfaction with perceived organizational support and selected contextual factors and interpret these relationships. Third, by reporting how those relationships differ across the three tiers of government, the study provides evidence that can guide institutional restructuring and inform wider discussions about how federalization affects the working conditions and satisfaction of extension agents in countries with comparable governance systems.

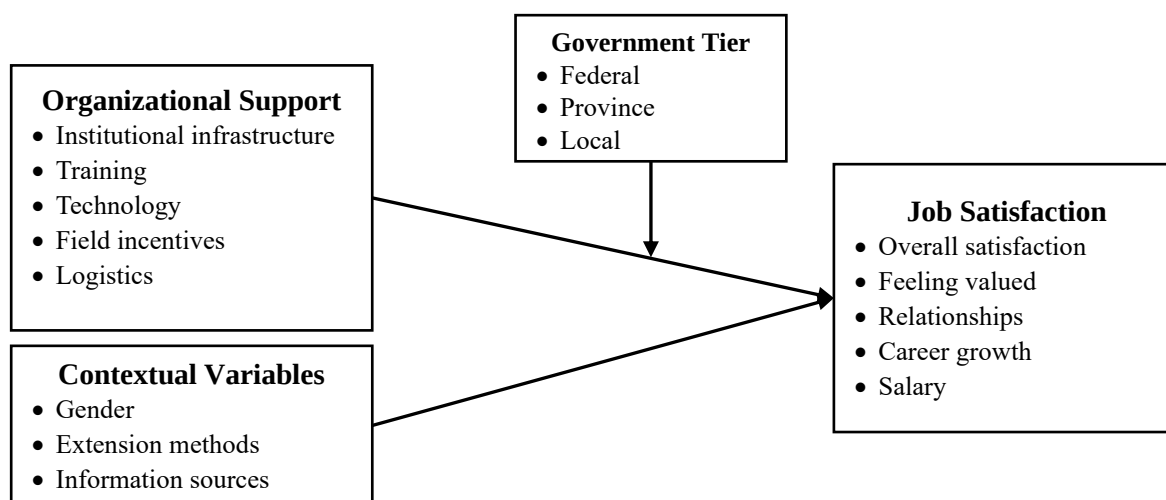
Theoretical Framework

Organizational Support Theory (OST) guided this study. OST posits that employees' perceptions of the support they receive from the organization influence their attitudes and behaviors (Eisenberger et al., 1986). In this theory, organizational support is conceptualized as the resources and assistance employees receive ranging from tangible (e.g., infrastructure, training) to intangible support (e.g., recognition and career opportunities). Perceived organized support stems from employees' interactions with organizational members (e.g., supervisors, coagents) and is influenced by factors such as fair treatment, value congruence, developmental opportunities, and job autonomy (Baran et al., 2012; Kurtessis et al., 2017). When an organization meets employees' socio-emotional needs and rewards work-related efforts, they feel valued and are more likely to experience satisfaction (Baran et al., 2012; Eisenberger et al., 1986; Kurtessis et al., 2017; Rhoades & Eisenberger, 2002). In this view, job satisfaction is a key attitudinal outcome achieved through organizational support.

In the context of agricultural extension, opportunities for training, technological support, institutional infrastructure, incentives, and logistical provisions are the elements of organizational support that are expected to improve satisfaction. Satisfaction further determines efficiency of extension agents. For instance, job satisfaction has positive and significant effect on the performance of agents, whereas low salaries, delayed payments, poor work environments, and lack of promotions are associated with dissatisfaction (Humaidi et al., 2024; Kassa, 2016). Evidence from decentralized bureaucracies in developing countries such as Ethiopia, Tanzania, Malawi, and Pakistan shows that decentralization provisions do not always meet employees' need because of capacity gaps, resource constraints, and weak intergovernmental coordination (Kassa, 2016; Khan, 2021; Lameck, 2017; Mphepo & Urassa, 2023). In Nepal, extension agents working at different tiers and in different work contexts may perceive a certain level of support, but their ability to use that support can be influenced by structural environments such as unclear roles or weak coordination between levels of government. This study uses OST to examine whether higher perceived organizational support is associated with higher job satisfaction and assess how this relationship varies across the three government tiers and other contextual factors. Figure 1 presents the hypothesized relationship between the variables selected for this study.

