DEMOGRAPHIC RESEARCH

Research Article

Women's employment trajectories in a low-income setting: Stratification and change in Nepal

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Abstract

BACKGROUND
Across the globe, employment for pay outside the home plays a key role in the lives of women, and increasing the proportion of women involved in high-quality jobs is a critical component of reaching several sustainable development goals. While existing research from high-income societies demonstrates that women's employment is not constant over the life course, relatively less is known about women's employment trajectories in low-income countries.

OBJECTIVE
We examine employment trajectories among women in rural Nepal, accounting for job type, employment intensity, and earnings.

METHODS
Using eight years of quarterly employment data from the 2016 Female Labor Force Participation and Child Outcomes Study component of the Chitwan Valley Family Study, we identify typologies of employment trajectories by conducting sequence and cluster analyses.

RESULTS
First, half of the women in our sample were never employed in the study period. Second, among women who were ever employed, there were considerable transitions into and out of the workforce. Third, women's employment trajectories are largely determined by job type (wage labor, salaried jobs, and self-employment), with little movement across job types. Additionally, self-employed women and those with salaried jobs had higher earnings and higher employment intensity than women with wage labor jobs.

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CONCLUSIONS
We see intense stratification into job types, including no employment at all, and substantial transitions into and out of the workforce among workers. Women experience many employment disruptions over the life course, with little sign of upward employment mobility.

CONTRIBUTION
This study provides new empirical portraits of women's employment in low-income settings by investigating the multiple dimensions of women's employment from a life course perspective.

1. Introduction

Employment for pay outside the home plays a key role in the lives of women and their families across the globe, and increasing the proportion of women involved in high-quality jobs is a critical component of reaching several sustainable development goals (UN 2023). As female labor force participation (FLFP) rates have been around 50% in most countries since 2000, the impact of these issues is widespread (ILO 2016). Changing FLFP in low- and middle-income countries (LMICs) is typically described as the upward shift of a U-shaped relationship: FLFP first decreases with economic growth and its concomitant changes in the structure of the labor market and then increases, all while FLFP has increased for a given level of income (Goldin 1995). These changes have important implications for women and their family members. First, employment patterns are a key dimension of social mobility. A mobile society allows individuals to move up the economic ladder over a lifetime, whereas immobility means that economically disadvantaged individuals have few opportunities to improve their life chances (Tiwari, Shidiq, and Balcázar Salazar 2016). Second, changes in FLFP go hand in hand with variation in women's autonomy and health, spousal relationship dynamics (including domestic violence), household income, and child health and education (Brauner-Otto, Baird, and Ghimire 2019; Burroway 2017; Debnath 2015; Ghosh and Chopra 2019).

Research from high-income countries demonstrates that women's employment varies over the life course (Aisenbrey and Fasang 2017; Killewald and Zhuo 2019; Lu et al. 2017). However, comparatively little is known about employment patterns for women in low-income settings. This paper examines the employment trajectories of women in Nepal, shedding light on this crucial dimension of social mobility and women's lives in a low-income setting. Nepal was classified by the World Bank as a low-income country until 2019, when it was elevated to a lower-middle-income country (World Bank n.d.).

The largest industry in terms of employment is agriculture, much of which occurs in the Terai region, which borders India (Government of Nepal 2019).

Using eight years of quarterly employment data, we contribute to the literature in three major ways. First, we present detailed descriptions of women's employment patterns, as well as key sociodemographic characteristics associated with each distinct employment trajectory over eight years, the first such descriptions of their kind. Second, we examine changes in women's employment across job types over this period. Third, we assess how employment intensity and earnings change over time and across job types. This thorough investigation of women's employment patterns is made possible by unique longitudinal data that include the requisite breadth and depth of measurement of women's employment in a low-income setting, the Female Labor Force Participation and Child Outcomes Study (FLFPCO) component of the Chitwan Valley Family Study (CVFS), set in rural Nepal.

When discussing employment, in line with standard International Labour Organization (ILO) definitions,[3] we are specifically referring to women's *paid* work, regardless of whether it occurs in or outside the home or in the formal or informal sector. While we recognize that women perform unpaid labor in the household and on family farms, this study focuses on the transformative shift toward women's paid employment, an activity that is often done in addition to unpaid, domestic work.

2. Employment trajectories

Women's employment in low- and middle-income settings is clearly an important topic to policy makers (UN 2015) and has garnered considerable attention from the research community (Andres et al. 2017; Boserup, Su Fei, and Toulmin 2007; Dasgupta and Verick 2016; Goldin 1995; Heath and Jayachandran 2018; ILO 2016). However, virtually all of this research relies on static measures of women's employment that can mask the complexity of women's lives (Elder 1985; Hynes and Clarkberg 2005; Lu et al. 2017). Some research has been able to use panel data to examine employment at two time points and reveals nontrivial changes in employment status in lower-income settings. For example, a recent study in India found that 23% of women in its sample had different employment status in 2005 and 2012 (Sarkar, Sahoo, and Klasen 2019). However, the researchers were not able to identify changes in employment status within that seven-year period. A study from rural China using panel data that are only two years apart found that fewer than half of its sample was in the same employment category in both years (Entwisle and Chen 2002).

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[3] https://ilostat.ilo.org/work-and-employment-are-not-synonyms/

Analyses of women's employment trajectories over multiple time periods in the United States demonstrate that most women experience changes in their employment status over the life course, often as a result of particular events, such as childbearing (Aisenbrey and Fasang 2017; Killewald and Zhuo 2019; Lu et al. 2017; Pettit and Hook 2005). Furthermore, this research shows that these employment experiences can be clustered in meaningful ways that can help us understand the relationship between women's employment and other dimensions of the lives of women and their families.

Since the timing and length of (un)employment and the transitions into and out of various types of employment yield long-term effects on wages, subsequent employment (Damaske and Frech 2016; Phipps, Burton, and Lethbridge 2001), and even women's and children's health (McKetta et al. 2018; Sabbath et al. 2015), it is crucial to understand women's employment trajectories in LMICs. We examine women's employment over an eight-year period to determine the extent to which women experience transitions and to identify whether changes occurring over a long period can be clustered into meaningful typologies.

3. Type of employment

Employment trajectories are most revealing when they include depth in the employment categories (e.g., commitment, occupation) in addition to the temporal breadth or life course perspective (e.g., variation over time). Previous research on women's employment trajectories in high-income countries has focused on commitment to the labor force (or employment intensity) and shows separate clusters for women in full- versus part-time employment (Aisenbrey and Fasang 2017; Evertsson 2013; Hakim 2003; Killewald and Zhuo 2019). Entwisle and Chen (2002) similarly find employment intensity to be an important dimension of women's employment in rural China.

Recent studies in LMICs have shown that the type of job (self-employment, salaried employment, agricultural wage labor) a woman does is another crucial dimension for understanding employment in those contexts (Behrman and Gonalons-Pons 2020; Bongaarts, Blanc, and McCarthy 2019; Chatterjee 2018; Chatterjee and Vanneman 2022; Lu et al. 2017; Vikram, Chen, and Desai 2018). Tenure and consistency in employment likely vary by job type. For example, looking at data in 2005 and 2012, Sarkar, Sahoo, and Klasen (2019) found that Indian women were far more likely to stay employed in casual agricultural wage labor than they were to stay employed in family businesses or salaried jobs. Job type can also condition the relationship between women's employment and other outcomes, such as fertility and child health, given different employment environments and levels of flexibility in work hours (Brauner-Otto, Baird, and Ghimire 2019; Burroway 2017; Entwisle and Chen 2002).

Job type is therefore also important to consider in a longitudinal perspective. In a setting like rural Nepal, wage labor, which is largely agricultural, is seasonal and therefore subject to substantial variation over time. As educational attainment has increased over recent decades (Ghosh and Chopra 2019; Tiwari, Shidiq, and Balcázar Salazar 2016), we may see an increase over time in non-agricultural types of employment, such as salaried jobs in NGOs and other arenas, employment in government agencies, and self-employment, or switching between job types as women gain access to these other employers. Some have argued that this shift in the labor market away from agriculture is behind declining FLFP in India (Mehrotra and Parida 2017; Verick 2018). Because women can be employed in multiple jobs, to fully identify changes in employment experiences it is important to consider job type in this longitudinal perspective (Entwisle and Chen 2002). Moreover, job type is usually associated with employment stability and earnings. Investigating the type of jobs women hold over time thus helps tap into social mobility among women in this setting. Therefore we examine changes in employment over the life course by employment type, including agricultural/other wage labor, salaried jobs in the private/public sector, and self-employment inside/outside the home. These job categories are commonly used in South Asia (Chatterjee and Vanneman 2022; Chatterjee 2018).

Earnings are another important dimension of women's employment. Employment may be particularly beneficial to women when it increases their bargaining power within the household, and this is likely influenced by the amount a woman earns (Debnath 2015; Kelkar 2016). One reason we may see a link between job type and other outcomes is because of earnings differences. From a life course perspective, we want to consider earnings separately from employment status, because changes in employment may be welcomed if they are associated with higher earnings but of concern if they are associated with lower earnings or no change in earnings, in which case the instability of change itself could be problematic. Again, static measures of women's employment experiences that are able to look at only one point in time or a short time period will not be able to identify these types of patterns. To fill this gap, we examine women's employment mobility together with earnings trajectories.

