Time Use in Agriculture-Nutrition Research: Conceptualisation, Operationalisation and Interpretation
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1 Introduction
The promotion of healthy lives and well-being is a priority in development agendas. However, the burdens of malnutrition and disease are multiple, differentiated, and have various root causes. Reducing undernutrition requires radical multi-sectoral interventions (Black et al. 2013; Buse and Hawkes 2015). Renewed academic and policy interest in leveraging agriculture to improve nutrition plays a pivotal role in spurring multi-disciplinary thinking for well-being. However, linkages between agriculture-food systems, health and nutrition outcomes are multiple, complex, direct and indirect, and also difficult to document. (Webb and Kennedy 2014; Kadiyala et al. 2014).

A central link between agriculture and nutrition is time use; that is, the ways in which agriculture determines how people allocate time to productive and reproductive work, and the implications these may have on nutrition. One hypothesis put forward and tested in some literature is that high or increasing agriculture-related time burdens, especially for women, may have negative repercussions on nutrition. Based on a conceptual framework of the micro-level linkages between agriculture, intra-household division of labour and nutrition, this paper examines how a collection of studies on agriculture, gendered time use and nutrition conceptualise, operationalise and interpret time use. The focus is on rural settings in low- and middle-income countries (LMICs).

This work makes a conceptual and methodological contribution to gender analyses of agriculture, nutrition and well-being (Floro 1995; Imai et al. 2014; Sraboni et al. 2014; Arora and Rada 2016). It argues that time use research has the potential to illuminate important aspects, especially
related to the reproductive burden, of gendered participation in agricultural work and
development projects as well as nutritional outcomes. The paper provides a framework for the
relevance of time use research in LMICs, and key recommendations on how to conceptualise,
collect and use time use data.

The paper begins by outlining a conceptual framework of the linkages between agriculture,
gendered time use and nutrition (section 2). The framework is presented in the context of a
renewed interest in time use in agriculture-nutrition research and in relation to developments in
feminist scholarship. The methodology follows (Section 3). The results are presented in section
4, organised around the categories of conceptualisation (4.1), operationalisation (4.2) and
interpretation (4.3) of time use data. In section 5, we discuss the potential for time use data in
agriculture-nutrition research and for the analysis of time constraints and time poverty. In
section 6, we conclude that a stronger conceptualisation of time use is needed in order to improve
data collection and interpretation. Methodologies should be broad enough to encompass
household socio-economic status, composition, seasonality and work intensity, as well as a focus
on gendered relations rather than female time use exclusively.

2 Renewed interest in time use research: Time use in agriculture-nutrition pathways
Time use data collection began in the 1920s to shed light on the living conditions of working-class
families (UNSD 2005; Benería et al. 2016). Since their first appearance, time use data have been
collected and used in a variety of ways in ethnographic, economic and feminist literature. For
example, some anthropologists use observation-based time use data to study various aspects of
human behaviour and transitions from subsistence to non-subsistence economies (Paolisso and
Hames 2010). From the mid-1960s, economists took interest in time as a factor for household
production, and economic theorisations of time have been an integral part of the development of
household economics (Becker 1965; Gronau 1977). By the 1980s, it became evident that time use
data could capture unpaid activities, a central issue for feminists concerned with extending the
definition of the economy as measured by GDP estimates by making women’s unpaid work visible
(Budlender 2007; Gammage 2010; Chang et al. 2011; Benería et al. 2016). Feminist scholars became the most vocal advocates of time use research, signalled also by their involvement in the International Association for Time Use Research (IATUR) (Benería et al. 2016).

