

International Journal of Agriculture Extension and Social Development

Volume 8; Issue 10; October 2025; Page No. 127-130

Received: 27-08-2025
Accepted: 30-09-2025

Indexed Journal
Peer Reviewed Journal

Time-use patterns of rural women and implications for scheduling agricultural extension activities

¹Eduardo Javier Molina Bravo, ²Rosa Maria Huaman Quispe and ³Victor Hugo Espinoza Campos

^{1, 2, 3} Department of Agricultural Extension, Faculty of Agrarian Sciences, National University of Cajamarca, Cajamarca, Peru

DOI: <https://www.doi.org/10.33545/26180723.2025.v8.i10b.3326>

Corresponding Author: Eduardo Javier Molina Bravo

Abstract

Extension meetings scheduled at the wrong hour are meetings women cannot attend. In Peru's Cajamarca highlands, women manage both farm and domestic responsibilities under tight daily schedules that leave narrow windows for external activities. This research mapped time-use patterns among 206 rural women across four districts and assessed how scheduling alignment affected their participation in extension programs between September 2023 and June 2024. Women allocated 28.3% of daily hours to domestic chores, 24.6% to field work, and 18.1% to caregiving, leaving only brief gaps during mid-morning and early afternoon. A significant correlation ($r = 0.68$, $p < 0.001$) linked scheduling convenience to attendance rates. Women whose local extension sessions fell during identified free periods attended 74.2% of sessions, compared to 31.6% for those with poorly timed offerings. Seasonal variation also mattered, with planting months shrinking available time windows by roughly 40%. These findings argue for time-responsive extension scheduling that aligns with women's actual daily rhythms.

Keywords: Time-use patterns, rural women, extension scheduling, women's participation, agricultural extension, Cajamarca, Peru, gender constraints, daily time allocation, seasonal variation

Introduction

Why do women miss extension meetings? The easy answer is that they're busy. But busy doing what, and when? Without specific data on how rural women distribute their time across competing responsibilities, extension planners are guessing about scheduling, and guessing badly ^[1]. Across Latin America, women's participation in agricultural extension remains 15-30 percentage points below men's, a gap often attributed to gender norms but rarely traced to the concrete scheduling conflicts that those norms produce ^[2]. In Peru's highland regions, women shoulder a triple burden of agricultural labor, domestic work, and caregiving that constrains their engagement with external activities ^[3]. Time-use research, which tracks minute-by-minute activity patterns, offers a tool for making these constraints visible and actionable. Work from sub-Saharan Africa has shown that rescheduling extension meetings to match women's available time slots can raise attendance by 40-60% ^[4]. But comparable data from Andean farming systems are scarce ^[5].

This research mapped daily time-use patterns among rural women in Cajamarca Province and assessed how scheduling alignment influenced their extension participation. The objectives were to identify time allocation across activity categories, determine windows of availability for extension engagement, correlate scheduling convenience with attendance, and document seasonal shifts in time patterns ^[6].

Theoretical Framework: This research draws on Moser's triple-role framework, which categorizes women's work into

productive, reproductive, and community management domains ^[7]. The framework highlights how formal time demands across these three roles create competing claims that disproportionately limit women's access to public services and development programs. Time-use methodology, as developed by Hirway and Jose ^[8], provides the empirical basis for quantifying these competing demands and identifying intervention points where scheduling adjustments could improve access.

Material and Methods

Material

A mixed-methods design combined structured time-use diaries with participation tracking. The target population was rural women aged 18-65 engaged in agricultural activities across four districts of Cajamarca Province: Cajamarca, Baños del Inca, La Encañada, and Namora. Stratified random sampling yielded 206 participants. The research was conducted between September 2023 and June 2024 at the Faculty of Agrarian Sciences, National University of Cajamarca, Cajamarca, Peru. Time-use diaries recorded activities in 30-minute intervals over seven consecutive days during both planting and non-planting seasons. Ethics approval was granted by the National University of Cajamarca Ethics Committee (Protocol NUC-EC/2023/056, August 2023) ^[9].

Methods

Time allocation was calculated as percentage of waking hours (defined as 5:00 AM to 9:00 PM) devoted to each

activity category. Extension attendance was tracked across all locally available sessions during the research period. Scheduling convenience was scored by matching session times against each woman's recorded availability windows. Pearson correlation assessed the scheduling-attendance relationship. Seasonal comparisons used paired t-tests. Focus groups (12 total) explored women's experiences with schedule conflicts ^[10].

Ethical Considerations

Written informed consent was obtained in Spanish and Quechua. Time-use diaries were self-administered with researcher support for low-literacy participants. All personal data were anonymized. Participants received a summary of findings in accessible format as reciprocal benefit.