4. Data

We used data from the 2016 FLFPCO component of the CVFS. The CVFS began in 1996 with individual-, household-, and neighborhood-level data collection in a stratified sample of 151 neighborhoods. The FLFPCO collected data from women (N = 2,046) with children aged 0–17 living in CVFS neighborhoods in 2016. Respondents were aged 15–

58 at the time of data collection.[4] Response rates are high. The overall response rate was 83%, with most nonresponse due to noncontact (i.e., selected women were out of the CVFS neighborhood for the entire data collection period).[5] Among women living in the CVFS neighborhood, the response rate was 98% (i.e., only 2% refusal). Interviews with mothers included work history calendars (WHC) that gathered quarterly employment information from 2008 to the date of the interview. Our analytic sample is all 2,046 women.

Although our data come from only one region of Nepal, we believe these analyses are relevant far beyond these borders. Chitwan is home to Asians of Indian and eastern Chinese descent, living in close proximity and under conditions similar to those in most of rural China and rural South Asia. The combined populations of India, Pakistan, Bangladesh, and Nepal are more than 1.5 billion – more populous than any other region of the world – with regional population change in employment a high public policy priority (Bista 2003; Blaikie and Sadeque 2000; UN 2011; World Bank 1993). Employment, living conditions, and family forms in Chitwan are therefore similar to those in many other parts of Asia (Dyson and Moore 1983; Maotra and Tsui 1996; Schuler et al. 2006), which constitutes nearly half of the world's population. At the same time, the gender gap in labor force participation increased to roughly 50 percentage points in southern Asia (41 percentage points in Nepal in 2017–2018), and FLFP rates vary substantially within this area (see Figure A-1) (Government of Nepal 2019; ILO 2016; UN 2010). Consequently Nepal provides an exceptional setting in which to examine this global phenomenon, in part because although the broader context is similar to what women and families are experiencing in other regions, the employment patterns appear to differ from those in other countries in the region (e.g., there is variation within the region in terms of FLFP rates and the gender gap in employment). Understanding more about the life course dynamics of women's employment in Nepal may help shed light on fruitful avenues for further research to understand the various employment scenarios throughout South Asia.

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[4] This broad age range means that women were aged 7–50 at the start of the work history calendars. We conducted all our analyses on a subset of women who were over age 25 at the start of the WHC, an age more commonly used in analyses of employment. The results are substantively identical to those shown here.

[5] The study population was defined at the child level – all children aged 0–17 living in a CVFS neighborhood. Their mothers were then selected to be interviewed, even if they were not living in the neighborhood at that time (e.g., even if they were temporary labor migrants living elsewhere or the children were only temporarily residing in the selected neighborhood with relatives). We do not know why mothers were not living with their children or how long they were apart. Although labor migration out of Nepal is high, 95% of labor migrant visas are given to men (Government of Nepal 2018). Internal migration for women is primarily due to marriage and therefore would have occurred earlier in the life course for this population. Women were asked to report on their activities in the WHCs, regardless of where they were living at the time.

5. Measures of women's employment

WHCs collected retrospective, quarterly data on employment for all women. WHCs use life history calendar (LHC) techniques, designed for improving recall and accuracy in the collection of retrospective data (Axinn et al. 2020; Belli 1998; Caspi et al. 1996; Freedman et al. 1988) – for example, by using relative timing and memorable events at the individual and community level in a calendar-type matrix. Using these individual (e.g., marriage, birth of a child) and community (e.g., earthquake, election, school construction) timing cues, women reported whether they had worked for pay at all (i.e., were employed) during each of the quarters in the calendar and, if so, in what type of job, how many days they worked, and how much they earned.

LHC techniques have long been used to improve recall across a range of contexts and for different substantive domains (Axinn, Barber, and Ghimire 1997; Axinn, Pearce, and Ghimire 1999; Freedman et al. 1988). A recent randomized experiment embedded in a population sample data collection in Chitwan, Nepal, found that the use of LHCs significantly increased the reporting of key events (Axinn et al. 2020; Axinn and Chardoul 2021).[6] LHCs had a larger impact on reporting key differences among less educated respondents. To the extent that less educated respondents may have higher recall error, LHCs should help minimize reporting differences by education and other relevant dimensions. Of course, recall error may still occur. In particular, we would expect shorter work cycles to be underreported when using these retrospective data collection techniques. However, we do not see strong evidence of this in our data – the mean number of days employed in the first eight quarters of the WHC was the same as that in the last eight quarters.

For type of job, women were asked about three main categories commonly used in Nepal: wage labor, salaried jobs, and self-employment.[7] Within each category, women were then asked whether their job fell into two or three subcategories. If it did not, they were asked to specify their job. Those responses were then recoded into the appropriate subcategories. This yielded nine categories of job type plus a category for not being employed. We do not have enough information to ascertain whether women were looking for employment or were out of the labor force completely. The category "not employed" is used throughout this paper and includes anyone not employed for pay in that time period.

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[6] Axinn and Chardoul (2021) used a different sample from that in the FLFPCO data collection used here.
[7] Wage labor is employment with a fixed hourly rate; thus workers' earnings depend on the number of work hours. In this context, wage labor is usually lower-skilled manual labor and seasonal agricultural work. Salaried employment is compensated with a fixed monthly or annual amount. It usually includes professional employment in the private sector or employment in the public sector.

Additionally, we use the number of days employed and women's earnings (in Nepalese rupees) reported in each quarter to create measures of days employed per quarter (a measure of employment intensity), earnings per quarter, and a calculated daily rate (earnings divided by days employed). We use 32 quarters of data (2008–2016) in our analyses.

Women were asked to include activities where they received in-kind remuneration, but no women did so. If women were paid by their families for work they did in the household, they could have reported that as employment here, but this type of transaction is uncommon, as work done on one's own farm is typically not remunerated. Work that did not result in any earnings is not captured by our measures. Appendix 1 compares measures of employment in the FLFPCO component of the CVFS to other data sources, namely the 2016 Nepal Demographic and Health Survey (DHS) and the 2017–2018 Nepal Labour Force Survey (NLFS). CVFS estimates of point-in-time or stagnant measures of employment are very close to DHS estimates and official results from the NLFS, especially for current employment. Likely at least in part due to the use of LHC methods in data collection, the CVFS yields higher estimates of previous employment.

One clarification is that all women are mothers by the end of our study period, but their employment might have occurred before they had their first child. We therefore refer to our sample more generally as "women" instead of "mothers" to more accurately represent the timing of our measures. Analysis of data from 2008 shows that by age 22 half of all women had children and by age 26 more than 90% of women had children. The few women who did not have children are more likely to have been employed. It is unfortunate that we are missing their employment experiences, but as they account for a very small proportion among this population, those employment experiences would likely not make a substantial difference in the analyses conducted here. We did estimate our employment trajectory clusters and models on a sample of women aged 26–45, for whom the sample definition would not have excluded many women; the findings are the same as those discussed here.

6. Methods

Our descriptive analyses involve multiple components. We first present static measures of employment that capture whether women were ever employed in a specific type of job over the entire WHC period. We then examine the degree of change and stability in women's employment by calculating measures of change and by using sequence analysis to examine employment trajectories over the 32 quarters of the WHC. Sequence analysis treats individual events and experiences as a sequence of states, showing how trajectories unfold over time (Aisenbrey and Fasang 2017; Zhang and Ang 2020). Here it allows us

to attend to the complexity of women's employment trajectories in terms of the ordering of each type of employment and the timing of entering and exiting these employments. Once we generate employment sequences for each woman, we use optimal matching to determine the "distances" between trajectories and conduct cluster analysis to identify typologies of employment trajectories (Barban and Sironi 2019; Pesando et al. 2021). We then examine women's employment trajectories in terms of employment intensity (days per quarter) and earnings (per quarter and daily rate). Our last step is to provide some description of how women in how each cluster vary in terms of key sociodemographic characteristics.

7. Results

7.1 Static employment over the WHC

We first look at employment experiences women had over the entire WHC (Table 1). The first notable finding is that half of the women in our study (N = 1,026), all of whom are of prime working age, had not worked for pay at all over the previous eight years (the WHC period). Almost all women who were not employed at the time of the interview reported that they would rather be employed if given the choice (97%).[8] The most common reason women gave for not being employed was that they had small children to look after (40% of those who said they would be employed if they could choose), followed closely by the workload at home (39%).

Turning to those women who were ever employed in the WHC period, we see that wage labor is the most common type of employment in this setting and is predominantly agricultural labor on another household's land: 23% of women were employed in wage labor for at least one quarter between 2008 and 2016, virtually all (94%) in agricultural labor on someone else's farm. Non-wage labor jobs included being self-employed (15%) and holding salaried jobs (15%). For self-employment, we know whether the enterprise was based in or outside the home, with in-home enterprises being more common (60% versus 44%). Unfortunately, we do not have more details regarding self-employment in these data. Our own experiences in the study site have shown that small convenience markets/shops and tailors are common woman-run businesses likely to be included in the self-employed outside the home category. Likely in-home businesses being reported include selling excess agricultural or livestock products (e.g., milk, eggs). For salaried jobs, the most common type of employer was a private office (84% of those with salaried

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[8] Seventy-two percent of the sample were not employed at the time of the interview and were asked, "Sometimes people have to do things for their families that they wouldn't do otherwise. If you could choose, would you be working now?"

jobs). Government and NGO offices were other types of employers – 17% and 3%, respectively.