Figure 1

Conceptual Model Linking Organizational Support and Contextual Factors to Job Satisfaction



This study applies OST to three-tier governance contexts and provides empirical evidence for how the perceived organizational support-satisfaction relationship functions in a newly decentralized public setting. In Figure 1, the *organizational support* variable was directly borrowed from OST. Since OST also acknowledges that contextual and individual factors can determine how support is perceived and translates into *job satisfaction* (Kurtessis et al., 2017), other variables including *government tier*, *gender*, *extension method diversity*, and *information sources* were selected. *Government tier* is a key factor during transition, as Nepal shifted to federalism with three tiers, each with different capacities, policies, and resources for delivering extension services (Bhattarai, 2020; Timsina et al., 2023). These structural differences can influence the level of support available to extension agents and, consequently, to their *job satisfaction* (Chaudhary & Adhikari, 2021).

Job satisfaction, as a psychological state, is experienced differently by men and women (Mascarenhas et al., 2022). In Nepal, female extension agents generally face challenges such as limited mobility due to family and societal responsibilities and gender-based biases including being less likely to be selected for training or considered for leadership roles, which can lead to different experience compared to their male colleagues (Mahat, 2023; Poudel, 2019). This differential experience in *organizational support* and *job satisfaction* is captured with the inclusion of *gender* variable in the study (Sloane & Williams, 2000).

Extension methods used is another variable of concern in this study because different agents may utilize a variety of extension approaches such as farm visits, office consultations, phone calls, social media platforms, etc. This variation in the use of these approaches can depend on geographic coverage, resources, and organizational priorities (van den Ban & Hawkins, 1996). Prior research has explored the effectiveness of different extension delivery methods such as social networks, farmer field schools, and digital tools on performance and participation (Davis & Heemskerk, 2012; Meinzen-Dick et al., 2012); what is unknown is whether extension agents have flexibility in using those approaches and thus use multiple approaches and how those affect their *job satisfaction*. Some studies suggest that combining methods is more effective than using one alone (Nettle et al., 2022). Agents who employ multiple methods may experience a greater sense of fulfillment due to diverse engagement strategies, or they may feel overburdened if these tasks are not adequately supported (Davis, 2008).

Lastly, *information sources* relate to whether agents receive timely and relevant information about policy, programs, and procedures from upper-level or parent organizations. This is important for effective program implementation across all tiers as inconsistent access to official information can create role ambiguity and reduce satisfaction. Fischer and Döring (2022) further highlighted this need by concluding that sharing job-related information that is reliable, formal, and authentic can improve performance and satisfaction of the employee.

Purpose and Research Questions

The purpose of this study was to examine the effects of perceived organizational support and selected contextual factors on job satisfaction among extension agents working in all three tiers of government in Nepal. Specifically, the study addressed following research questions:

- RQ₁: What factors drive job satisfaction among extension agents?
- RQ₂: How does the relationship between perceived organizational support and job satisfaction vary across three government tiers?

Methods

Survey Design, Instrumentation, and Sample

This study employed a cross-sectional survey design. The survey instruments were developed to collect information on agents' demographics, organizational support, job satisfaction, and other structural and service-related data. The draft questionnaire was reviewed for content validity by three agricultural extension experts in Nepal: a faculty member in agricultural extension at an agricultural university, an extension specialist at the Ministry of Agriculture, and an extension officer working at municipality. The instrument was further refined based on the feedback provided. The survey was conducted in a single wave through Google Forms in both English and Nepali languages. Study approval was granted by the Institutional Review Board of The Ohio State University.

Extension agents working in Nepal were sampled through a combination of convenience and snowball sampling methods (Goodman, 1961; Noy, 2008). Initially, a sample size of 196 was targeted to achieve statistical power in the analysis (Cochran, 1977). Authors used their professional networks, reaching out to known contacts to administer surveys and collect information through direct contact, phone calls, and platforms such as email and social media (e.g., WhatsApp, Messenger). Those initial contacts were then asked to pass the survey on to other extension agents through a snowball effect to build the sample (Biernacki & Waldorf, 1981). Given the non-probability sampling approach and reliance on pre-existing networks and online access, we acknowledge the potential for selection bias (Heckathorn, 2011). Nevertheless, the sample includes agents working in all three government tiers under the federal system.

