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WORKING CONDITIONS IN THE PAID CARE ECONOMY IN EGYPT: IMPROVEMENT OR DETERIORATION?

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Abstract

The paid care economy plays a crucial role in employing women. This sector also acts as a mechanism to reduce care work within households, which disproportionately affects women. This paper examines the evolution of the paid care economy in Egypt, over the period 2009-2021, drawing on three different data sources to assess trends in employment and working conditions. The analyses demonstrate that, despite stated goals to grow the paid care economy, paid care employment has shrunk over time in Egypt, driven by the retreat of the public sector. While private sector care employment has grown, it has not done so sufficiently to compensate for the decline of the public sector. Furthermore, working conditions in care employment have worsened over time, in part due to the increasing privatization of care employment. The informal share of care employment (without social insurance coverage) has increased over time. Informalization and privatization have particularly affected women in paid care employment. While initially there was not a care pay gap, one has formed over time. Encouraging not only the growth of the paid care economy, but also decent and equitable working conditions is a pressing issue for human development and women's employment.

Keywords: Care economy, employment, gender, social insurance, working conditions, Egypt

JEL codes: J21, J22, J31, J32, J16

ملخص

يلعب اقتصاد الرعاية مدفوعة الأجر دورًا حاسمًا في توظيف النساء. ويعمل هذا القطاع أيضًا كآلية للحد من أعمال الرعاية داخل الأسر المعيشية، مما يؤثر على المرأة بشكل غير متناسب. تبحث هذه الورقة في تطور اقتصاد الرعاية المدفوعة الأجر في مصر خلال الفترة 2009-2021، بالاعتماد على ثلاثة مصادر بيانات مختلفة لتقييم الاتجاهات في العمالة وظروف العمل. توضح التحليلات أنه على الرغم من الأهداف المعلنة لتنمية اقتصاد الرعاية المدفوعة الأجر، فقد تقلص التوظيف في مجال الرعاية المدفوعة الأجر بمرور الوقت في مصر، مدفوعًا بتراجع القطاع العام. وبينما نمت العمالة في مجال الرعاية في القطاع الخاص، فإنها لم تفعل ذلك بالقدر الكافي للتعويض عن تدهور القطاع العام. وعلاوة على ذلك، تدهورت ظروف العمل في مجال الرعاية بمرور الوقت، ويرجع ذلك جزئيًا إلى زيادة خصخصة العمالة في مجال الرعاية. وقد ازدادت مع مرور الوقت الحصة غير الرسمية من العمالة في مجال الرعاية (بدون تغطية للضمان الاجتماعي). وقد أثرت إضفاء الطابع غير الرسمي والخصخصة بشكل خاص على النساء العاملات في مجال الرعاية المدفوعة الأجر. بينما لم تكن هناك فجوة في أجور الرعاية في البداية، فقد تشكلت واحدة بمرور الوقت. إن تشجيع نمو اقتصاد الرعاية المدفوعة الأجر ليس فقط، ولكن أيضًا ظروف العمل اللائقة والمنصفة هي قضية ملحة للتنمية البشرية وعمالة المرأة.

1 Introduction

The care economy employs 381 million workers, providing 11.5% of employment globally (International Labour Organization 2018). The care economy is particularly important as both a support for and employer of women, as 19.3% of employed women work in the care economy (International Labour Organization 2018; Vakulabharanam and Motiram 2023). The gendered nature of both paid and unpaid care work leads to such work being undervalued. Poor job quality, including a “care pay penalty,” is a central issue for care employment (International Labour Organization 2018; Razavi and Staab 2010; Hirsch and Manzella 2015; Heyes 2005; Budig and Misra 2010; Folbre, Gautham, and Smith 2021; 2023).

Paid and unpaid care work are interlinked gender equity issues. The need to recognize, reduce, and particularly redistribute unpaid care work requires a robust paid care economy offering care services (International Labour Organization 2018). There is also increasing recognition of the importance of rewards (both pay and working conditions) and representation in paid care work (International Labour Organization 2018). These “5Rs” are particularly important areas for research and policy in low- and middle-income countries (LMICs), many of which continue to struggle with low female labor force participation (Verick 2018).