Table 1: **Percent of women who were ever employed during the WHC (2008–2016), by job type**

	All women (N = 2,046)			
	N	% of all women	% of women who worked	% of women who worked in broad job type
Never employed	1,026	50.15		
Ever employed	1,020	49.85	100	
Wage labor	475	23.22	46.57	100
Agricultural labor	446	21.80	43.73	93.89
Domestic work	10	0.49	0.98	2.11
Work in shop	5	0.24	0.49	1.05
Other	22	1.08	2.16	4.63
Self-employed	308	15.05	30.20	100
Inside the home	184	8.99	18.04	59.74
Outside the home	137	6.70	13.43	44.48
Salaried job	307	15.00	30.10	100
Government office	51	2.49	5.00	16.61
NGO office	10	0.49	0.98	3.26
Private office	259	12.66	25.39	84.36
Not employed (in at least one quarter)	925	45.21	90.69	

Source: Data from FLFPCO component of the CVFS.
Note: Table refers to employment experiences over the WHC, not the entire life course. Percentages sum to more than 100 because women could experience more than one employment status over the 32 quarters of the WHC.

7.2 Change in employment status

As we can see from the fact that 90% of women who were ever employed also had at least one quarter of unemployment during the WHC, women's employment status was not constant over this entire time period. In fact, only 4.5% of all women were employed in every quarter of the WHC, meaning 45% of all women had experienced some transition into and out of the workforce in the previous eight years. For many women, this change included transitioning from unemployment to employment (41% of all women; 82% of women who were employed at all during the WHC).

Following the initiation of employment, women continued to experience changes in their status. Table 2 shows information on the number of transitions these women

experienced once employed, by type of job. Because some of the categories shown in Table 1 are so rare, we combine some job types to create six types: agricultural wage labor, other wage labor, self-employed in the home, self-employed outside the home, salaried in a government or NGO office, and salaried in a private office. The mean number of changes women experienced once employed was 4.1. This was much higher for women employed in agricultural wage labor (mean = 8.3; mode = 15 changes) than for self-employed women (mean = 1.2; mode = 0) or those employed in salaried jobs (mean = 1.5; mode = 1). Still, 51% of these women experienced at least one change (at least one period of not being employed after having been employed).

Table 2: **Descriptive statistics of number of transitions women experienced once they started working during the WHC period,* for women who ever held that type of job**

|	N	% with zero disruptions	min	p25	mean	p75	max	mode	sd
Any employment	1,020	32.45	0	0	4.1	7	21	1	5.4
Wage labor	475	7.58	0	3	7.9	14	21	15	5.6
Agricultural labor	446	5.38	0	3	8.3	15	21	15	5.5
Other wage labor	35	34.29	0	0	2.4	3	13	0	3.2
Self-employed	308	61.69	0	0	1.2	1	19	0	2.7
Inside the home	184	65.76	0	0	1.2	1	16	0	2.8
Outside the home	137	50.36	0	0	1.3	1	19	0	2.7
Salaried job	307	34.54	0	0	1.5	2	12	1	2.2
Government/NGO	60	36.67	0	0	1.4	1.5	12	1	2.3
Private office	259	32.43	0	0	1.6	2	12	1	2.2

*The first transition from not being employed to being employed is not included here.

Disruptions were least common for women who were self-employed, especially those with at-home businesses; only 39% of self-employed women experienced a change in employment status once they became employed (34% in home businesses, 50% out of home businesses) versus 93% of wage laborers and 66% of women in salaried jobs. Only 8.6% of those ever employed were employed in every quarter of the WHC and were in the same type of employment (1.6% in wage labor, 4.3% self-employed, and 2.6% in salaried jobs). Disruptions were most common for women employed as agricultural wage laborers. The mean number of transitions experienced was more than eight, and 95% of women experienced at least one.

7.3 Employment trajectories

To further understand how women's employment experiences change over time we explore their employment trajectories over this eight-year period. To do this, for each quarter, women are classified according to job type, including a category for not being employed. In sequence analysis, these categories must be mutually exclusive. While women could be employed in more than one type of job in a given quarter, this rarely happened. When it did, women were asked which job they spent more time on, and we code them according to that response.[9] Figure 1 shows the distribution of employment by job type for each quarter (Panel 1a) and the quarterly employment sequences (Panel 1b) of the 1,020 women who were ever employed during the WHC.

Figure 1a): **Distribution of employment states, 2008–2016, women aged 15–58 in Chitwan, Nepal**

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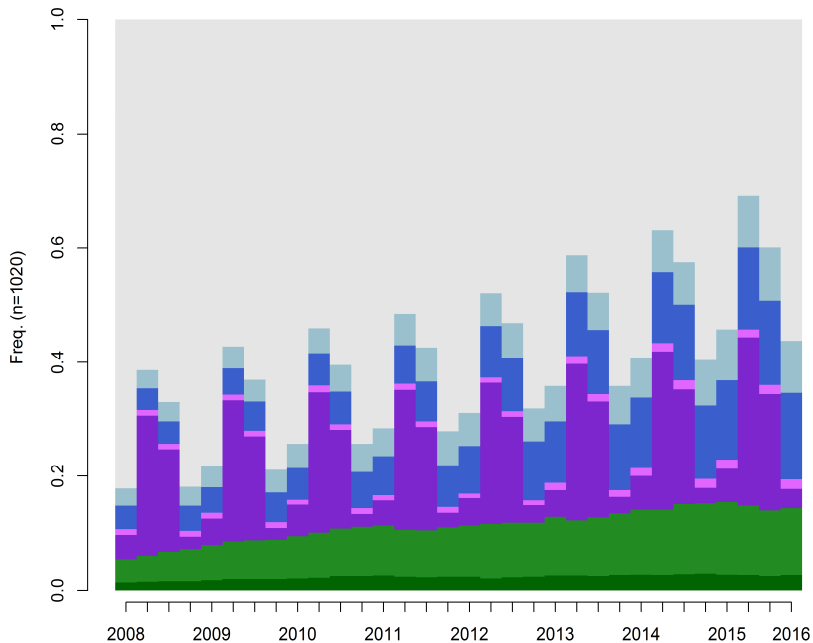
[9] This question was asked only if women reported being employed in more than one of the broad work categories (wage, salary, and self-employment). We recorded only one subtype of employment for each quarter, so we do not know if women had more than one type of job within that broad category. (For example, if a woman reported being employed in agriculture on someone else's farm and as a domestic worker in another household, only one of those responses was recorded during data collection.)

Figure 1b): **Employment sequences, 2008–2016, women aged 15–58 in Chitwan, Nepal**
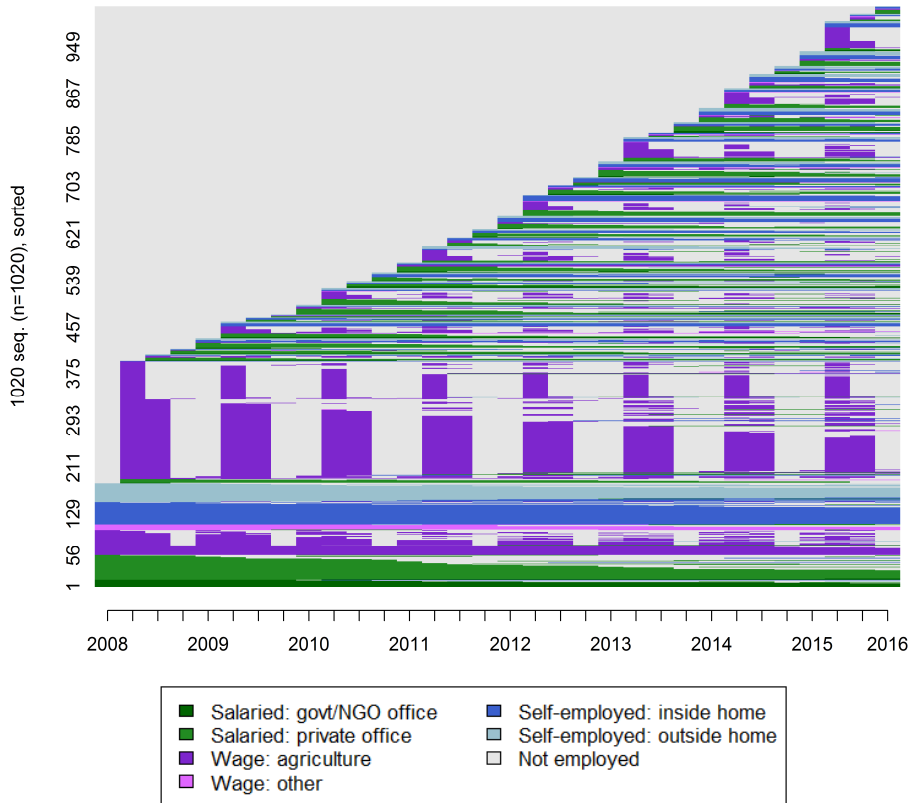
We observe multiple patterns about mothers' employment from Figure 1. First, there is tremendous variability over the study period, demonstrating that existing snapshot measures of women's paid work in LMICs obscure substantial variation. The percent of women employed can more than double from season to season. Of course, static measures that capture longer time periods may avoid this error, but standard data collection methods yield lower estimates than our LHC approach (see Appendix 1).

Second, employment becomes more common over the data collection period. This may reflect an age effect, where women are less likely to be employed when they are very young, and/or a period effect, which suggests a societal shift toward a greater proportion of women working for pay. Since Chitwan has generally been experiencing

economic growth, the period effect occurring in this specific area may be one of increasing FLFP.[10] While this could also be due to recall error, we do not see evidence of this in our data. Recall error is likely greater among older women, but we do not see dramatically different patterns in employment by birth cohort. Furthermore, among women working in the last year of the WHC, older women (those more likely to have recall issues) were significantly more likely to report working in the first year than were younger women, supporting an age effect. More than twice as many women aged 15–29 in 2016 were employed in the first quarter of 2016 compared to those employed in the first quarter of 2008. But even among women over age 35 in 2016, there was a substantial increase in employment over the study period (83%).