The researchers continuously reviewed the distribution of responses to achieve a balanced representation across three government tiers. Additional attempts were made to underrepresented tiers as needed. However, no formal quotas were set. Ultimately, a total of 210 usable responses was achieved. Of the total sampled extension agents, 31.90% ($n = 67$) were working at the federal, 34.29% ($n = 72$) at the provincial, and 33.81% ($n = 71$) at the local tier. A majority of the participants were male (69.52%, $n = 146$) and worked in urban areas (76.19%, $n = 160$). The participants' experience ranged from 1 to 34 years ($M = 7.62$, $SD = 6.56$).

Measures

Job satisfaction, the dependent variable for both research questions, was measured by using 5 items where participants reported their perceived satisfaction with their current job (e.g., “I am satisfied with the opportunities for career growth”) on a 5-point Likert scale (1 = highly unsatisfied, 5 = highly satisfied; Cronbach's $\alpha = .93$). For RQ1, *job satisfaction* scores were categorized as low (< 3), medium ($= 3$), and high satisfaction (> 3), following the symmetrical collapsing strategy¹ (Tsai et al., 2025). In this strategy, response options below the midpoint are

¹ Methodological discussions of Likert-type scales note that researchers collapse multiple response options into two or three groups to simplify interpretation and to reduce the number of categories with very few observations, which can be problematic for models such as logistic regression (Koo & Yang, 2025). One common approach is symmetrical collapsing strategy, where scales below the midpoint are grouped into a “low” category, the midpoint as “medium,” and options above the midpoint as “high” category. Simulation work by Tsai et al. (2025) illustrated that collapsing adjacent rating-scale categories can be appropriate when done systematically and when the goal is to distinguish broad levels rather than to model fine distinctions between every adjacent scale point. In this study, job satisfaction and organizational support were measured using Likert-type scales and re-coded into three categories (low, medium, high) following symmetrical collapsing method.

grouped as “low,” the midpoint is retained as “medium,” and options above the midpoint are grouped as “high” (Tsai et al., 2025). The purpose of categorization is to reduce the number of categories from five to three and simplify interpretation when using multinomial logistic regression, which requires a categorical dependent variable with mutually exclusive and exhaustive categories (Edlinger et al., 2022). This type of reduction is consistent with common practice in analyzing Likert-type data, where researchers generally combine response options into few categories to make results easier to interpret and to avoid categories with very few respondents (Koo & Yang, 2025). This approach is common for logistic regression models where the goal is to understand the likelihood of being in one category (Koo & Yang, 2025).

For RQ₂, factorial ANOVA was used. Because Likert-type scales with five or more categories can be analyzed as continuous in parametric tests (Field, 2024; Norman, 2010), *job satisfaction* was treated as a continuous dependent variable ($M = 2.40$, $SD = 0.77$). Similarly, *organizational support* was also measured using 5 items where participants reported their perceived support from the organization (e.g., “*My organization supports in terms of infrastructure required*”) on a 5-point Likert scale (1 = very low support, 5 = very high support; Cronbach’s $\alpha = .92$). For RQ₁, *organizational support* was used as a continuous independent variable ($M = 2.07$, $SD = 0.71$). For RQ₂, as ANOVA requires a categorical independent variable, *organizational support* was categorized into three groups: low (< 2), medium ($= 2$), and high (> 2) support. This categorization also followed a symmetrical collapsing strategy based on the observed distribution of responses (ranging from 1-4 scale) (Koo & Yang, 2025; Tsai et al., 2025). Operationalization of the variables used in the study are presented in Table 1.

Table 1
Operationalization of the Variables

Variable	Type	Measurement description	Scale/Coding	Cronbach’s α
Job satisfaction	DV (RQ ₁ , RQ ₂)	5 items	5-point Likert scale (1 = highly unsatisfied, 5 = highly satisfied)	.93
Organizational support	IV (RQ ₁ , RQ ₂)	5 items	5-point Likert scale (1 = very low support, 5 = very high support)	.92
Government tier	IV (RQ ₂)	Administrative level at which extension agent works	Categorical (1 = Federal, 2 = Province, 3 = Local)	
Gender	IV (RQ ₁)	Self-reported gender	Binary (0 = Female, 1 = Male)	
Extension methods	IV (RQ ₁)	Number of extension methods used	Continuous (sum of number of methods used)	
Information source	IV (RQ ₁)	Source of information	Binary: 0 = no institutional information; 1 = yes	

Note: DV = Dependent Variable, IV = Independent Variable, RQ₁ = Research Question 1, RQ₂ = Research Question 2. Cronbach’s α value is reported for multi-item scales only.