Parallel developments can be traced between feminist scholarship, gender analyses and time use research. Feminists’ interest in time use in the 1980s reflected feminist approaches of the late 1970s that precipitated a change in focus from productive activities to the invisible and unpaid sphere of reproduction. With the subsequent affirmation of the Gender and Development (GAD) paradigm, issues of gender equality and women’s empowerment were mainstreamed, not only in academia but in policy and development circles as well (Benería et al. 2016). The process of gender mainstreaming paved the way to instrumentalist approaches to gender equality (for a critique see O’Laughlin 2007; Gideon and Porter 2015; Stevano 2017), whereby women’s empowerment via access to productive resources is seen as being conducive to poverty reduction and enhanced well-being of future generations, summed up by the World Bank’s slogan ‘gender equality as smart economics’ (WDR 2012). These historical trajectories help us understand the current resurgence of interest in time use research. Unpaid care work remains an unresolved concern and, in addition, some scholars are now interested in understanding if women’s greater participation in the labour markets and access to productive resources via various development projects has unintended negative consequences on well-being.

Agriculture-nutrition research is concerned with time trade-offs, especially for women (Berti et al. 2004; Arimond et al. 2011; Jones et al. 2012), as one factor that could potentially offset some of the nutritional gains sought through agricultural interventions. Time is needed for farming, for wage work, to buy food, and for domestic activities of food preparation and childcare. Time must be divided between these activities, so trade-offs exist between them. A common hypothesis in agriculture-nutrition literature is that if women increase their time spent in food production, they may have less time to prepare nutritious foods and feed children. However, trade-offs can be complex and unpredictable and depend on a range of factors. For example, women’s employment
in agriculture may not always reduce time for childcare, especially when there are other people in the home who take on this responsibility (Kadiyala et al. 2014).

Our conceptual framework draws on the findings of a recent systematic review (SR henceforth) on the time use pathway linking agriculture and nutrition (Johnston et al. 2018). The findings of the SR are discussed in a separate overview paper (Johnston et al. 2) and only summarised here to explain and support our conceptual framework. The SR analysed existing literature with the aim of exploring three hypotheses: whether women spend significant amounts of time performing agricultural work and are at risk of high time burdens; whether time burdens lead to time constraints and trade-offs with negative repercussions on nutrition; and whether agricultural interventions unintentionally increase participants’ time burdens with negative consequences for nutritional outcomes.

The main findings of the SR suggest that women play a key role in agriculture, which is reflected in their time commitments to agricultural work. In addition, a small number of “good quality” studies on agricultural interventions included in the SR suggest that interventions tend to increase the time burdens of women, men and children. However, the nutritional implications are not clear-cut. The SR found that nutritional impacts are varied because households and household members respond to increased time burden and workload in different ways. Piecing together evidence from the studies graded as “best quality” in the SR, we find that household responses differ due to important differentiating factors. These include household income and ability to purchase food, household type and composition (in particular, the presence of members who can take up domestic work), seasonality in the organisation of agricultural labour, and work intensity, which refers to energy expenditure.

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1 We refer to the background systematic review as SR to distinguish it from the review we present in this paper.

2 In the SR, the quality of studies was assessed using a quality appraisal tool. This tool combined a risk of bias assessment tool for quantitative evidence (Cirera et al. 2011) with peer-review status and a checklist to assess the quality of qualitative and time use data, respectively (Thomas and Harden 2008; Snilstveit 2012).
By drawing on the SR as well as the body of critical perspectives on the economics of rural households (Low 1986; Evans 1991; O’Laughlin 2014), our framework maps the micro-level linkages between agricultural work, gendered time use and nutrition. In this conceptualisation, time use is not a linear pathway with deterministic outcomes, but is an important linkage that itself embodies broader factors at play in the intra-household allocation of labour. Two interlinked aspects are at its core. First, the centrality of reproductive labour and how it intersects with productive labour, which can be highlighted through a focus on time use to both capture unpaid work and gain a better picture of agricultural work. Second, the ways in which household income, household composition, seasonality and work intensity shape the organisation of farm and off-farm work, and of productive and reproductive labour. In this paper, we use this conceptual framework to examine the studies included in the SR from a critical conceptual and methodological perspective.