Countries in the Middle East and North Africa (MENA) have the lowest female labor force participation in the world and also the greatest gender inequality in unpaid care work (International Labour Organization 2018; Verick 2018). Historically, social contracts in the region provided free public services – including key care services of health and education – as well as desirable public sector jobs. However, with structural reform and the decline of the public sector employment, both access to services and decent jobs have become challenging, particularly for women (Assaad 2014; Devarajan and Ianchovichina 2018; El-Haddad 2020; Ibrahim 2021).

Paid care work is an essential segment of employment for women who are employed. Furthermore, women’s employment is concentrated in the care employment in the Arab states, with 53% of women’s employment is in care employment – the largest share of any region (International Labour Organization 2018). In Egypt, the occupations with the highest share of women are paid care work (World Bank 2018b).

Despite the importance of paid care employment, there is relatively little research on this segment of the labor market, particularly in LMICs. Past research on paid care employment in Egypt and MENA has been largely descriptive in nature (World Bank 2018b; Economic Research Forum and UN Women 2020). Hence, this paper contributes to a scanty literature through exploring the evolution of care employment (education, health and social work, and domestic work), in Egypt from 2009-2021, with a particular focus on working conditions within the care economy.

This paper draws on time trends in Egypt’s Labor Force Surveys of 2009-2021, additional details on working conditions in the Egypt Labor Market Panel Survey (ELMPS) 2012 and 2018 waves, and trends in establishments (firms) and their employment in the care industry from Egypt’s Economic Census rounds of 2012/13 and 2017/18. The analyses test whether paid care employment has been growing, as well as whether such work has been increasingly privatized. The analyses further explore patterns and trends in care employment working conditions,

specifically social insurance coverage (employment formality) and wages, testing whether there is a care wage penalty. These analyses also compare working conditions in care work across the public versus the private sector.

The paper demonstrates that the care economy has been shrinking over time and become increasingly privatized in Egypt, with deteriorating working conditions. Fewer workers are covered by social insurance. What was initially a care wage premium has become a care wage penalty, driven both by the decline of the public sector in paid care work and declines in care pay within the private sector. Women working in the care economy have been particularly affected by privatization and declines in social insurance coverage. The evolution of the care economy in Egypt has thus doubly hurt women's employment prospects, both as a weakening support for women's ability to engage in employment by providing care services, and as a shrinking and worsening employer of women.

2 Background

2.1 The role of the care sector in the economy

Multiple theories can be used to explain the importance of care work, its role in the economy, working conditions, and women's concentration in this sector. Care work, whether paid or unpaid, not only affects the recipients but also has spillover effects to the whole economy. These spillovers result in an undersupply of care services, which necessitates state provision. The classical example of care work is education, with the spillover effects of education beyond the child being taught, resulting rise in productivity and economic growth afterward (England 2005).

Investments in the care economy have the potential for high rates of return (ILO and UN Women 2021), as well as creating woman-friendly employment and economic growth. Public investment in care services creates more jobs, for longer, and is more gender-equitable than equivalent investments in physical infrastructure (Kim, İlkkaracan, and Kaya 2019; De Henau and Himmelweit 2021). The job creation potential of the care economy is due to the labor intensive nature of care work (Kim, İlkkaracan, and Kaya 2019; De Henau and Himmelweit 2021). Given the relational nature of caregiving, this sector is also likely to see limited substitution of robots or technology for labor (International Labour Organization 2018).

In the short term, investing in the care economy can increase female labor force participation (Morrissey 2017). For instance, a recent review of studies in LMICs that reduced the costs of child care or increased access showed increases, often sizeable ones, in women's participation in 21 out of the 22 studies reviewed (Halim, Perova, and Reynolds 2023).³ Investments in areas such as child care that raise female labor force participation can also generate economic growth (Abbott 2021); in the long-term, investments in areas such as quality early childhood care and education have human capital payoffs (Abbott 2021). For example, early childhood care and education in

³ Impacts of child care access on female labor force participation are not, however, guaranteed, and may be particularly challenging in MENA. For instance, expanding pre-primary education in Algeria did not increase and may have decreased women's employment, possibly due to the short duration of the pre-primary day (Krafft and Lassassi 2023). Likewise, child care subsidies in Egypt had low take-up and did not affect women's job search behavior, possibly due to concerns about child care quality as well as gender norms prioritizing familial care (Caria et al. 2022).