Government tier, an independent variable for RQ₂, indicates the administrative tier at which the extension agents worked (1 = Federal, 2 = Provincial, 3 = Local). *Gender* is an independent variable for RQ₁ and coded as binary (0 = Female, 1 = Male). No other *gender* identities were reported in the study. *Extension methods*, an independent variable for RQ₁, was measured by the total number of extension methods used by the agent and selected from a list of seven methods in the questionnaire ($M = 4.09$, $SD = 1.49$): farm visit, office visit, phone call, social media, official websites, mobile applications, and agricultural software. These are commonly used in the current extension system in Nepal (Khanal et al., 2023; Thapa et al., 2025a). *Information source*, also an independent variable for RQ₁, is the agent's primary source of information on policies, technology, programs and procedures and was coded as binary (0 = does not receive information from upper-level/parental organization, 1 = receives information).

Descriptive statistics of the variables

Among total participants, 29.52% ($n = 62$) reported low *job satisfaction*, 45.24% ($n = 95$) medium, and 25.24% ($n = 53$) high. For the *organizational support* variable, 50.48% ($n = 106$) reported low, 27.14% ($n = 57$) medium, and 22.38% ($n = 47$) high support. Table 2 presents descriptive of the variables used in this study.

Table 2

Descriptive Statistics of the Variables Used in the Study (n = 210)

Variable	Category	Frequency (n)	Percentage (%)
Job satisfaction	Low	62	29.52
	Medium	95	45.24
	High	53	25.24
Organizational support	Low	106	50.48
	Medium	57	27.14
	High	47	22.38
Government tier	Federal	67	31.90
	Provincial	72	34.29
	Local	71	33.81
Gender	Female	64	30.48
	Male	146	69.52
Information source	No	175	83.33
	Yes	35	16.67

Data Analysis

For the analysis, variables were categorized and coded as presented in Table 1. Data analysis was conducted in R (version 4.4) using packages: *VGAM* for multinomial logistic regression, *aov()* for ANOVA, and *ggplot2* for visualizations (Liang et al., 2020). For RQ₁, a multinomial logistic regression model was used. The *vglm()* function from the *VGAM* package was used with the multinomial family, with *high job satisfaction* as the reference category. Although *job satisfaction* is an ordered categorical variable (low < medium < high), multinomial logistic regression was used in modeling predictors of each category without assuming proportionality (Edlinger et al., 2022; Liang et al., 2020). An ordinal logistic regression model was initially fitted using the *polr()* function from the *MASS* package, and the proportional odds assumption was tested using the *brant test* (Liang et al., 2020). The result of this test revealed a violation of the assumption ($\chi^2(4) = 12.31, p = .015$), indicating non-proportional effects across category thresholds, meaning effect of these predictors varies across the ordered categories of *job satisfaction*, which makes ordinal logistic regression less appropriate (Agresti, 2010).

Multicollinearity was examined using variance inflation factors (VIF), which were all close to 1 (range: 1-1.2), indicating no problematic collinearity among predictors (Fox & Weisberg, 2018). Linearity of continuous predictors in the log-odds was assessed using Box-Tidwell test. Non-significant interaction between each predictor and its log-transformed value supported linear relationship (Hosmer et al., 2013). Significance was evaluated at $p < .05$ by reporting *odds ratios* (ORs) and 95% confidence intervals (CIs). Model fit was assessed with Nagelkerke R^2 and a likelihood ratio test.

For RQ₂, a two-way factorial ANOVA (3 x 3) was used to assess the interaction effect of *government tier* and *organizational support* on *job satisfaction*, with significance at $p < .05$. Bar and line graphs were used to visualize the results using *ggplot2*. The significant effects were then followed by *Tukey HSD* post-hoc tests to examine pairwise differences across levels of organizational support within and across tiers (Stoll, 2017).