3 Methods

We look at the body of literature collected in the SR – a group of 89 quantitative, qualitative and mixed-method studies (see Annex I) – and address two questions. How are time use data conceptualised, operationalised, and interpreted in agriculture-nutrition research? What are the methodological and analytical improvements needed to strengthen the potential of time use data in agriculture-nutrition research?

The time use component of the 89 studies retrieved for the SR, was analysed using the following guiding principles. First, we looked at how time use is conceptualised, using our conceptual framework as a benchmark. By conceptualisation we refer to the employment of any definition of time use or conceptual framework of which time allocation is part.

Second, we considered operationalisation and reporting. With this exercise we compiled descriptive information on essential aspects of methodology such as sampling strategy, recall period and instrument selection. In addition, we also considered key aspects identified in our
conceptual framework as enhancing the accuracy of time use data. These are household socio-economic status, composition, seasonality and work intensity. We consider household socio-economic status as being measured by any indicator of education, assets, income and consumption. With regard to household composition, we looked at respondents’ selection (i.e. household members for whom time use data was collected) and whether it allowed for intra-household analysis. We checked whether seasonality was taken into account by repeating time use data collection at different times of the year. We also considered whether the studies measured work intensity, which refers to energy expenditure or any indicator of effort spent to perform specific activities.

Finally, we looked at how time use data is interpreted, particularly considering the types of analyses that it is used for. The rationale for this process of data extraction and analysis is based on the expectation that a common thread would run from conceptualisation, through operationalisation, and to interpretation.

4 Results

4.1 Conceptualisation

A crucial issue in conceptualisations of time use is the definition of work. In low- and middle-income countries (LMICs), time use studies are used not only to capture unpaid care work, as it is often the case in advanced economies, but also to record productive work (Charmes 2010; Hirway 2010; Hirway and Jose 2011; Floro and Komatsu 2011, Charmes 2015). Agricultural data and employment statistics suffer from many biases recognised in the literature and are considered to be especially ill-suited to describe seasonal or irregular employment and multiple occupations, which are often distinctive features of agricultural and/or female employment (Pearson 2007; Bardasi et al. 2011; Beegle et al. 2012; Oya 2013). Berik (1997) explains that when

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3 Productive work refers to paid and unpaid work in primary, secondary and tertiary activities, which is normally accounted for in GDP estimates.
the notion of labour force is broadened, or when an open-ended format for each person's activities is used, then women's participation in the labour force is found to be higher.

Time use is considered primarily as a metric, or a type of data, and elaborations of the conceptual underpinnings are lacking, which constitutes a problem. If we consider an analogy, failure to conceptualise the notion of ‘household’ can lead to erroneous data in household surveys (Berik 1997; Randall et al. 2011). It is necessary to clarify concepts also in exercises of time use data collection. Any decision on how to select the respondents, what type of activity to record, when to collect it, and what type of contextual and complementary information to include should reflect the role of time use in the underlying theoretical framework.

The conceptualisation of time use in the studies we reviewed reflects the broader reticence to think about time use from a conceptual perspective. In many studies, conceptualisation exercises are rather vague, narrowly developed, or left implicit.

In a group of studies, time use captures women's paid and unpaid work in the agricultural sector. However, the reviewed studies do so in different ways. For instance, some studies measure women’s work in agriculture in isolation, others in relation to men's, and yet another group assesses women's work in agriculture in relation to unpaid care work and work in non-agricultural sectors. Therefore, although time use is used to gain a picture of women's work in agriculture, the literature does not always define this work in relation to other reproductive and productive labour.