Egypt leads to less drop out, less grade repetition, and higher test scores in basic education, as well as ultimately additional subsequent years of education completed (Krafft 2015).

2.2 Theories and evidence on paid care work and working conditions

Despite being an indispensable job, care work is often devalued (England 2005). Devaluation might be due to the concentration of women in these jobs, a symptom of occupational segregation and gender pay gaps. In Egypt, women are concentrated in certain occupations, where the gender division of labor results in perceptions of the suitability of jobs by gender (Barsoum and Abdalla 2022; Assaad, AlSharawy, and Salemi 2022; World Bank 2018b). Egyptian women working in the private sector are concentrated in nine jobs; these jobs include teachers, healthcare workers, and domestic workers (Assaad and Arntz 2005).

Another explanation for the low pay for care jobs is altruism and emotional bonds offsetting low earnings, referred to in the literature as being a “prisoner of love” (Folbre 2001). The prisoner of love explanation could be relevant in Egypt, where previous research has shown that the hourly wage is not one of the determinants of job satisfaction for women (but it is for men) (Ezzat and Ehab 2019). Furthermore, women prefer working in the public sector, which increases the social value of their work (Barsoum 2021).

2.3 Trends in care employment in Egypt and hypotheses

Past research has highlighted a number of important trends in paid care employment in Egypt (Economic Research Forum and UN Women 2020). National plans include efforts to, for example, expand early childhood care and education, increase the quantity and quality of education, and increase access to health services (Ministry of Social Solidarity 2018; World Bank 2018a; Ministry of Planning and Economic Development 2015; World Bank 2018b). These efforts would be expected to lead to increases in paid care employment relative to total employment. We therefore test the following hypothesis:

H1: Paid care employment has expanded (as a share of total employment) in Egypt.

However, since the 1990s, Egypt has also been undergoing structural reform and shrinking the role of the public sector, which historically was a key employer of women and provider of care services and thus care employment (Assaad, AlSharawy, and Salemi 2022; Ibrahim 2021; Devarajan and Ianchovichina 2018). We therefore hypothesize:

H2: Paid care employment has become increasingly privatized

The privatization of paid care work is a consequence of structural reform and ongoing efforts to reduce public sector employment (Assaad, AlSharawy, and Salemi 2022; Economic Research Forum and UN Women 2020). Privatization may lead to worsening working conditions in the care sector. We therefore hypothesize:

H3: Working conditions in the care economy have deteriorated over time.

Past research has highlighted deteriorating working conditions through 2017, in part as a consequence of privatization (Economic Research Forum and UN Women 2020). We test for a care pay gap, which has not previously been researched in Egypt, and if there is a gap, whether it has widened over time. Furthermore, we particularly focus on, for benefits, social insurance coverage, as this is associated with a host of other worker rights and benefits⁴ and, for wage workers, defines informality.⁵

3 Data and methods

3.1 Surveys

We triangulate data on trends in care employment and working conditions from three different sources: the Egypt Labor Market Panel Survey (ELMPS) 2012 and 2018 waves; the Egyptian Labor Force Survey (LFS) from 2009-2021, and the Economic Census rounds of 2012/13 and 2017/18.

The ELMPS and LFS are nationally representative household surveys, whereas the nationally representative Economic Census covers and samples establishments (fixed places of work). With the Economic Census, we focus on private sector establishments, as public enterprises but not government institutions (e.g., not public schools or hospitals) were included in the sampling frame. The ELMPS is a panel which carefully tracks households, split households, and adds a refresher sample each wave (Krafft, Assaad, and Rahman 2021; OAMDI 2019). The LFS is a quarterly cross-sectional survey (OAMDI 2023).

The ELMPS offers more detailed data (e.g., on job satisfaction) than the LFS, but less frequently, and with a smaller sample. The ELMPS 2012 included 49,186 individuals and the ELMPS 2018 61,231. The LFS sample for 2009-2021 included 4,406,557 observations (minimum 281,487 in 2020, maximum 372,384 in 2011). We therefore primarily use the LFS for its larger sample size. However, the LFS data are less detailed, so for information on working conditions not available in the LFS we use the ELMPS. The Economic Census is, in fact, a sample, but one covering 61,703 private sector establishments in 2012/2013 and 168,902 private sector establishments in 2017/2018. The Economic Census is used primarily and in brief to describe the number and share of establishments in care industries. With all data sources, we use sample weights.