Results

RQ₁: Factors Driving Job Satisfaction among Extension Agents

A multinomial logistic regression was used to predict *job satisfaction* (low, medium, high) with high satisfaction as the reference category. The model explained a moderate amount of variance in job satisfaction (Nagelkerke pseudo- $R^2 = .32$, Cox and Snell pseudo- $R^2 = .26$, and McFadden pseudo- $R^2 = .18$) (Menard, 2000). The likelihood ratio test indicated that the model significantly improved fit over the null model ($\chi^2(8) = 63.55, p < .001$) (Table 3).

Table 3

Multinomial Logistic Regression Predicting Job Satisfaction

Predictor	Comparison	β	SE	p	OR	95% CI
Intercept	low vs. high	14.47	3.85	< .001	-	-
	medium vs. high	12.44	3.62	< .001	-	-
Organizational support	low vs. high	-4.60	1.28	< .001	0.01	[0.01, 0.13]
	medium vs. high	-3.27	1.27	.010	0.04	[0.01, 0.47]
Gender	low vs. high	1.83	0.97	.058	6.21	[0.94, 41.12]
	medium vs. high	2.25	0.94	.017	9.49	[1.51, 59.75]

Predictor	Comparison	β	SE	p	OR	95% CI
Extension methods	low vs. high	-0.45	0.32	.160	0.64	[0.34, 1.20]
	medium vs. high	-0.62	0.31	.048	0.54	[0.29, 0.99]
Information source	low vs. high	0.51	1.23	.680	1.67	[0.15, 18.62]
	medium vs. high	1.12	1.20	.350	3.06	[0.29, 32.14]

Note: OR = odds ratio, CI = Confidence Interval, SE = standard error.

Table 3 demonstrates that higher *organizational support* significantly decreased the odds of low ($OR = 0.01$, 95% $CI [0.01, 0.13]$) and medium job satisfaction ($OR = 0.04$, 95% $CI [0.01, 0.47]$) compared to the high. Males were more likely to report medium *job satisfaction* ($OR = 9.49$, 95% $CI [1.51, 59.75]$) compared to high. An increase in the number of extension methods decreased the odds of medium job satisfaction ($OR = 0.54$, 95% $CI [0.29, 0.99]$). The results suggest that agents who perceived medium or high organizational support were less likely to report dissatisfaction, suggesting that resource availability is a key determinant of morale.

RQ2: Effect of Organizational Support on Job Satisfaction Across Government Tiers

A 3×3 two-way ANOVA was conducted to examine the interaction effects of *organizational support* (low, medium, high) and government tier (federal, province, local) on *job satisfaction*. Result revealed that the interaction between *organizational support* and *government tier* was significant, $F(4, 201) = 2.43$, $p = .049$, $\eta^2_p = .046$ (Table 4).

Table 4

ANOVA Results for Job Satisfaction by Organizational Support and Government Tier

Source	df	SS	MS	F	p
Organizational support	2	18.66	9.33	18.84	< .001
Government tier	2	0.79	0.39	0.79	.453
Org. support * gov. tier	4	4.82	1.205	2.433	.049

Note. df: degree of freedom, F: F-statistic, SS: sum of squares, MS: mean square, p: significance

Follow-up pairwise comparisons showed that extension agents who reported medium or high organizational support had significantly higher job satisfaction than those with low support (medium vs. low: $MD = 0.59$, 95% $CI [0.32, 0.86]$, $p < .001$; high vs. low: $MD = 0.60$, 95% $CI [0.31, 0.89]$, $p < .001$). There was no significant difference in job satisfaction between agents with medium and high perceived support (Table 5).

Table 5

Pairwise Comparisons of Job Satisfaction by Organizational Support

Org. support	MD	95% CI	p
Medium vs. low	0.59	[0.32, 0.86]	< .001
High vs. low	0.60	[0.31, 0.89]	< .001
High vs. medium	0.01	[-0.32, 0.34]	.997

Note. MD: mean difference, SE: standard error, p: significance level

Pairwise comparisons (Table 6) resulted, at province level, higher support significantly increased job satisfaction (low vs. medium: $MD = -0.76$, $p < .001$; low vs. high: $MD = -1.09$, $p < .001$), but no significant differences were found in the federal or local tiers.

