

GIVING VISIBILITY TO INVISIBLE WORK

Embedding gendered patterns of work intensity in agriculture-nutrition research

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MOTIVATIONS

- Distinction between **time intensity** and **energy intensity** is crucial in designing and promoting development interventions (Jackson and Palmer-Jones, 1998)
- **Time use** has become an important tool in agriculture-nutrition research to help examine gendered patterns of rural labour and wellbeing (Johnston et al., 2018)
- **Energy intensity** has been overlooked due to challenges in measuring energy expenditure (Zanello et al., 2018)
- Complementing time and energy has the **potential to improve our understanding** of how people manage their workloads, how this may interact with nutritional outcomes, and on uptake of agricultural innovations

LITERATURE

- How **people spend their time** can impact their nutritional status, health, and income (Johnston et al., 2018)
- However, **women's allocation of time** both have an effect on their own, as well as the overall households', health and nutritional status (Komatsu et al., 2019)
- After a few studies in the 1980s, very **little attention** has been given **to measuring human energy expenditure** in rural settings (Vaz et al., 2005)
- **Seasonality matters.** Intensive work is often associated with lean season (Devereux, 2009)

OUR CASE STUDIES

- Multi-country case studies:
 - **Nepal**, Terai and hill area (Jun 2017 - Sept 2018)
 - **India**, Telangana State (Jun – Dec 2018)
- In each country (study design in Zanello et al., 2019):

OUR CASE STUDIES



OUR CASE STUDIES

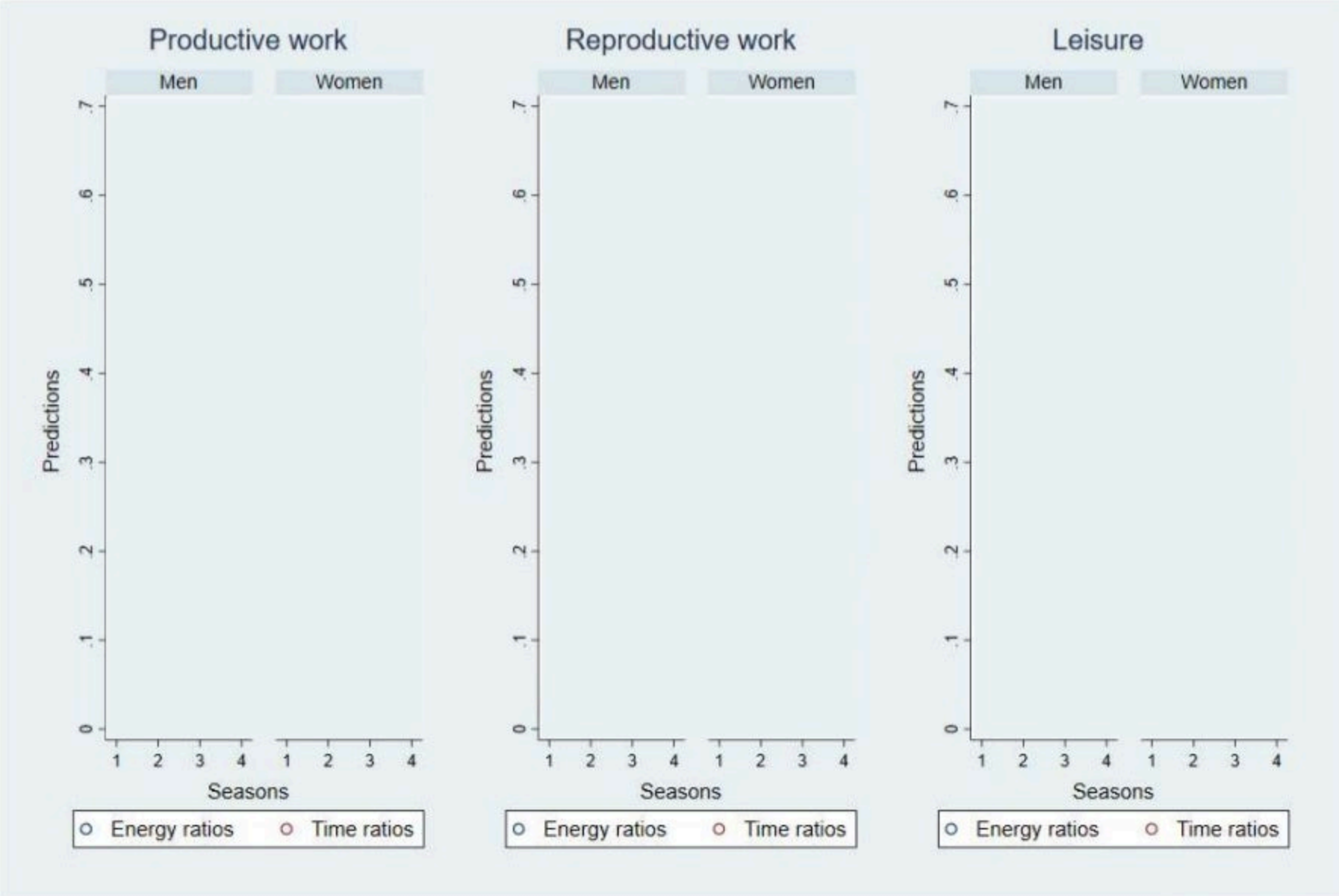
- Multi-country case studies:
 - **Nepal**, Terai and hill area (Jun 2017 - Sept 2018)
 - **India**, Telangana State (Jun – Dec 2018)
- In each country (study design in Zanello et al., 2019):
 - Total sample of **40 individuals** (20 men and 20 women) wearing accelerometry devices for **7 full consecutive days** for **4 weeks across the agricultural season** (land preparation, sowing/seeding, land maintenance, and harvesting)
 - Household questionnaire followed by **daily individual questionnaires** capturing recall of time use (1-hour intervals during awake time, 4am – 11pm)
 - Full sample of 1,120 days and 26,880 hours