A second pattern is delineated by the conceptualisation of time use in relation to other variables, as either an input or an output. Time allocation is used to uncover activities and impacts that tend to be invisible, thus reflecting a concern with unintended consequences or unseen barriers. When time use is considered as an output, some studies look at the time use impacts of

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4 The review includes 52 studies that look at time use as an outcome of agricultural practices or interventions, 15 studies that treat time use as an input factor that may have consequences on nutrition, and 22 studies where time use is a mediating factor in the relationship between agriculture and nutrition.
agricultural commercialisation, including specific interventions and processes of intensification of export-led agriculture, on the organisation of productive and reproductive work (e.g. Gunewardena 2010; Riley and Krogman 1993). When it is considered as an input, some studies rely on Becker’s New Household Economics to conceptualise time use as a factor of household production and integrate it in household production functions (e.g. Gurven and Kaplan 2006). Other studies instead look at the impact of maternal employment on child nutrition (e.g. Bamji and Thimayamma 2000; Nti et al. 1999).

In sum, the conceptualisation of time use in agriculture-nutrition literature is rather loose and diverse. We therefore note that more developed theoretical frameworks would contribute to strengthening time use data treatment and collection, as will become clear in the next two sections.

4.2 Operationalisation and reporting

The observed limitations at the conceptual level have implications for the operationalisation of time use, which, as we shall see in this section, is characterised by mixed practice and poor connections with underlying concepts. Nevertheless, in section 5 we will highlight the work that suggests promise in terms of how to move forward. These studies show that a variety of methods can be used to collect time use data. However, the lack of guidance on best practice, especially for qualitative methods, poses a challenge to assess the accuracy of time use data.

We start by looking at sampling strategy, instrument selection and recall period. The review includes studies that employ quantitative (52), qualitative (19) and mixed methods (18) to collect time use data. With regard to the sampling process, 3 studies used data from nationally-representative samples, 38 used random sampling representative at different sub-national levels, 25 used purposive samples and in 23 cases the sampling techniques were unclear based on the information articulated in the publications.

The selection of instruments reflect the broader methodological approach. The majority of the studies, 51, used structured interviews as the primary instrument to collect time use data. In only
six studies, time use was recorded using non-structured or semi-structured interviews. A group of 16 studies employed (participant) observation to collect time allocation data, and a set of 12 used mixed instruments – typically involving the combination of structured interviews, qualitative interviews, such as focus groups, and observation. Due to reporting issues, the instrument used for time use data collection remains unspecified for four studies.

When considering the recall period, which is relevant for all interview-based studies, we see different practices. Although 24-hour recall is recommended for time use surveys (UNSD 2005), a recall period of this length was used in only 19 studies. Other studies used seven-day recall (six), 30-day (three), one year (one), and mixed recall periods (four). The length of recall period is unspecified for a high number of studies, 40, which once again speaks to shortcomings in reporting.

Table 1. here

Only by considering these three basic characteristics, it is apparent that the sources of time use data are very diverse. It is interesting to note that, although national time use surveys have been conducted in several LMICs (Esquivel et al. 2008), only one reviewed study use data from India’s National Time Use Survey (Hirway 2010). This suggests that national time use survey data may be underexplored in agriculture-nutrition research. However, a reason for underusing national time use surveys could be that they are not easily matched to nutrition data, except at higher levels of aggregation. Multipurpose surveys have the advantage of collecting various outcomes of interest for the same households, although this may come at the cost of less accurate time use data.

A strand of ethnographic research included in this review uses a specific observation-based technique called ‘instantaneous scan observation’ (Crittenden and Marlowe 2008) or ‘spot-check behavioural sampling’ (Quinlan et al. 2005). The method consists in observing and recording the

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5 Mixed recall periods are observed in studies using mixed instruments to collect time use data, which may entail the use of different recall periods depending on the instrument used.
activity (or activities) performed by a number of individuals in a selected village or community at regular time intervals (e.g. every hour). In agriculture-nutrition literature, this technique for data collection has been used to study practices related to food provisioning, child care and infant feeding practices.

Only a few studies mention the benefits of mixing methods to overcome barriers encountered with the implementation of surveys in contexts where life is not organised by the clock, which is an issue recognised in time use survey literature (Budlender 2007; Esquivel et al. 2008). Szeto and Cebotarev (1990) use four approaches including a socio-economic survey of a purposive sample of households, random visits, participant observation and timing of women’s activities because, they explain, in the studied context of rural St. Lucia, diaries and recall methods had to be rejected due to low levels of literacy.