Table 6

Pairwise Comparisons of Job Satisfaction by Organizational Support within Government Tiers

Gov. tier	Org. support	<i>MD</i>	<i>SE</i>	<i>p</i>
Federal	Low vs. medium	-0.41	0.24	0.22
Federal	Low vs. high	-0.42	0.21	0.13
Federal	Medium vs. high	-0.01	0.21	1.00
Provincial	Low vs. medium	-0.76	0.18	<.001
Provincial	Low vs. high	-1.09	0.26	<.001
Provincial	Medium vs. high	-0.33	0.25	0.40
Local	Low vs. medium	-0.05	0.36	0.99
Local	Low vs. high	0.10	0.36	0.96
Local	Medium vs. high	0.15	0.50	0.95

Note. *MD*: mean difference, *SE*: standard error, *p*: significance level

Figure 2 below illustrates the mean *job satisfaction* across three government tiers. Federal agents reported highest *job satisfaction* and was lowest among local agents. However, the differences between tiers were small.

Figure 2

Job Satisfaction Across Government Tiers

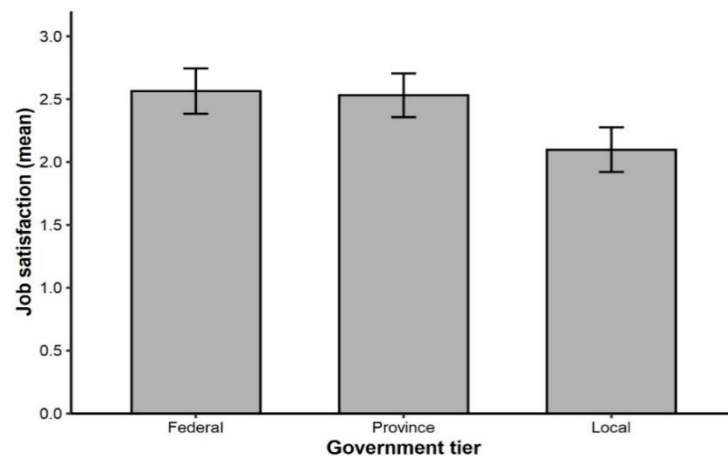


Figure 3 below shows the mean *job satisfaction* by level of perceived *organizational support*. Agents who reported low *organizational support* have the lowest mean *job satisfaction*. *Job satisfaction* was higher among those reporting medium or high support, with only a small difference between these groups.

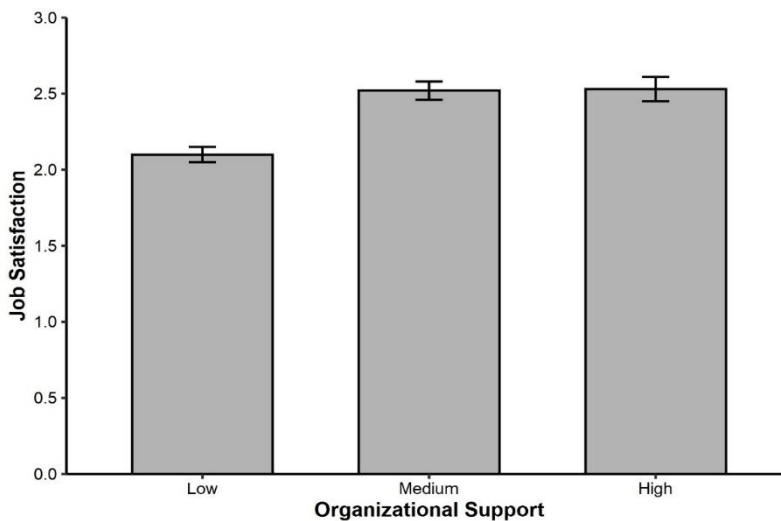
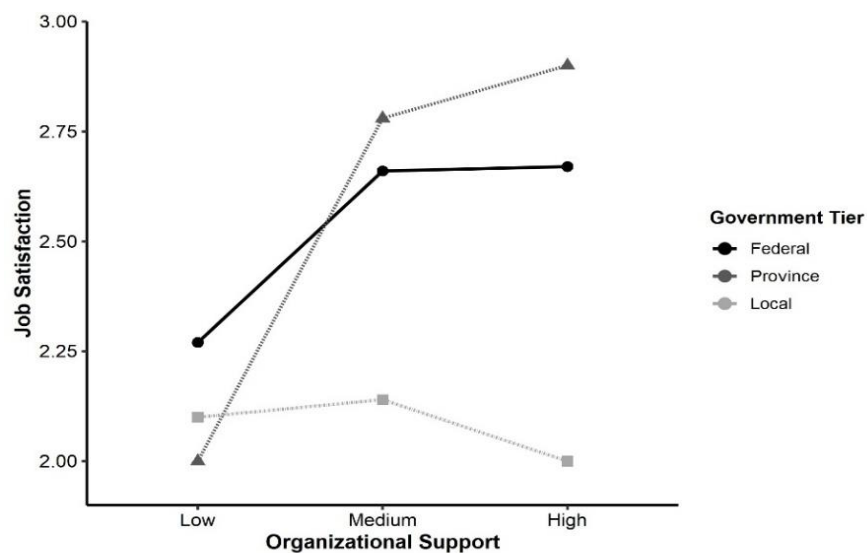
Figure 3*Job Satisfaction Across Different Levels of Organizational Support*