3.2 Defining the paid care economy

This research focuses on employment in the paid care economy. On the worker level, care employment is based on working in a care occupation and/or industry (International Labour Organization 2018). In terms of industries, there are three major industries that comprise care work: (1) education (2) human health and social work, (3) activities of households as employers [domestic workers] (International Labour Organization 2018). We can identify these industries based on International Standard Industrial Classification (ISIC) 4 codes in all our data sources. In terms of occupations, care occupations are (1) health professionals (2) teaching professionals (3) health associate professionals and (4) social care workers (International Labour Organization

⁴ For instance, the right to paid maternity leave is contingent on paying into the social insurance system (Economic Research Forum and UN Women 2020).

⁵ Social insurance is the sole criteria for wage workers' formality status (International Labour Organization 2013).

2018).⁶ We sometimes disaggregate social care workers into child care, domestic, and personal care workers. Occupations are available only in the ELMPS and LFS, and with somewhat different coding systems over time, switching from the International Standard Classification of Occupations (ISCO) 88 to 08 coding in 2018 for the ELMPS and 2020 for the LFS. The most recent (ISCO 08) classification is used to identify care occupations and crosswalks to ISCO-88 used to ensure comparability over time as much as possible.

We can thus define three types of care workers: (1) care occupations in care industries (2) care occupations in non-care industries and (3) non-care occupations in care industries. All three of these are considered care employment, as contrasted with non-care employment (non-care occupations in non-care industries). Care employment is technically defined as work for pay or profit (International Labour Organization 2018), and thus could include either wage or non-wage work. In Egypt, almost all of the care work we observe is in wage work, e.g., 98% of care work is wage work in ELMPS 2018. We therefore undertake our analyses of workers (comparing care and non-care workers) using the LFS and ELMPS focusing solely on wage workers, for comparability.

3.3 Outcomes

For H1, testing the expansion of care employment, we use being engaged in paid care work as our outcome of interest. This hypothesis is tested among wage workers. For H2, on the privatization of care work, our outcome is working in the private sector as compared to the public sector. This hypothesis is tested among those engaged in care work. For H3, on deteriorating working conditions, we descriptively examine a number of different outcomes using the ELMPS. These include social insurance coverage, wages, working poverty,⁷ contracts, hours, commute, time-related underemployment, irregular employment, employer-based health insurance, skills required, education required, and job satisfaction. Using the LFS, we test for changes in social insurance coverage and real (2021 prices) log monthly wages in the care economy over time, and in comparison to the rest of wage employment.

3.4 Key covariates

For H1, on the trend in care employment as a share of total wage employment, our key covariate is time (we estimate a linear time trend as years since 2009, which we show below generally is appropriate for our data). For H2, on privatization within care employment, our key covariate is likewise time. For H3, on working conditions deteriorating in care employment, our key covariate is the interaction between time and care employment, to compare changes in working conditions in care employment to other employment.

⁶ As with other definitions, we exclude veterinary occupations (International Labour Organization 2018; Economic Research Forum and UN Women 2020).

⁷ Using ELMPS 2012 and 2018, working poverty is conceptualized as those individuals whose monthly wage is lower than the low earnings line. The low earnings line is defined as the dependency ratio multiplied by the real national poverty line.

3.5 Controls

A number of our models include a variety of controls for worker characteristics. We control for age quadratically. We include regions categorically and a dummy for rural versus urban locations. Since, especially for women, the presence of children may shape their decision to engage in different types of work, we control for the presence of children of various age groups (0-2, 3-5, 6-11 [primary aged], 12-17 [lower/upper secondary aged]) and interactions between these variables and sex. We control for being ever married and the interaction between being ever married and sex. We also control for education (interacted with sex) as a key determinant of occupational choice.