Time use data per se is of little use for academic research and policy making alike unless it is accompanied by socio-economic and demographic information about the household (Budlender 2007). In addition, household socio-economic status is an important differentiating factor as wealthier households have more resources to respond to time burdens (Johnston et al. 2018). In the family of reviewed studies, a majority of 55 included some socio-economic or demographic data. However, 27 studies did not include any such data and seven were marked as unspecified due to reporting gaps.

The selection of respondents is crucial because household composition shapes intra-household division of labour and the potential for substitution in care giving (Hallman et al. 2005; Jones et al. 2012; Johnston et al. 2018). The reviewed literature is heavily concerned with women, which is testified by 27 studies looking exclusively at women’s time allocation patterns. This may be seen as reflecting wider tendencies in development research to focus on women, rather than on gender relations. However, we also positively note that a larger group of studies (38) present and discuss time use data for both women and men in the household. The relationship between women and men is not always homogeneous, they could be spouses, siblings, or linked by other
familial or non-familial ties, depending on the configuration of the household, which may create analytical inconsistencies. A few studies (7) look specifically at children, mostly having to do with concerns for child labour. Finally, 17 studies look at time allocation data for all household members.

The importance of simultaneous activities is emphasised in time use survey literature because caring activities often take place alongside others and therefore a focus on primary activities may lead to the underestimation of unpaid care work (Esquivel et al. 2008; Rost et al. 2015). In the reviewed literature, only 11 studies considered simultaneous activities, 19 studies did not collect this type of data and in 59 studies it was impossible to determine if simultaneous activities were recorded, which shows once more problems with reporting.

Two issues that are critical in time use, well-being and agriculture-nutrition literature are seasonality and work intensity (Jackson and Palmer-Jones 1998; Charmes 2015; Johnston et al. 2018). The two matter separately and together: the seasonal organisation of agricultural work means that time spent on agricultural work is likely to vary significantly throughout the year, and seasonality is also at the basis of varying work intensities in agriculture, which may have implications for nutrition. A good number of reviewed studies take seasonality into consideration (35), mostly distributing data collection over different times of the year. However, a majority of the studies in this review (49) do not take seasonality into account, and for five studies it is unspecified. Work intensity emerged as a particularly overlooked aspect in the literature reviewed, with only 14 studies taking it into consideration. Knowing the amount of time spent on different activities does not say anything about the intensity that different types of work entail, which is a severe limitation especially if the broader concern is about well-being (Jackson and Palmer-Jones 1998).

In the reviewed studies, time use was operationalised in diverse ways. We have highlighted different practices in both study design for time use data collection and key features of time allocation data itself. The use of a range of methods to collect this data is important to gain a better
picture on how people use and relate to time. At the same time, more solid theoretical frameworks would provide the basis for developing guidance on best methodological design and practice for all methods, qualitative and quantitative, that are used to collect time use data.

4.3 Interpretation

The last category we consider for the analysis of time use data is interpretation: how is time use data interpreted? What is its purpose? As much as time allocation data can offer useful descriptive insights, as it can shed light on activities that would otherwise remain unrecorded, it can also serve wider analytical scopes. What are the determinants of time distribution in the household? What are the impacts of changing, or different, time allocation patterns? And when do time constraints arise? In this section we identify three interpretation patterns along these lines.