Third, we see that agricultural labor (dark purple) is highly seasonal, with many women cycling between this type of wage labor and not being employed. Because wage labor is largely agricultural work, in the dry season, labor force participation falls to roughly 20% of its maximum level. (Some of this 20% is non-agricultural wage labor, seen in lighter purple.)

What we do not see in Figure 1 is much movement across job type – 90% of women who were employed were so in only one of the nine job categories identified during data collection. Only 69 women (7% of workers) were employed in more than one of the broad job categories of wage labor, salaried job, or self-employment (see Table A-2). Of course, women may be cycling between jobs within the nine categories identified here, but we cannot identify that from these data.

7.4 Employment trajectory clusters

In the next set of analyses, we further explore women's employment experiences by using cluster analysis to identify employment typologies. Figure 2 shows six different employment trajectory clusters:[11] (1) consistently not employed (N = 1,418, 69%); (2) stable self-employment outside the home (N = 46, 2%); (3) stable self-employment inside the home) (N = 59, 3%); (4) transition to mixed employment (N = 175, 9%); (5) seasonal wage labor (N = 279, 14%); (6) salaried employment (N = 69, 3%). These clusters show that there is tremendous variety and instability in the employment experiences of women

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[10] Although we have observed this increase in our own fieldwork in the study area, it is difficult to document it with other data. Until 2016–2017, Nepal included labor for own use production in its measure of employment. Consequently, it is not possible to use official statistics to identify the precise nature of this societal shift.

[11] Measures of cluster performance such as average silhouette width (ASW) show that a three-cluster model best fits the data (ASW = 0.713): (1) not employed/wage labor employment; (2) salaried work/self-employment outside the home; (3) self-employment inside the home. However, these clusters reveal very little about women's employment patterns. A six-cluster model (ASW = 0.624) allows us to see additional variation in employment trajectories.

in Nepal. Although 69% of women were in the consistently not employed category, more than 80% of women not in this group were in clusters characterized by some amount of transition in their employment experiences over the previous eight years (clusters 4, 5, and 6). Only two clusters (2 and 3), accounting for 5% of women, are categorized as stable employment situations, although this expands to 19% if we consider seasonal wage employment to be stable in that women can regularly count on this employment to occur. In sum, most women are only marginally attached to the labor market.

Figure 2:   Employment trajectory clusters, 2008–2016, women in Chitwan, Nepal
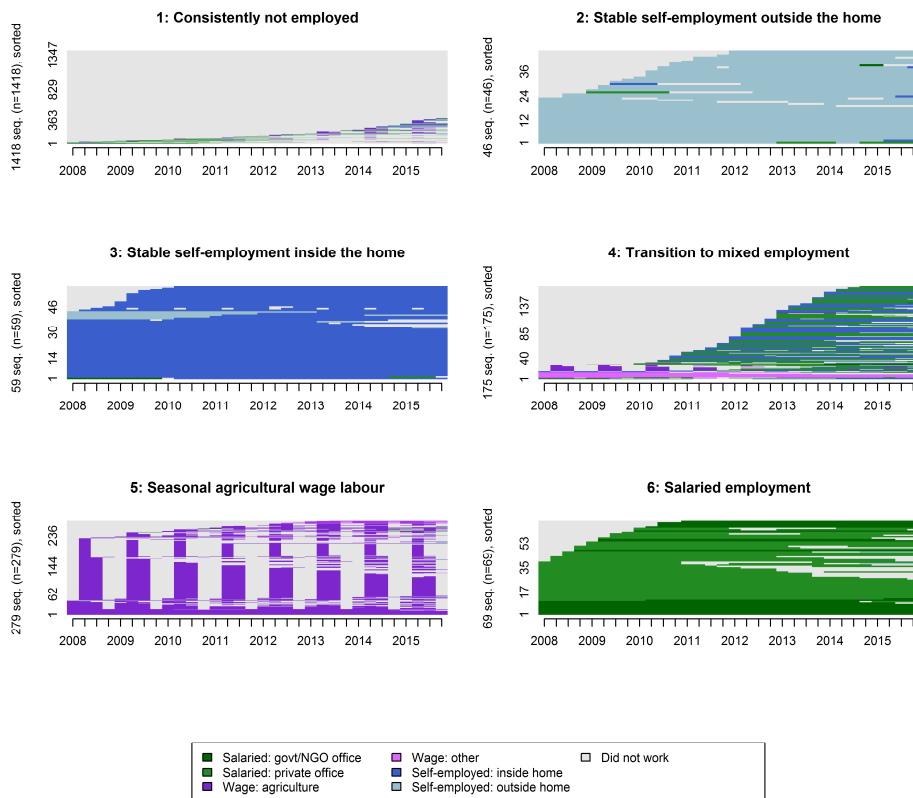
Another notable observation from Figure 2 is that most clusters are defined by the type of job women held. Only cluster 4 includes a nontrivial proportion of quarters in a different employment type. In part this is because, as we saw above, there is such little movement across job types.

7.5 Employment intensity

In addition to type of job, employment intensity is another critical aspect of employment experiences. In Figures 1 and 2, women were recorded as being employed in a quarter regardless of the level of labor supply. Figure 3 looks at these employment patterns but reveals the intensity, as measured by days employed in the quarter, for each type of employment separately. The darker the blue color, the more days employed during the quarter. In general, we see that across job types, the employment intensity is fairly constant in quarters where women were employed. Panel A shows the employment trajectories by intensity for those who were employed in agricultural wage labor. We see that in addition to the seasonality shown above, wage labor is also characterized by few days employed. Compared to self-employment (Panels C and D) or salaried employment (Panels E and F), women in wage labor were employed for fewer quarters and for fewer days during quarters when they were employed. In fact, the mean number of days employed per quarter was only 15 in agricultural wage labor, compared with 81 and 82 for salaried jobs and self-employment, respectively. Table A-3 shows these descriptive statistics for employment intensity by job type.

In Figure 3 we also see that a nontrivial proportion of women in salaried jobs, especially those who were self-employed, reported being employed almost every day in the quarter. A typical work week in Nepal is six days, with Saturdays off, so being employed 78 days per quarter is associated with a full work schedule.

One final note about Figure 3 concerns women with their own businesses outside the home (Panel D) and those employed in salaried jobs in private offices (Panel E). Here, as visualized by the lighter colors in more recent years, we see evidence of a decline in employment intensity over the study period. Although more women are employed at the end of the WHC period than the beginning, on an individual level, many women are leaving these high-intensity jobs.[12]
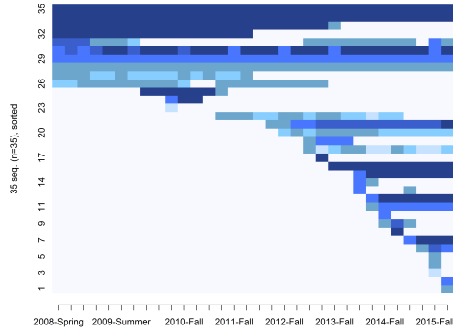
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[12] This could be because employers are changing their hiring practices over time. Unfortunately, we do not have information on this in our data.

Figure 3: **Employment intensity trajectories, 2008–2016, women in Chitwan, Nepal. Days worked per quarter by type of employment**
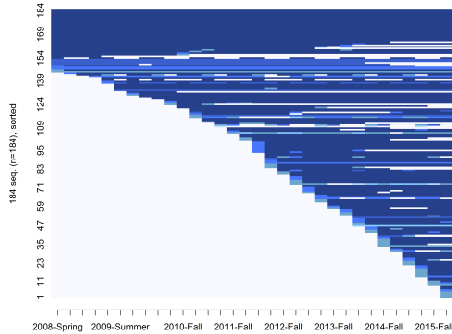
Panel A. Agricultural wage labor
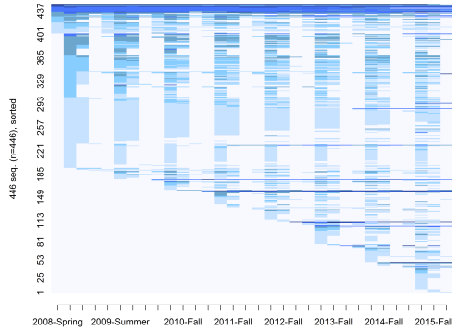
Panel B. Other wage labor

Panel C. Self-employment inside the home

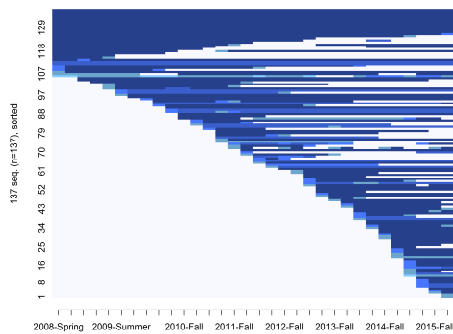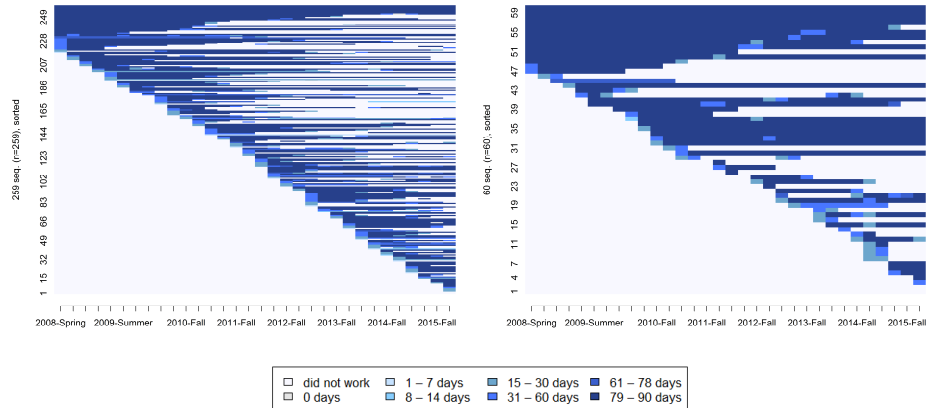Panel D. Self-employment outside the home