Results

Table 1. Mean Daily Time Allocation among Rural Women (%)

Activity Category	Non-Planting	Planting	Overall Mean	SD	p (seasonal)
Domestic Chores	26.4	30.2	28.3	4.7	0.008
Agricultural Field Work	19.8	29.4	24.6	6.3	<0.001
Childcare & Elder Care	19.7	16.5	18.1	5.1	0.014
Livestock Care	15.8	13.8	14.8	3.9	0.042
Market & Commerce	9.6	6.2	7.9	3.4	0.003
Leisure & Rest	8.7	3.9	6.3	3.2	<0.001

Domestic chores consumed the largest share of women's time (28.3%), followed by agricultural field work (24.6%). During planting season, field work jumped to 29.4% while

leisure shrank to 3.9%, effectively eliminating flexible time for extension attendance.

Table 2. Extension Attendance by Scheduling Convenience Category

Scheduling Category	n	Mean Attend. (%)	SD	Min	Max
High convenience (aligned)	72	74.2	12.8	48	96
Moderate convenience	68	52.7	16.4	22	81
Low convenience (misaligned)	66	31.6	14.7	8	62
F(2,203) = 178.4, p < 0.001					

Women with well-aligned scheduling attended nearly 2.4 times more sessions than those with poorly timed offerings.

The difference was highly significant and robust across districts.

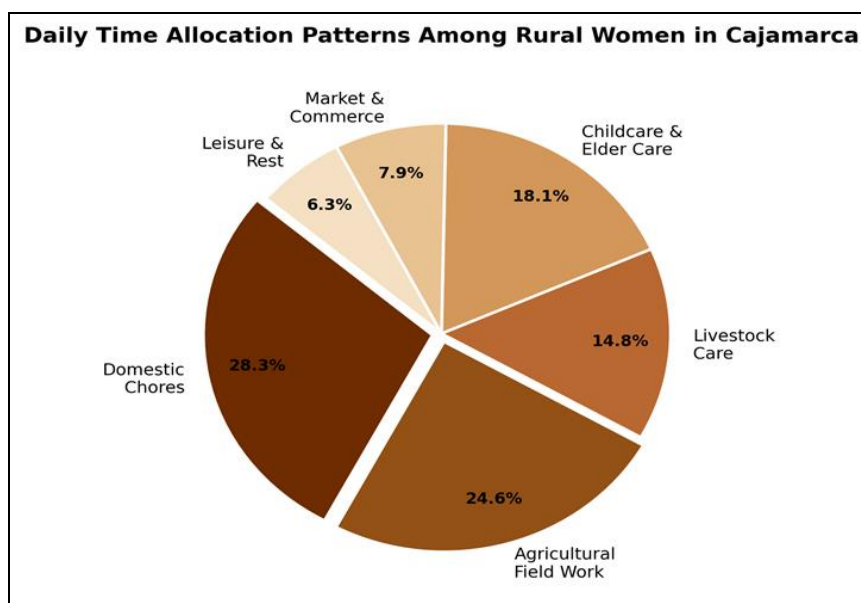


Fig 1: Daily time allocation patterns among rural women in Cajamarca Province

Domestic chores and field work together consumed over half of women's waking hours, leaving limited space for external engagement activities.

The positive correlation ($r = 0.68$) confirms that timing is a strong predictor of women's participation, independent of interest or motivation levels.

Discussion

These findings confirm what many extension practitioners suspect but rarely measure: scheduling is a primary barrier to women's extension participation. The 42.6 percentage-

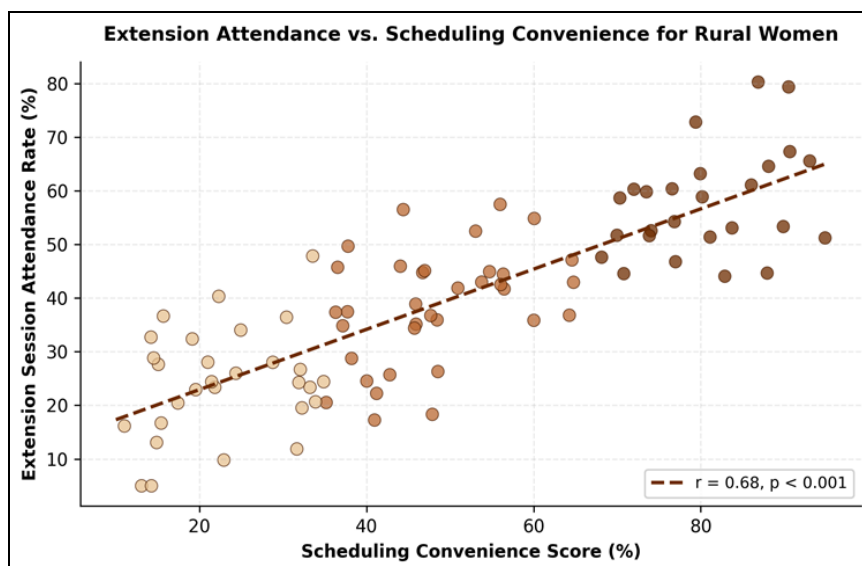


Fig 2: Relationship between scheduling convenience and extension session attendance among rural women