A group of 35 studies provide descriptive analyses of time use data. The studies that look at women’s participation in agriculture are an example of this type of analysis. A larger set of studies (52) go beyond a descriptive scope and offer analyses of the determinants of time use and/or of its impacts. This is not surprising, if it is considered that agriculture-nutrition research is primarily interested in time use to determine the time use effects of agriculture and the nutritional impacts of time use. In these studies, we find that the most important issues explored include the relationship between women’s work and (child) nutrition (e.g. Choudary and Parthasarathy 2007; Ricci et al. 1996), and the impact of agricultural commercialisation or interventions on gendered division of labour (e.g. Newman 2001) or on child labour (e.g. Agbonlahor 2007). Other studies look at specific determinants of time allocation such as the adoption of labour-saving technologies (McSweeney 1979), male migration (Mu and de Walle 2009), and extra-household social norms (Kevane and Wydick 2001).

Arguably, the most interesting finding of this review is that only two studies, Wodon and Beegle (2006) and Hirway (2010), use time use data to analyse time poverty. Hirway (2010: 26) defines the concept as follows:
'Time poverty is understood in the context of the burden of competing claims for individuals’ time that reduce their ability to make unconstrained choices on how they allocate their time, leading frequently to work intensity and to trade-offs among various tasks.'

Investigating the origins and nature of time constraints and time scarcity is a different analytical exercise because it requires the adoption of some criteria to identify at which point time becomes scarce and who the time poor are. Wodon and Beegle (2006) use a time poverty line, set at 70 hours of work per week, to identify the time poor in their study on agricultural work in Malawi. Hirway (2010), while mentioning the relevance of a time poverty line as a reference point, performs a different exercise. Hirway conducts an analysis of time use of the income-poor and ultra-poor in India, using data from the India Time Use Survey. This leads her to make an assessment of time poverty based on time spent on certain activities as a share of individuals’ total available time, and by income group. This offers a glimpse on the different ways in which analyses of time poverty can be approached. The scarcity of studies that address questions on time constraints and time poverty from LMICs suggests that this area can be expanded and refined in agriculture-nutrition research, as we further discuss in section 5.2.

5 Discussion

Methodological and analytical improvements in the collection and use of time allocation data in agriculture-nutrition research rely on stronger conceptualisations of gendered time allocation as a linkage between agriculture and nutrition. The conceptual framework introduced in section 2 suggests that time use research can help explore agriculture-nutrition connections if it sheds light on trade-offs between farm, off-farm and reproductive work, and considers household income, composition, seasonality and work intensity. Below we discuss how this conceptualisation can strengthen time use methods and analysis.

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5.1 Methodological considerations and improvements

In agriculture-nutrition research, time use data can help us understand two crucial aspects: the heterogeneity of agricultural work and the organisation of care and food practices. It can help unpack the agriculture domain in agriculture-nutrition research, as suggested by Webb and Kennedy (2014), by capturing different types of agricultural work, whether it is farming own or family’s land or wage work in agriculture, and gendered patterns of participation. In addition, time use data can provide information on the organisation of daily food activities, including food preparation and feeding practices, thus shedding light on the nutrition domain too. However, time use data needs to be fit for purpose to accomplish these tasks effectively. Its adequacy can be assessed against the conceptual framework we set out in section 2.

Time use data should be accompanied by socio-economic and demographic information on the household as well as contextual information (Budlender 2007; Hirway 2010). In time use survey literature, contextual or background information refers to additional data that helps interpret and classify time use data. It can include questions on location, means of transportation, with whom the activity was carried out, and for whom (UNSD 2005). We have seen that many studies in this review did not collect and/or report on this type of information, so this is an aspect that needs to be strengthened.

Time use data provides a snapshot but may be less suitable to capture changes over time, unless its collection is repeated over time. The problem of snapshot-based approaches for data collection is that they obscure seasonal patterns and temporal dynamics (Charmes 2015). The use of a 24-hour recall period is useful to reduce recall bias but it also needs to be considered in relation to seasonal and temporal dynamics, to make sure the time allocation during the recall period carries meaningful insights on the patterns of time use more broadly. As seasonality is a critical cross-cutting feature of the interactions between agriculture, time use and nutrition, improving the collection of time use data in this direction would benefit agriculture-nutrition research.
The criteria for selecting the appropriate respondent depends on the objectives of the study at hand. The studies we reviewed reflect a strong concern for women's time. The literature does suggest that women's time is particularly relevant in agriculture-nutrition pathways (Ruel and Alderman 2013), however, moving beyond an overwhelming and narrow focus on women is necessary. While it may be true that women's time is critical, it is important to know how women organise their time in relation to other household members, whether they are women of different ages, men or children. Agriculture-nutrition research may gain useful insights from the literature on intra-household gendered dynamics in low-income economies (Darity 1995; Warner and Campbell 2000; Arora 2015; Arora and Rada 2016) to conceptualise gendered time allocation as a linkage between agriculture and nutrition.