Figure 3: **(Continued)**

Panel E. Salaried employment in private offices   Panel F. Salaried employment in government/NGO offices

did not work   1 – 7 days   15 – 30 days   61 – 78 days
0 days   8 – 14 days   31 – 60 days   79 – 90 days

7.6 Earnings

The final dimension of employment we explore is earnings. Since earnings in any given quarter are determined by the number of days employed and compensation amounts, we calculated an average daily rate for each quarter that is equal to the total earnings for that quarter divided by the number of days employed.[13] Figure 4 shows the distribution of earnings by job type, and Figure 5 shows day rates. (Table A-3 shows descriptive statistics for these measures.)

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[13] Earnings are what women themselves reported and are not adjusted for inflation. Some of the stability in earnings across the eight-year WHC period is likely due to respondents struggling to recall exact amounts. However, it is likely women would remember large increases or decreases in earnings.

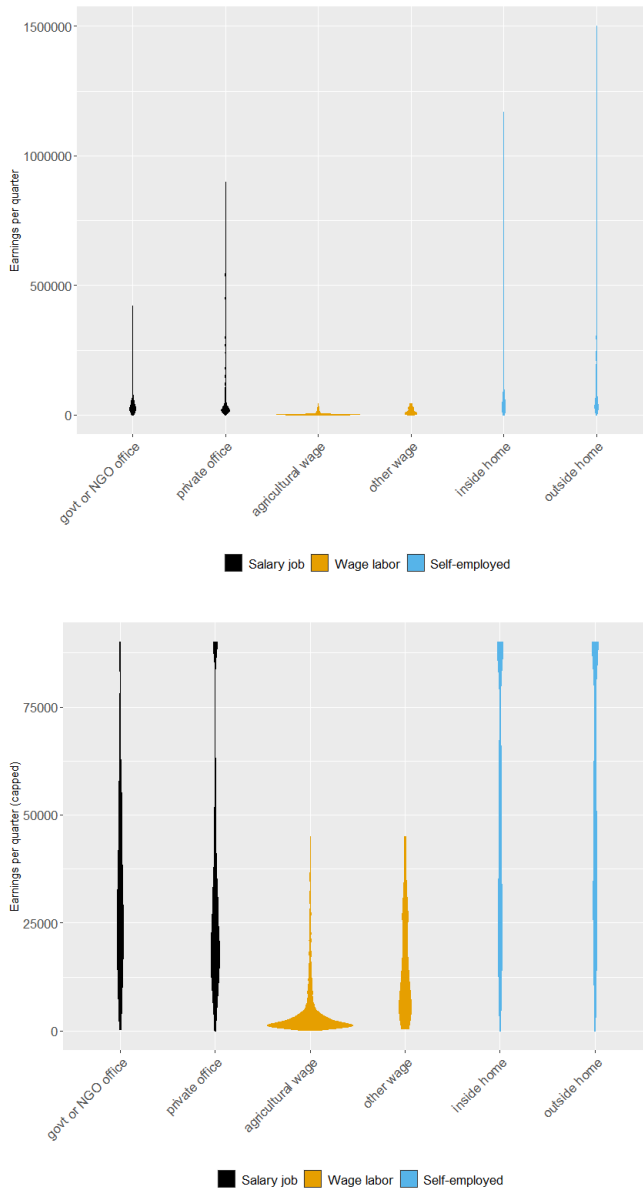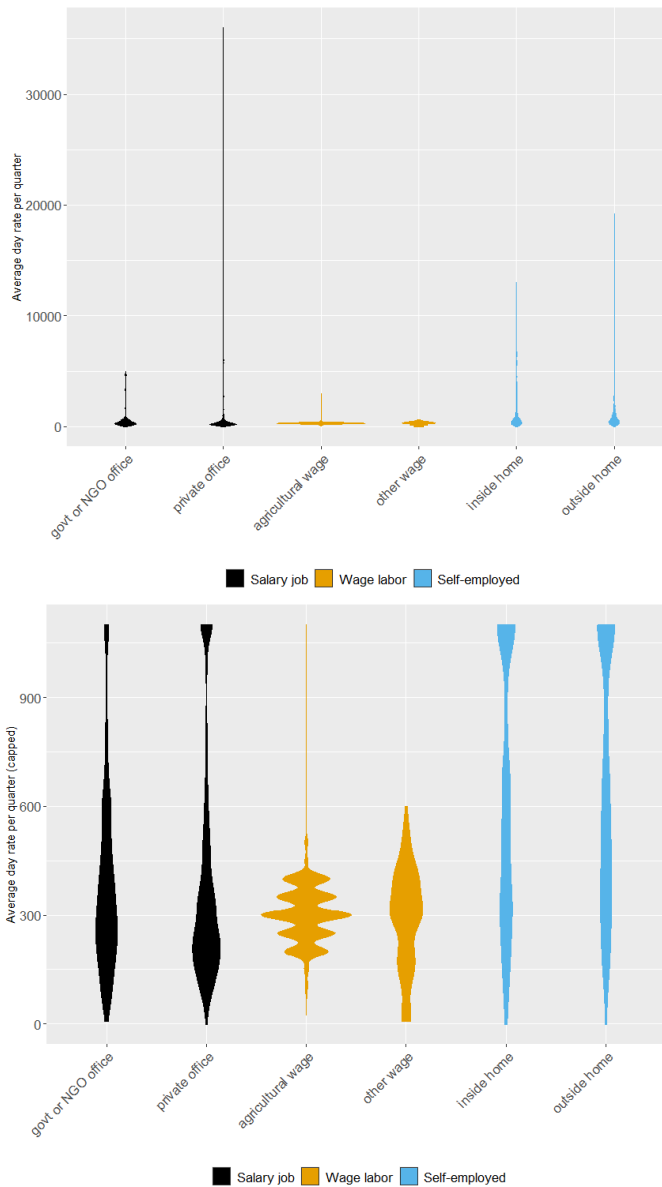**Figure 4:** **Violin plots of earnings per quarter, full range and capped at NR 90,000 (< 3%)**

Figure 5: **Violin plots of day rates per quarter, full range and capped at NR 1,100/day (< 3%)**

Earnings and day rates are fairly constant over the WHC periods. This stability may be due in part to women not fully remembering their earnings many years in the past, even with the aid of LHCs to identify key life events, such as receiving raises or promotions. Sixty-one percent of women who were employed did not experience changes of more than 100 Nepalese rupees (NR) (about US$0.83) in their earnings, and 85% did not experience this level of change in the day rates. However, there are substantial differences in earnings and day rates by type of employment. Across all quarters and all types of employment, mean quarterly earnings were NR 46,946 (US$368). This was much lower for wage jobs, where mean quarterly earnings were only NR 5,325 (US$42), and much higher for self-employed women (mean quarterly earnings NR 86,016 [US$637]). Agricultural wage labor had the lowest earnings and day rates, whereas self-employment outside the home had the highest. Women employed in private offices had higher salaries than those employed in government or NGO offices.

As a robustness check, we conducted cluster analyses using earnings (day rates) and employment intensity (days) instead of job type. These are shown in Figures A-2 and A-3, respectively. Unsurprisingly, given the tremendous stratification across job type in terms of employment intensity and earnings, the clusters are similar. Eighty percent of women were in the same type of cluster, whether based on job type, day rate, or employment intensity. Importantly, we do not see any new employment trajectories, such as increases or decreases in earnings or employment intensity, over the WHC period.

More than half of the women in clusters 2–6 were in the comparable cluster, regardless of which dimension of employment is used to generate the cluster. There are two substantive types of differences in these sets of clusters. First, the women in salaried jobs (cluster 6, job type) are largely redistributed into other groups, particularly when we look at earnings only. This is because there is more variation in earnings for these jobs. For the clusters based on employment intensity, most women from the salaried cluster are in the stable high-intensity schedule (80%), but 23% of these women end up in the moderate stable-day-rate cluster (cluster 3, day rate) and 17% are in the periodic low-day-rate cluster (cluster 5, day rate).

Second, there is some movement in the two self-employed clusters based on earnings and employment intensity. For example, about 30% of women in the self-employment outside the home cluster (cluster 2, job type) were in the moderate stable-day-rate cluster (cluster 3, day rate), and 34% of women in the self-employed inside the home cluster (cluster 3, job type) were in the high stable-day-rate cluster (cluster 2, day rate). As seen in Figure 5, self-employment outside the home can yield much higher earnings than self-employment in the home, but in general the earnings distribution is similar for these two types of employment.