METHODOLOGY

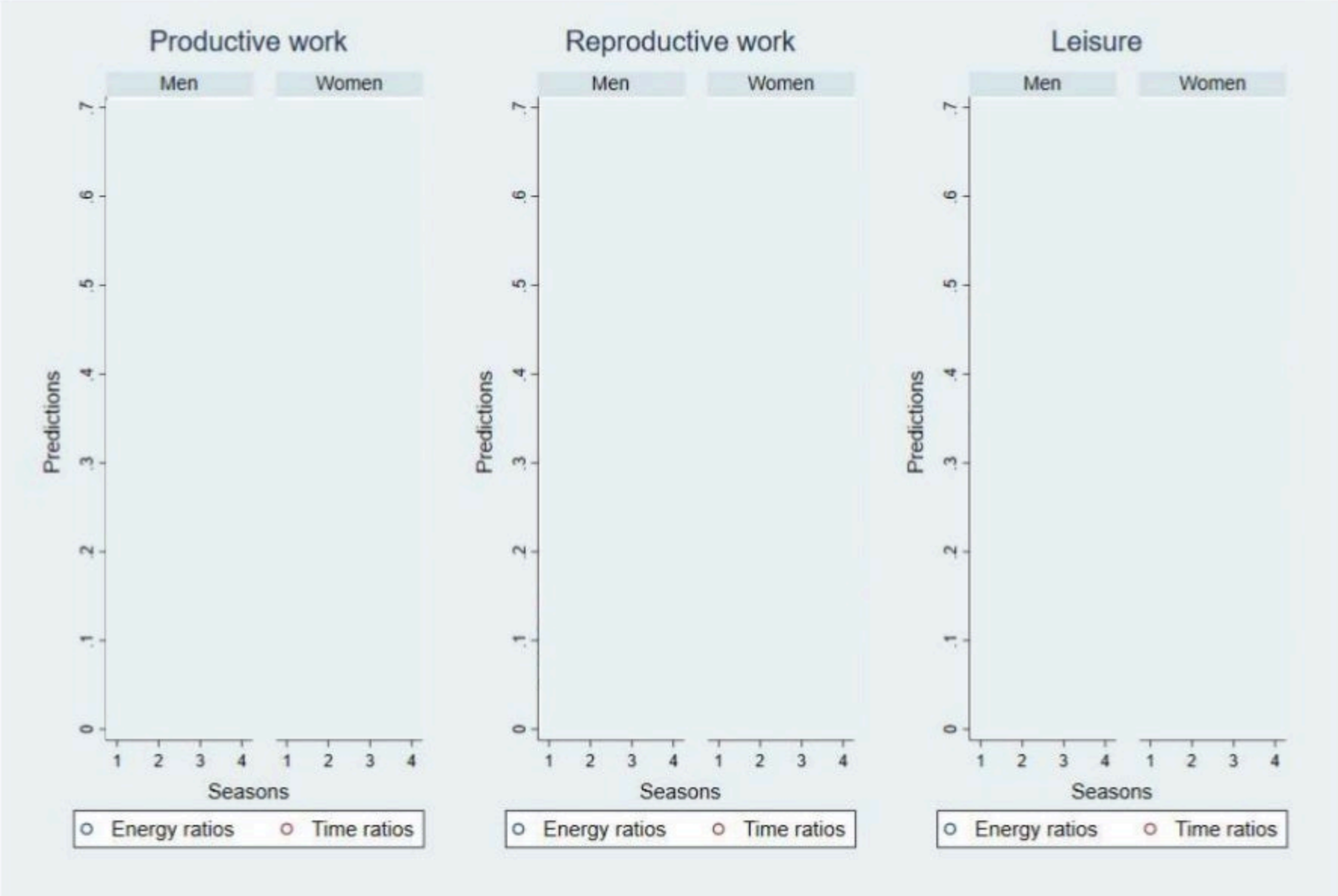
- Usual estimation models do not consider that activities are **substituting** and therefore individuals face **trade-offs** between them
- We use **Fractional Multinomial Logit** (Mullahy, 2010) to model the ratios of energy (e) and time (t) spent in productive (p), reproductive (r), and leisure (l) activities during daytime. Predictions by sex and agricultural season
- Econometrics specification (for time and energy):