Finally, time use data that offers information on time spent in paid work in the non-agricultural sector is crucial because we cannot assume that time spent in agriculture is necessarily the most significant. Agriculture-nutrition research needs to consider that time spent in agriculture may not be the most important variable to take into account for farming households, in the context of livelihoods diversification and widespread engagement with formal and informal employment outside the agricultural sector in rural areas (Bryceson 1999; O’Laughlin 2007; Meagher 2010; Arora 2015). Studying the gendered time use pathway between agriculture and nutrition in contexts of rural livelihood diversity is more challenging. Overcoming this difficulty entails addressing empirical questions that are context-specific; however, a first step is to capture the relative weight of agricultural activities in relation to others.

In sum, the collection of time use data can be improved in a number of directions to enhance its potential in agriculture-nutrition research. These include improving the accuracy and coverage of contextual information, seasonal and longitudinal data, a wider selection of respondents, and consideration of employment in the off-farm sectors.
5.2 Implications for the analysis of time constraints and time poverty

In order to fully understand the unintended consequences or unseen barriers that time allocation can generate in the relationship between agriculture and nutrition, it is crucial to analyse trade-offs among activities, time constraints and the prevalence of time poverty. As discussed in section 4.3, insights on time poverty are very limited in the reviewed literature. Time use data per se do not indicate when time becomes scarce, what specific activities are affected when time burdens increase, and what consequences arise. However, accurate time use data offers a starting point for these types of analyses.

Stronger conceptual frameworks for time use in agriculture-nutrition research can facilitate a shift from descriptive analyses of time use to analytical interpretations of trade-offs and time constraints. These would conceptualise the use of time in relation to the intra-household allocation of reproductive and productive activities and as interacting with household income, composition, through seasonal cycles and the intensity of work.

Methodologically, a combination of survey and qualitative interviews can be effective to develop insights in this area. On the one hand, we need to know more about trade-offs and the causes of time constraints. On the other hand, we need to identify the time poor. This is often done by using time poverty lines but, in order not to reproduce the limitations of income and consumption poverty lines (Hanmer et al. 1999), in-depth context-specific evidence is needed to establish meaningful cut-off points.

There are two areas that are currently underexplored in agriculture-nutrition research, and should instead be addressed. First, it is crucial to identify the turning points. How many more hours spent on agricultural work begin to produce negative effects on nutrition? The reviewed studies are completely silent on this issue, however it can be hypothesised that, even when agricultural interventions entail spending additional time on agricultural activities, this will not necessarily put nutrition at risk, as is evident from the findings of the SR. For example, agricultural income can be used to purchase food and increase the use of health care services and medical
treatment. However, more evidence is needed to shed light on this point and identify the turning points, which are likely to be intervention- and context-specific.

Second, time use data per se do not suggest which areas of time use are most critical to nutrition. What aspects of care, feeding and food preparation practices are more relevant to ensure adequate nutrition? Investigating these issues requires understanding the intra-household organisation of care work, as well as the trade-offs that longer or more intensive work in agriculture may generate in relation to care practices for oneself and other household members. To understand how time for unpaid care work is distributed within the household, we need to look beyond raw time use data and study gendered perceptions on what constitutes work, social and gender norms, and decision-making on time allocation (Rost et al. 2015).