7.7 Description of clusters

Although a full investigation into the selection into employment, job type, and clusters is beyond the scope of this paper, we explore key characteristics of women in each of the clusters to further our understanding. These descriptions are neither able nor designed to reveal information on the processes of selection into the various clusters. Rather they aim to offer additional background information that helps us comprehend these clusters in the context of women's lives. Table 3 shows descriptive statistics for these measures by cluster and overall. For ease of interpretation, highest values are shown in **bold** and lowest values in *italics*.

First, women in cluster 1, consistently not employed, and cluster 4, transition to mixed employment, are younger than women in other clusters. Those in cluster 3, self-employment inside the home, are the oldest on average.

Second, childbearing is of particular concern regarding women's employment due to the competing nature of the mother and work roles (Coser 1974; Glass and Camarigg 1992; Hochschild 1997). Previous research in LMICs has demonstrated a negative relationship between labor force participation and fertility (Behrman and Gonalons-Pons 2020; Bongaarts, Blanc, and McCarthy 2019; Cáceres-Delpiano 2012; Jensen 2012). Here, both the quantum and tempo of childbearing appear to be different across clusters. Women in cluster 5, seasonal agriculture, had the highest number of children both before the WHC and in total. However, women in cluster 1, consistently not employed, had the highest mean number of children born during the WHC. This is not surprising since this is the youngest group of women. Women in cluster 6, stable salaried employment, had the fewest total number of children on average but were on the higher end of childbearing during the WHC period. The smaller family size may reflect some work–family incompatibility. In contrast, women in cluster 3, stable self-employment inside the home, had the second highest number of children before the WHC but the lowest during the WHC.

Another key characteristic related to employment is education (Yabiku and Shlabach 2009). Here we look at both a woman's own and her husband's education. In both situations we see that those with less education are overly represented in cluster 5, seasonal agriculture, and that those in cluster 6, stable salaried employment, had the highest education. Importantly, a woman's own and her husband's education appear to be similar, showing a general pattern of educational homogamy across clusters.

However, there does appear to be some substitution between woman's own and husband's job type. For women in cluster 6, stable salaried employment, husbands were more likely to be employed in wage labor (within this cluster compared to working in any other type of job and compared to husbands of women in other clusters). On the other hand, women in cluster 5, seasonal agricultural labor, were more likely to have husbands working in salaried jobs compared to women in other clusters. (Within the cluster, these

women were more likely to have husbands working in wage labor.) Regarding self-employment, husbands and wives appear to be working in similar types of ventures; women in cluster 2, stable self-employment outside the home, were more likely to have husbands who were self-employed outside the home compared to women in other clusters. This situation is similar for those self-employed inside the home.

Table 3:   Distribution of key characteristics by work clusters

	1. Consistently not employed (N = 1,418)	2. Stable self-employment outside home (N = 46)	3. Stable self-employment inside home (N = 59)	4. Mixed employment (N = 175)	5. Seasonal agricultural labor (N = 279)	6. Stable salaried employment (N = 69)	Total (N = 2,046)
	Mean (%)	Mean (%)	Mean (%)	Mean (%)	Mean (%)	Mean (%)	Mean (%)
Age at interview	*28.06*	30	**31.71**	28.10	30.00	29.35	28.52
Childbearing							
Number kids before WHC	1.27	1.35	1.76	1.12	**2.16**	*0.94*	1.38
Number births in WHC	**0.78**	0.61	*0.42*	0.71	0.64	0.71	0.74
Total number kids born	2.04	1.96	2.19	1.83	**2.80**	*1.65*	2.12
Education (in years) at end of WHC	7.38	8.30	8.75	8.62	3.79	10.57	7.17
Husband's education at end of WHC	8.88	9.61	9.90	9.84	5.17	11.65	8.60
Husband's employment (month before interview)							
Any job	78.70	80	*69.49*	76.00	77.06	**84.06**	78.2
Wage labor	57.97	39.13	*38.98*	50.86	50.18	**78.26**	56.01
Self-employed inside home	6.06	10.87	**23.73**	14.29	*0.72*	1.45	6.5
Self-employed outside home	9.38	**32.61**	6.78	7.43	*1.79*	5.80	8.5
Salaried job	6.77	2.17	5.08	4.57	**25.81**	*0.00*	8.8
Caste-religio-ethnic group							
Brahmin-Chhetri	41.18	39.13	**57.63**	51.43	*15.41*	56.52	39.49
Hill Janajati	**22.78**	19.57	*13.56*	21.14	16.85	15.94	21.26
Dalit	13.05	2.17	*1.69*	10.86	**21.15**	5.80	13.15
Newar	5.36	**23.91**	13.56	6.29	*2.51*	10.14	5.87
Terai Janajait	16.85	13.04	11.86	*9.14*	**44.09**	11.59	19.50
Other	0.78	**2.17**	1.69	1.14	*0.00*	0.00	0.73
Household composition							
Number adults 15–50 in household	3.76	3.80	3.32	3.90	*3.14*	**3.93**	3.68
Total number in household	6.42	6.15	*5.81*	6.70	5.92	**6.87**	6.37
Household wealth in 2008*							
Owns any agricultural land	**85.88**	*65.00*	79.66	80.24	74.16	83.08	83.04
Owns any livestock	**73.64**	*42.50*	50.85	72.46	73.41	70.77	72.06
Minutes to nearest employer in 2008	10.71	*6.24*	9.46	10.89	**12.53**	8.17	10.75

Bold numbers denote the maximum across clusters; italics denote the minimum.
*Not full sample. Ns = 1,324, 40, 59, 167, 267, 65, and 1,922 for each column, respectively.

Another important factor related to work in Nepal, as throughout South Asia, is caste-religio-ethnic group (Bennett 1983; Brauner-Otto and Pearce 2020; Fricke 1994;

Pearce, Brauner-Otto, and Ji 2015; Vyas, Hathi, and Gupta 2021). Hindus, particularly Brahmin-Chhetris, have long-held positions of power across societal domains. Newars, members of a separate ethnic group who can be Hindu or Buddhist, have historically been merchants and shop owners, and their centrality to the expansion of a market-based economic system has boosted their relative social status, making them also part of the elite. Other major groups were historically marginalized and have continued to have lower social standing. These are the Hill-Janajati (e.g., Gurung, Lama, Magar, and Tamang), Dalit (e.g., Damai, Sarki, and Kami), and Terai-Janajati (e.g., Tharu, Kumal, Darai, and Bote). We note there is much debate in Nepal regarding status, power, and caste-ethnic identity.

One noticeable pattern concerning caste-religio-ethnic group and employment clusters is that Brahmin-Chhetri and Newari women, the most privileged groups, are underrepresented in the seasonal agricultural cluster, whereas the Terai Janajati, the indigenous ethnic group in this region, and Dalit are overrepresented. Additionally, the self-employed clusters have higher percentages of Newari women, which is not surprising given their long history as shopkeepers and business owners.

Finally, we turn to measures of household composition and wealth, as well as neighborhood location. In terms of household composition, women in cluster 3, self-employed inside the home, were living in the smallest households, while those in cluster 6, salaried jobs, were in the largest. Notably, this large household size is driven by having a larger number of older household members.

Household wealth data are available for only a subset of women living in households that were part of an earlier CVFS data collection (N = 1,922). Here we see that women in cluster 2, self-employed outside the household, are in households that are least likely to own agricultural land and have smaller landholdings (not in table). They are also more likely to live in more urban areas. (The mean distance to the nearest employer was shortest for women in this cluster.)

Women in cluster 5, seasonal agriculture, also live in households with lower rates of land ownership and small agricultural landholdings. This implies that women with fewer agricultural responsibilities in their own household are likely to be employed elsewhere, especially when they are otherwise disadvantaged (e.g., by caste-religio-ethnic group). Women in cluster 3, self-employed inside the home, are in households that are less, but not the least, likely to own livestock. This is somewhat surprising since one common form of self-employment is selling excess farm products. Future research, likely involving qualitative data collection, is necessary to better understand the type of work these women are doing.

Overall, women in cluster 6, stable salaried employment, have fewer children, come from more privileged ethnic groups, have more education, and are married to men with more education. They also live in larger households than other women. At the other end

of the spectrum are women in cluster 5, seasonal agriculture, who have more children, less education, and less educated husbands and come from more marginalized ethnic groups. Those in the largest cluster, cluster 1, consistently not employed, are younger than those in the other groups, and have low levels of education. Although these patterns are interesting and reinforce hypotheses regarding the stratification of women's employment opportunities, a more thorough investigation of women's selection into employment and the consequences of that employment for households and household members is necessary to fully understand these relationships.

8. Conclusion

Global policy agendas are pushing for increasing and improving women's employment, yet we have little baseline knowledge of what employment over the life course looks like for women in LMICs (ILO 2016; UN 2023). Furthermore, these countries are undergoing dramatic changes in the structure of labor markets, particularly with a general shift away from agricultural labor (Mehrotra and Parida 2017; Timilsina et al. 2019; Verick 2018). Research from high-income countries demonstrates that women's employment is not constant over the life course; however, very little is known about how women's employment varies in LMICs. This paper has presented new information on employment patterns for women living in a low-income country, Nepal. Using eight years of quarterly employment data, we are able to paint a longitudinal portrait of women's employment patterns. Importantly, we reveal multiple dimensions of these patterns along the lines of job type, employment intensity, and earnings, as well as the sociodemographic characteristics of women displaying these various employment patterns. Our analyses show that women's employment can be characterized as having both marked stratification and substantial change.

First, regarding stratification, we show that there is little movement across job type, including unemployment. Half of the women in our sample were not employed at all in this period. Of the half that were employed, the vast majority held only one type of job. Cluster analyses designed to identify employment patterns reveal that 86% of women fell into clusters characterized by employment in one job type or consistent unemployment.