Figure 4 shows how the relationship between organizational support and job satisfaction varies by government tier. In the federal tier, job satisfaction increased from low to medium support but then remained constant between medium and high support. In the provincial tier, job satisfaction increased significantly as support rose from low to medium to high. In the local tier, higher levels of support did not result in higher satisfaction, suggesting that factors other than organizational support may be influencing local agents' morale.

Figure 4*Interaction Effect of Organizational Support and Government Tier on Job Satisfaction*

These findings suggest that perceived organizational support is more highly related to job satisfaction than the level of government where agents work. Government tier by itself was not associated with job satisfaction, but the significant interaction shows that the benefits of organizational support are higher for provincial agents. In provinces, agents with high support reported higher satisfaction than those with low support. Improving support level, particularly in the provincial tier, is likely to be a more effective way to enhance extension agents' morale.

Taken together, the multinomial regression and ANOVA results give consistent but nuanced insights. Across analyses, agents who reported medium or high organizational support were more satisfied with their jobs than those with low support. However, the interaction pattern revealed that this relationship is not equal across all tiers. From the lens of OST, these findings suggest that feeling supported by one's organization is important for extension agents' morale, but that the extent to which support can improve satisfaction depends on the institutional context in which agents work.

Discussion and Conclusions

This study employed OST to assess the factors driving job satisfaction among agricultural extension agents working in the federalized governance system of Nepal. Results support the main contention of OST that perceived organizational support enhances job satisfaction by fulfilling employees' needs (Eisenberger et al., 1986). The positive association between perceived organizational support and job satisfaction suggests that extension agents who feel supported also believe that their organization values their contributions and cares about their well-being (Baran et al., 2012; Kurtessis et al., 2017). OST proposes that these perceptions of support satisfy socio-emotional needs for respect, security, and belonging and, in turn, activate norms of reciprocity and felt obligation toward the organization (Eisenberger et al., 1986; Kurtessis et al., 2017; Rhoades & Eisenberger, 2002). The study findings are consistent with related international evidence, such as Kassa's (2016) study in Ethiopia, where institutional support enhances employee morale and effectiveness, and earlier theoretical work linking organizational support and recognition to employee commitment (Rhoades & Eisenberger, 2002).

The results revealed that male extension agents report lower job satisfaction compared to females, which is somewhat counterintuitive with common assumptions of gender-based differences in the context of Nepal (Poudel, 2019). However, previous studies have also found that women generally report higher levels of satisfaction than men, even under relatively unfavorable job conditions (Okwoche et al., 2015; Sloane & Williams, 2000). This might stem from the OST claim that perceived support satisfies employees' psychological and social needs, particularly for those facing structural or cultural disadvantages (Eisenberger et al., 1986). The finding that using a greater number of extension methods improves job satisfaction suggests that diversity in extension delivery methods is important for enhancing employees' performance. Agents employing diverse methods may perceive themselves as more impactful and responsive to the different needs of farmers (Davis & Heemskerk, 2012; Meinzen-Dick et al., 2012).

Results showed that organizational support had the highest positive effect on satisfaction at the provincial tier. This can be attributed to a number of advantages experienced by provincial extension agents. They benefited from the motivation grade (increased gross salary) incentives at the time of employee adjustment and subsequent opportunities for early promotion, which likely enhanced perceptions of organizational recognition and career progress. In addition, provincial

agents may benefit from working under the technical line ministry alongside congenial technocrats (a condition not always available at the local level), as well as better logistics, greater role clarity, and more formal authority (Burlakoti & Nettle, 2024; Thapa et al., 2025b).