Work intensity is an aspect of time use that is critical for well-being (Floro 1995; Jackson and Palmer-Jones 1998). Multitasking is a source of increased work intensity that is especially important for women (Arora 2015), although it is only one aspect of intense work. This consideration is very relevant in the context of agriculture-nutrition research because agricultural work can be energy-demanding and labour-intensive, and also because nutritional outcomes are an integral part of well-being. In the evidence reviewed, consideration for work intensity is lacking. However, the few studies that consider work intensity confirm its importance. For instance, Fami et al. (2002) and Higgins and Alderman (1997) show that women’s energy balance is in deficit when they engage in intensive agricultural work.

We highlight two projects that are currently fostering advancements in the areas of time use and nutrition and/or care. The International Food Policy Research Institute is building on the Women’s Empowerment in Agriculture Index (WEAI), with the development of Project WEAI (pro-WEAI), aimed at making the WEAI indicator more relevant in nutrition-sensitive agricultural projects. Particular emphasis is placed on decision-making and aspects of nutrition where
women’s empowerment plays a significant role.⁷ Oxfam brings together analyses of time use and unpaid care work through the Women’s Economic Empowerment and Care (WE-Care) project, which makes use of two novel methodological tools: the Household Care Survey, containing a rigorous time use diary, and the Rapid Care Analysis, structured around focus group discussions.⁸ By combining these tools, they explore social norms on time allocated to unpaid care and how care work is valued by different groups of respondents.

Innovative approaches in time use research have the potential to shed light on critical issues we need to know more about in order to draw crucial insights in agriculture-nutrition research. This seems to be a first step to potentiate the analytical scope of time use research and make a qualitative shift from descriptive uses to the understanding of time constraints and the relevance of time poverty, especially when combined with other manifestations of poverty.

6 Conclusion

A resurgence of interest in time use research is currently underway, and spurred, among others, by concerns with the unintended negative consequences that time burdens in agriculture may have on nutrition. But are time use data useful to explore agriculture-nutrition pathways? In this paper, we have looked in depth at how time use is conceptualised, operationalised and interpreted in agriculture-nutrition studies. Based on this analysis, we make suggestions on the conceptual and methodological improvements that are needed to enhance the usefulness of time use data in agriculture-nutrition research.

With regard to methods, we ascribe mixed practices of data collection to loose conceptualisations of time use, mostly treated as a type of metric and with little elaboration of the underlying concepts. Diversity in methods and instruments used to collect data is enriching because both quantitative time use diaries and qualitative investigations of time use patterns have a role in

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⁷ IFPRI is developing Project WEAI under the second phase of the Gender, Agriculture and Assets Project (GAAP2). For more information, see http://gaap.ifpri.info.
⁸ Resources and information on Oxfam’s WE-Care project can be found at http://policy-practice.oxfam.org.uk/our-work/gender-justice/womens-economic-empowerment/we-care
understanding how people organise their daily lives. However, it also creates heterogeneous outcomes with regard to data quality, with scarce attention paid to crucial factors. In particular, we note that more importance should be given to contextual information, work intensity and seasonality; we need to move away from a narrow focus on women and embrace gendered analyses of time use; and, despite a primary concern with agriculture, off-farm employment should not be ignored as it may be a source of time constraints too.

Conceptualisations of the use of time need to capture the intertwined intra-household allocation of reproductive and productive work. In addition, they need to provide the basis to understand how other household (income, composition) and extra-household factors (seasonality, work intensity) shape the use of time and the associated nutrition outcomes. These stronger conceptual grounds offer a way to move beyond descriptive analyses of time use, which, despite being useful to provide a picture of inequality, do not tell us anything about trade-offs, time constraints, and, eventually, the incidence of time poverty. These are all issues that remain currently much underexplored in agriculture-nutrition literature, and future research should embrace the need to push these analyses beyond descriptives. A perspective on time constraints is necessary to understand when agriculture can produce unintended negative consequence for nutrition.

References


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