Second, persistent stratification by employment type is also closely related to differentials in employment intensity and earnings. Wage labor jobs involved fewer days of work and resulted in far lower earnings than self-employment or salaried jobs. The tenuous nature of agricultural wage labor may be of concern to policy makers. This is the most common type of employment women were engaged in but also had the lowest intensity (in terms of days per quarter) and the lowest earnings. While agricultural employment may provide women and their families with crucial income, it does not

appear to offer substantial income boosts, and given the intense stratification of occupations, it is not a tool for upward mobility. Descriptive analysis of the characteristics associated with each job cluster further reveals intense stratification in terms of caste-religio-ethnic group, education, and household resources.

Third, despite the stability in type of job, most women did experience disruption in their employment status. Two-thirds of women who were employed experienced at least one period of unemployment after having been employed, although again, the proportion of women experiencing disruptions also varies by employment type. Self-employed women are the least likely to experience disruption, although more than one-third of them did, followed by those holding salaried jobs and finally those in wage labor. While some of these disruptions can be anticipated, such as those due to agricultural cycles, disruptions occur for women holding professional jobs too. Future research should investigate the causes and implications of these transitions for women and their families, particularly in relation to their sociodemographic characteristics and critical life course events.

Overall, the intense stratification of women's employment patterns also signals limited social mobility as far as women's labor market positions are concerned. Although FLFP has increased over the study period, only a small proportion of women ($< 2\%$) experienced upward mobility from lower- to higher-paid employment, such as from wage labor to self-employment or salaried jobs.

One could interpret our findings as initial support for several types of policies. First, policies that aim to initiate female employment might help women cross the first barrier. Our results reveal that child care responsibilities are a major reason women were not employed, implying that providing or improving access to child care and extending paid leave may be particularly fruitful. Given the strong association between education and employment types, broad-based development policies that aim at increasing access to education, trainings, and credentials among women, especially those from marginalized communities, are fundamental to increasing women's mobility. However, additional research is necessary to better understand the considerable barriers women face to employment. Second, policies that support women entering and maintaining salaried jobs would likely also be beneficial, as these jobs are relatively well paying but are less common than wage labor and have higher rates of disruption than self-employment. Finally, training programs that facilitate skills development and accumulation, particularly those for entrepreneurs, might help improve women's mobility, as self-employment was the most consistent type of employment women were engaged in and the highest paying.

However, our analysis does not speak to the consequences of any of these employment periods for women or their families. Women may be satisfied with their agricultural wage labor jobs because the periodic nature and low employment intensity

of this job type allows them to balance between contributing financially to their households and their other roles and activities, such as household work and leisure. Self-employed women may have more stress and more work–family conflict because of the intensity of their workload. Additionally, our data did not include information on the number of hours women were employed in any of these jobs. This crucial employment characteristic can shape women's employment experiences and should be included in future research. Before firm policy recommendations can be made, we need to better understand the implications of these different types of employment.

Finally, we note that this paper is limited to studying women's employment tied to earnings. Unpaid work, both unremunerated work in family ventures and unpaid domestic work, is extremely common in LMICs, especially among women. The amount of unpaid work women do is also likely connected to the same processes that determine what type of job they are paid to do. For example, women from more privileged caste-religio-ethnic groups likely have more access to salaried jobs and are also more likely to have help in their households in the form of hired domestic workers. Alternatively, women living on large farms may be too occupied with their own unpaid household agricultural production to work as wage laborers on others' land. Nevertheless, since more women in LMICs are now entering paid employment, our analysis of the various dimensions of paid employment can have crucial implications for the labor market structure and female empowerment.

Future research should also unpack the selection into job type. Are women doing wage labor because they seek out the low intensity or because they are systematically shut out of better-paying jobs due to social and ethnic stratification or discrimination in the labor market? Research from India points to individual, household, and community factors as all important in shaping women's employment status (Chatterjee and Vanneman 2022; Chatterjee 2018; Mehrotra and Parida 2017). However, this research is limited to static measures of women's employment in a one-year period. Future research should combine our longitudinal perspective with these multilevel influences. The portrait of employment presented here is a crucial first step in understanding the roles that employment plays in women's lives for women in LMICs, but more is needed to contextualize these specific patterns of stratification and change.

9. Acknowledgments

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Appendices

Appendix 1: Comparison of CVFS employment measures with other data sources

This appendix compares measures of women's employment obtained from work history calendars to measures of women's employment from other data sources, namely the 2016 Demographic and Health Survey (DHS) and the 2017 Nepal Labour Force Survey (NLFS). There are several challenges in making direct comparisons due to differences in definitions and questions asked. The CVFS asked women about paid employment (cash or in-kind) in three broad types of work using terminology commonly used in Chitwan: wage labor, self-employment, and salaried employment. It did not collect occupational data. On the other hand, DHS did not limit questions to paid employment, asked about occupation, and asked if women were self-employed and paid for their work in separate questions. The time reference for questions was also different: The most recent time period for the CVFS was the past quarter; it was the past week for the DHS. Comparisons to the NLFS were only possible using the published report, so we are limited to the sample definitions reported. The CVFS used employment definitions similar to those in the DHS. Despite these differences, it appears that the CVFS results are in line with other estimates.

Table A-1 shows how estimates of women's employment status vary between the CVFS and the DHS. For this comparison we limited the sample of both sources to women aged 15–49 with at least one child under age 17 in the household.

Data for the DHS comparison were obtained from the DHS program: https://dhsprogram.com/.

Work for pay

Currently. Looking at current employment (Panel A), we see that despite referring to different time frames, the CVFS (past quarter) and DHS (past seven days) yield virtually identical employment rates, 29%. The NLFS report shows that 23% of women aged 15+ had worked for pay in the past week.

Last year. In Panel B we see that the CVFS yields a slightly higher percentage of women who worked for pay in the past year than the DHS, 40% versus 34%. This is not surprising since the CVFS measure is created from work history calendars, which are specifically designed and used to improve recall. In this case, women were asked about their employment in each quarter separately. On the other hand, women in the DHS were asked only one question regarding whether they had worked in the previous 12 months.

Type of job

When recoding variables in the DHS to make job type measures as similar as possible to the CVFS, we used the following decision tree. Categories in black correspond to CVFS categories.
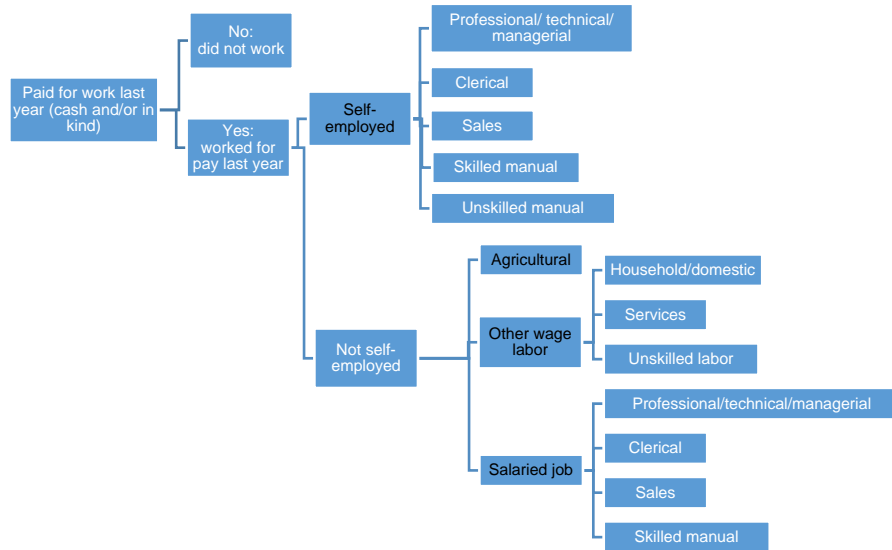
Currently. Estimates of current employment in salaried type jobs are similar in both the CVFS and the DHS: 24% and 27%, respectively. These are even closer if we remove the skilled manual labor category from the DHS group (24% and 23%). Additionally, the measure of other work that is typically paid on an hourly basis (other wage labor) is similar in both data collections. This estimate is also similar to ILO-reported estimates using the 2017, more narrow definition of employment (see Figure A-1).

However, making comparisons is more complicated for the other groups. According to the CVFS, only 28% of women who were working were doing so in agricultural wage labor in the past quarter, but in the DHS, 45% were doing so in the past week. Although it is possible that women in the CVFS data collection are not reporting short spells of wage labor employment early in the quarter, we expect that this difference is largely due to the fact the DHS explicitly includes work on the family farm when soliciting responses, whereas the CVFS data collection does not. Another possibility is that in the CVFS, women are reporting work from activities such as selling milk as self-employment inside

the home, whereas that is coded as agricultural labor in the DHS. A third possibility is that there was substantial variation in the seasons in which data collections occurred.

The NLFS reported that 33% of women aged 15+ who had worked in the past week did so in agriculture, forestry, or fishing.

It is likely that most women who report being self-employed outside the home in the CVFS (17% of workers in the last quarter) are working in small shops or businesses, something likely to categorized as professional/technical/managerial, sales, or clerical in the DHS (16%), and these two categories yield similar frequencies.

The remaining categories (CVFS: wage labor, self-employment inside the home; DHS: agriculture, domestic services, unskilled manual labor, self-employed, skilled and unskilled manual labor) also yield similar frequencies, 59% and 56%, respectively.

Last year. The patterns described above hold when looking at the previous 12 months.