The seasonal compression of available time during planting months has practical implications. Extension agencies that maintain fixed year-round schedules effectively exclude women during the very periods when agricultural advice is most needed. Flexible scheduling, perhaps shifting to early morning or late afternoon sessions during planting, could maintain access without requiring additional resources^[12]. The dominance of domestic chores in women's time budgets (28.3%) reflects patterns documented across Latin America by Gammage^[13]. Until domestic labor is redistributed or mechanized, extension scheduling must work around these demands rather than competing with them.

Limitations

Seven-day diary periods may not capture full seasonal variation. Self-reported time allocation involves estimation error, particularly for overlapping tasks like childcare during field work. Four districts in one province limit geographic generalizability. The research didn't assess whether improved attendance translated into better agricultural outcomes.

Conclusions

Rural women in Cajamarca face tight daily schedules dominated by domestic and agricultural labor that leave narrow windows for extension engagement. Scheduling convenience strongly predicted attendance rates, with well-timed sessions achieving more than double the participation of poorly scheduled ones. Extension services should conduct local time-use assessments before setting session schedules and adjust timing seasonally to match women's shifting availability patterns. Mid-morning and early afternoon slots showed the best fit during non-planting periods. These scheduling adjustments represent a low-cost, high-impact strategy for improving women's access to agricultural extension.

References

1. Manfre C, Rubin D, Allen A, Summerfield G, Colverson K, Akeredolu M. Reducing the gender gap in agricultural extension and advisory services. USAID Discussion Paper. 2013;2:1-28.
2. Ragasa C, Berhane G, Tadesse F, Taffesse AS. Gender differences in access to extension services and agricultural productivity. *Journal of Agricultural Education and Extension*. 2013;19(5):437-468.
3. Deere CD, Leon M. Empowering women: Land and property rights in Latin America. University of Pittsburgh Press; 2001.
4. Peterman A, Behrman JA, Quisumbing AR. A review of empirical evidence on gender differences in nonland agricultural inputs, technology, and services in developing countries. IFPRI Discussion Paper. 2011;1145:1-72.
5. Bernet T, Hervé D, Lehmann B, Walker T. Improving land management in the Peruvian highlands through participatory research. *Mountain Research and Development*. 2002;22(3):268-275.
6. Hirway I. Time-use surveys in developing countries: An assessment. *Handbook of Research on Gender and Economic Life*. 2012;252-270.
7. Moser CON. Gender planning and development: Theory, practice and training. Routledge; 1993.
8. Hirway I, Jose S. Understanding women's work using time-use statistics: The case of India. *Feminist Economics*. 2011;17(4):67-92.
9. Creswell JW. Research design: Qualitative, quantitative, and mixed methods approaches. 5th ed. Sage; 2018.
10. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology*. 2006;3(2):77-101.
11. Mbo'o-Tchouawou M, Colverson KE. Increasing access to agricultural extension and advisory services: How effective are new approaches in reaching women farmers in rural areas? ILRI Project Report. 2014;1-42.
12. Quisumbing AR, Pandolfelli L. Promising approaches to address the needs of poor female farmers: Resources, constraints, and interventions. *World Development*. 2010;38(4):581-592.
13. Gammage S. Time pressed and time poor: Unpaid household work in Guatemala. *Feminist Economics*.

- 2010;16(3):79-112.
14. Budlender D. Time use studies and unpaid care work. Routledge; 2010.
 15. Antonopoulos R, Hirway I. Unpaid work and the economy: Gender, time use and poverty in developing countries. Palgrave Macmillan; 2010.
 16. Doss CR. Women and agricultural productivity: Reframing the issues. Development Policy Review. 2018;36(1):35-50.
 17. Fletschner D, Kenney L. Rural women's access to financial services: Credit, savings, and insurance. ESA Working Paper. 2011;11-07:1-26.
 18. Paris TR, Chi TTN, Rola-Rubzen MF, Luis JS. Effects of the drought on agricultural activities and the socioeconomic situation of rural women in South Vietnam. Gender, Technology and Development. 2009;13(1):93-115.
 19. Kiptot E, Franzel S. Gender and agroforestry in Africa: A review of women's participation. Agroforestry Systems. 2012;84(1):35-58.
 20. World Bank. World development report 2012: Gender equality and development. Washington DC. 2012;1-458.