Meanwhile, overstaffing at the federal tier may contribute to role ambiguity and professional stagnation (Bhattarai, 2020). At the local level, resource shortages, direct non-technical (political and administrative) steering, short-term contract recruitment, and unclear career paths may limit the motivation and reduce the perceived value of organizational support (Kyambo, 2023; Ogola et al., 2023; Thapa et al., 2025a; Timsina et al., 2023). Furthermore, local governments prioritize physical infrastructures over agricultural extension programs, which might have created feelings of being undervalued among extension agents.

The implications of these findings are threefold. First, support interventions should address tier-specific constraints, such as bureaucratic entanglements at the federal level and resource inadequacy and role clarity at the local level. Second, organizational support alone is insufficient. Agents need to feel a sense of empowerment by being involved in decision-making and channeling them into meaningful job satisfaction. Third, the relatively higher satisfaction at the provincial tier suggests that this level of governance has strategic importance for reform efforts. Its institutionalization could serve as a benchmark for bringing systemic change to a greater extent.

The findings contribute to the literature in extension of the OST regarding the functioning of the perceived organizational support mechanisms under structural barriers. First, findings show how extension agents perceive organizational support and highlight that support from only one tier of government is insufficient for their satisfaction. As extension agents work from policy to execution, the federal structure must endorse motivating factors such as ministerial backing, technological coordination, and dignified roles, responsibilities and recognition. This requires multi-tier organizational support. Second, tier-specific barriers and inconsistencies weaken perceived organizational support even within the same regions. This shows that the perceived organizational support is linked to resource availability, structural clarity and depoliticization and de-bureaucratization of the technical functions.

Overall, multi-tier organizational support, structural clarity, technological backstopping, participatory decision making, cross-tier coordination, and improved logistical support are pivotal for improving job satisfaction and service delivery in the decentralized extension system of Nepal. Based on the findings, a strategic policy framework is suggested to improve the current conditions and support future interventions (Table 7). From an OST lens, strengthening this support meets agents' socio-emotional needs for respect, security, and belonging and in turn encourage reciprocity in the form of more commitment, effort, and willingness to contribute (Baran et al., 2012; Kurtessis et al., 2017).

Table 7

OST-Informed Strategic Framework for Decentralized Agriculture Extension System

Strategic pillars	Status	Future strategic response
Job satisfaction	Varies by government tier; lower where support lacks (Medium: 45.24%)	Participatory decision-making at all levels that improves the work environment

Strategic pillars	Status	Future strategic response
Organizational support	Inconsistent and limited (Low: 50.48%)	Provide better resources, authority, and role clarity to strengthen support
Government tier	Federal bureaucracy causes role confusion	At the federal level, bureaucratic redundancies should be reduced to clarify roles and enhance the effective mobilization of extension agents. At the local level, working conditions and resource management are needed to improve meaningful organizational support.
Gender	Males report lower satisfaction than females	Develop gender-sensitive policies to address differing satisfaction levels
Information source	Uneven information flows across government tiers	Enhance effective communication tailored to each government tier's needs
Extension methods	On average, four types of extension delivery methods are used.	Promote the use of multiple extension methods in program design and delivery to improve service reach, better meet diverse needs of farmers that ultimately triggers agents' satisfaction.

This study is not without limitations. Convenience and snowball sampling may have introduced selection bias through over-representing digitally engaged urban agents and those within researcher networks. Therefore, agents' location was not included as a predictor in the model, although location may also influence the organizational support and job satisfaction relationship. Furthermore, the study mainly focused on structural and procedural variables aside from psychosocial aspects such as job-related stress, perceived autonomy, or personal motivation, all of which may also have an influence on job satisfaction.

Future research should employ random sampling methods and longitudinal study designs to investigate how job satisfaction changes over time. Researchers should sample agents working in more remote areas and include geographic location measures in the OST model to capture how terrain and remoteness influence organizational support and job satisfaction relationships. It is also important to explore the influence of other psychosocial variables such as job-related stress, perceived autonomy, motivation, burnout, and supervisor-agent relations, which may moderate or mediate organizational support effects. Investing in such research would contribute to better understanding of what drives satisfaction among extension agents of Nepal.

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