Table A-1: **Comparison of employment measures between CVFS and 2016 DHS, women aged 15–49 with at least one child under age 17 in the household**

	CVFS N = 2,023			DHS N = 8,340	
Panel A. Currently					
	Last quarter			Last week	
	N	%		N	%
Worked for pay in the past year	587	29%	Worked for pay in the past year	2,434	29%
Type of job	N	% of workers	Occupation	N	% of workers
Wage labor	187	32%	Agriculture/domestic/services/unskilled manual labor	1,251	51%
Agricultural labor	165	28%	Agricultural labor	1,095	45%
Other	22	4%	Other (domestic/services/unskilled manual)	156	6%
Self-employed	259	44%	Self-employed	520	21%
Inside home	162	28%	professional/technical/managerial	59	2%
Outside home	97	17%	clerical	13	1%
			sales	324	13%
			skilled manual	112	5%
			unskilled manual	12	1%
			professional/clerical/sales	396	16%
Salaried job	141	24%	Professional/clerical/sales/skilled manual labor	664	27%
Government office	26	4%	professional/technical/managerial	178	7%
NGO office	2	0%	clerical	68	3%
Private office	113	19%	sales	306	13%
			skilled manual	112	5%
Panel B. Last year					
	N	%		N	%
Worked for pay in the past year	816	40%	Worked for pay in the past year	2,796	34%
Type of job	N	% of workers	Occupation	N	% of workers
Wage labor	366	45%	Agriculture/domestic/services/unskilled manual	1,520	54%
Agricultural labor	344	42%	Agricultural labor	1,321	47%
Other	29	4%	Other (domestic/services/unskilled manual)	199	7%
Self-employed	288	35%	Self-employed	561	20%
Inside home	176	22%	professional/technical/managerial	62	2%
Outside home	114	14%	clerical	17	1%
			sales	342	12%
			skilled manual	126	4%
			unskilled manual	15	1%
			professional/clerical/sales	421	15%
Salaried job	176	22%	Professional/clerical/sales/skilled manual labor	715	26%
Government office	26	3%	professional/technical/managerial	183	7%
NGO office	4	0.5%	clerical	69	2%
Private office	145	18%	sales	331	12%
			skilled manual	132	5%

DHS frequencies are weighted using the individual weight.

Table A-2:   Employment in multiple job types. Data from Female Labor Force Participation and Child Outcomes Study component of the Chitwan Valley Family Study

	N	% workers
Employed only within one broad category	922	90.4%
Wage labor		
Agricultural labor	401	39.3%
Domestic work	4	0.4%
Work in shop	5	0.5%
Other	12	1.2%
Self-employed		
Inside home	154	15.1%
Outside home	103	10.1%
Salaried job		0.0%
Government office	32	3.1%
NGO office	7	0.7%
Private office	204	20.0%
Multiple jobs		
Only one broad category	29	2.8%
Two types within wage labor	5	0.5%
Two types within self-employment	11	1.1%
Two types within salaried jobs	13	1.3%
Two types across wage, salaried, self-employed	61	6.0%
Three types across wage, salaried, self-employed	8	0.8%
Total number of women who were employed	1,020	

Table A-3:   Employment intensity and earnings information by job type, calculated across quarters

	Days per quarter			Earnings per quarter in (Nepalese rupees)			Day rate (in Nepalese rupees per day)		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Any employment	59	0	90	47,179	0	1,500,000	722	7	36,000
Wage labor	18	1	90	5,306	180	45,000	301	7	3,000
Agricultural labor	15	1	90	4,390	180	45,000	302	25	3,000
Other wage labor	57	2	90	15,749	450	45,000	292	7	600
Self-employed	82	1	90	86,504	0	1,500,000	1,088	11	19,231
Inside home	82	1	90	85,843	0	1,170,000	1,065	11	13,000
Outside home	82	10	90	87,499	0	1,500,000	1,121	22	19,231
Salaried job	81	0	90	49,668	0	900,000	788	0	36,000
Government/NGO	85	10	90	42,776	400	420,000	505	7	5,000
Private office	81	0	90	51,644	0	900,000	864	0	36,000

Notes: About 128 Nepalese rupees equal one U.S. dollar. Means are calculated across all person-quarters worked for each job type. Maximum values are driven by outliers, particularly for self-employed workers. Figures 4 and 5 show violin plots for earnings and day rates, with a full range and capped at a value that contains less than 3% of quarters.

Figure A-1:   Female labor force participation rates, South Asia. National estimates from ILO, 1990–2017
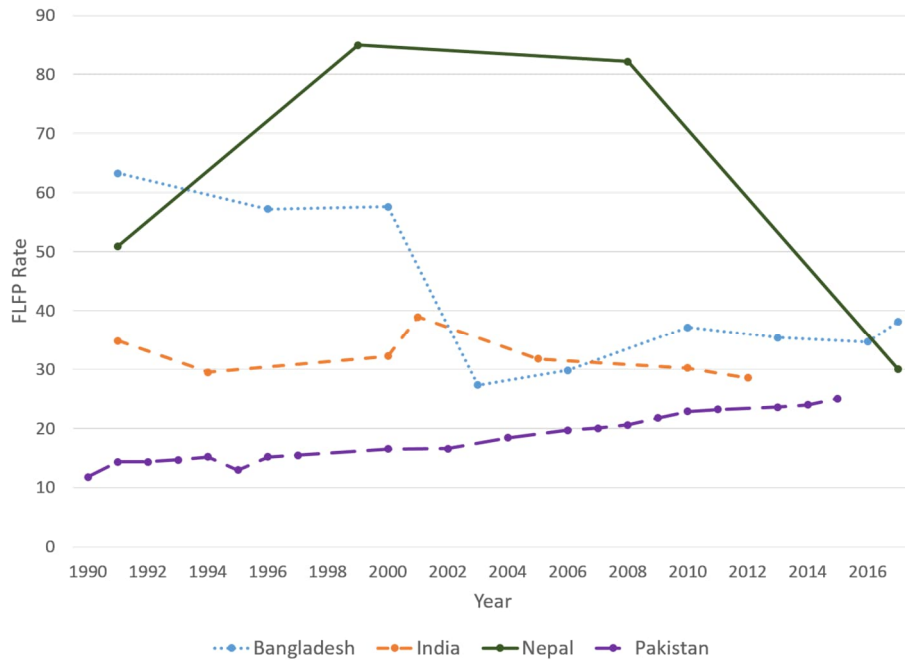
Notes. Data come from Nepal Labour Force Surveys unless otherwise noted. Nepal: 1991 data from census; break in series: 1999 and 2008 include work for own use; break in series: 2017 work for own use excluded from calculation. Bangladesh: Break in series: 2006, 2010, 2013. India: 1991, 2001 data from census; 1994 (break in series), 2000, 2005, 2010, 2012 National Sample Survey. Pakistan: Break in series: 2006, 2012.

Figure A-2: **Employment trajectory clusters, based on day rate earned per quarter (earnings per days worked), 2008–2016, women in Chitwan, Nepal**
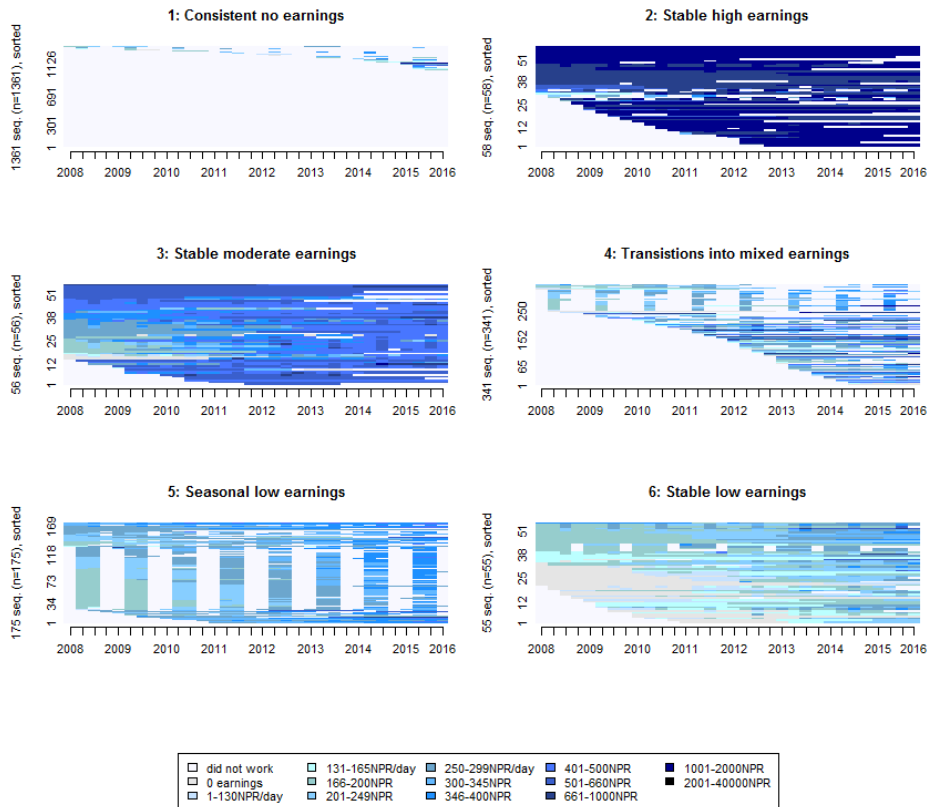
Figure A-3: **Employment trajectory clusters, based on days worked per quarter, 2008–2016, women in Chitwan, Nepal**