$$\begin{cases} y^p = \beta_0 + \beta_1 \mathbf{SEASON} \times \mathbf{SEX} + \beta_2 \mathbf{IND} + \beta_3 \mathbf{HH} + \beta_4 \mathbf{CONTROLS} + \varepsilon \\ y^r = \beta_0 + \beta_1 \mathbf{SEASON} \times \mathbf{SEX} + \beta_2 \mathbf{IND} + \beta_3 \mathbf{HH} + \beta_4 \mathbf{CONTROLS} + \varepsilon \\ y^l = \beta_0 + \beta_1 \mathbf{SEASON} \times \mathbf{SEX} + \beta_2 \mathbf{IND} + \beta_3 \mathbf{HH} + \beta_4 \mathbf{CONTROLS} + \varepsilon \end{cases}$$

RESULTS - INDIA



RESULTS - NEPAL



DISCUSSION

- Activities tend to have clear **patterns of time and energy use**
- Women and men both work in many aspects of productive activities that absorb most of their time and energy. **Women compensate** for heavier burdens of productive and reproductive work **by having less leisure time**
- **Productive work varies by season** in terms of allocation of time and energy. **Reproductive work appears to be less elastic** to seasonality

CONCLUSIONS

- **First step in conceptualising and measuring how rural people allocate their time and energy expenditure across different livelihood activities**
- A richer picture of time and energy expenditure can equip **policy makers** with the tools to create effective gender and nutrition sensitive agricultural interventions
- **Gender sensitive agricultural interventions** (e.g. adoption of technologies) should consider how people manage their workloads, and how work burdens vary by gender, agricultural season, and context

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FIELD MANUAL + WORKSHOP

Using Accelerometers in Low- and Middle-Income Countries

A Field Manual for Practitioners



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DESCRIPTIVE STATISTICS

	India			Nepal		
	Men	Women	Δ	Men	Women	Δ
<i>Individual characteristics</i>						
Age (in years)	40.8	34.3		46.0	43.2	
BMI (kg/m ²)	22.1	20.6		23.3	23.8	
Literacy (dummy)	0.3	0.1	*	0.7	0.4	*