3.6 Methods

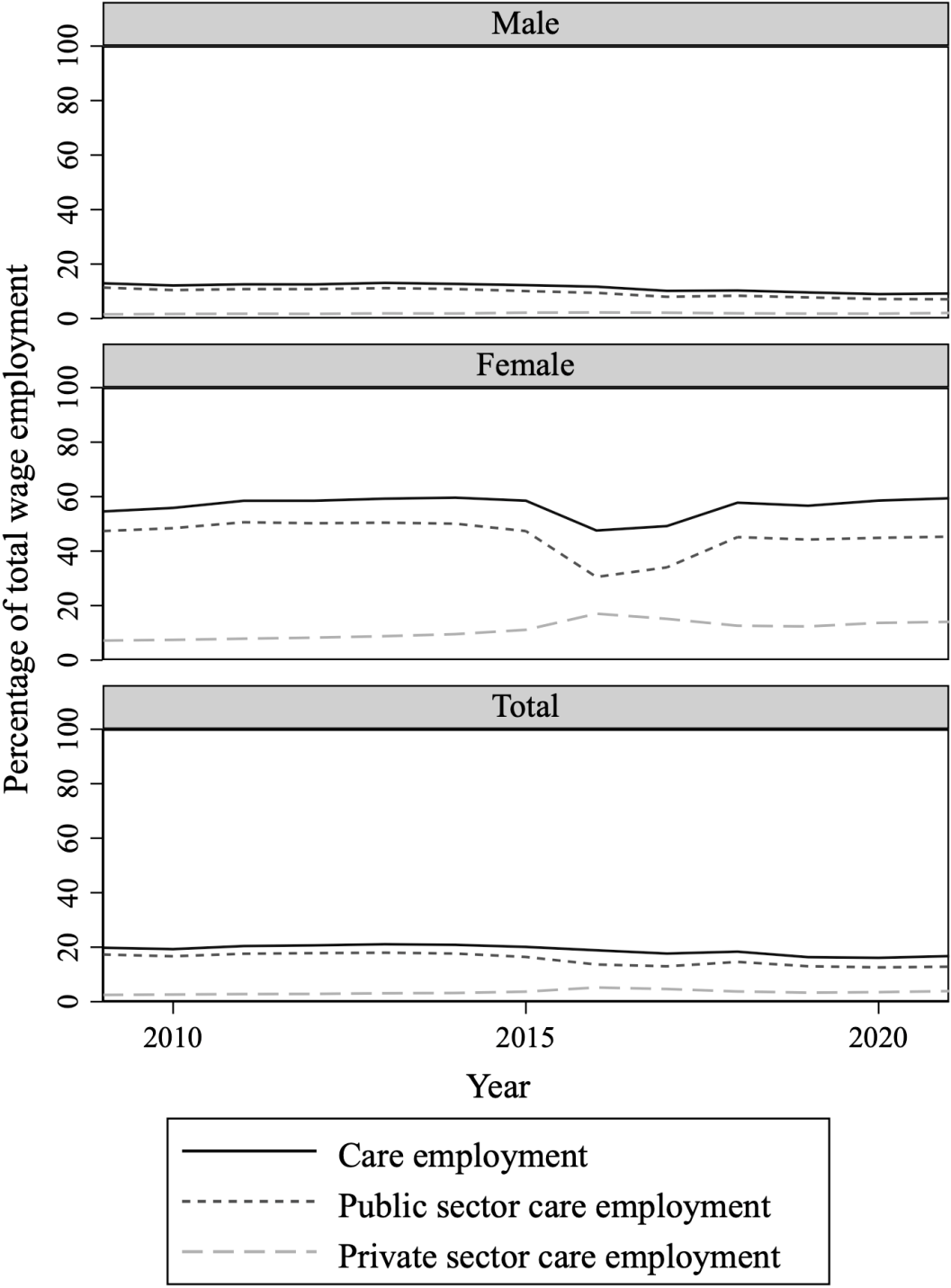
To illustrate H1-H3, we present a number of descriptive statistics on care work and particularly to detail working conditions and their change over time in the care economy. We also formally test H1-H3 using ordinary least squares (OLS). We estimate linear probability models for binary outcomes (care employment; privatization; social insurance) and when modeling wages use an OLS model with the dependent variable of log wages. We present models first with only our key covariates for each hypothesis and then including controls. Given large gender differences in care employment, we estimate a main model examining time trends and a secondary specification with gender-time interactions. These interactions allow us to test whether trends differentially affected men and women.

4 Results

4.1 Trends in the share of employment in the care economy

The care economy has been shrinking over time as a share of employment in Egypt (counter to H1). Figure 1 shows the trend in care employment as a share of total employment, from 2009-2021, based on the LFS, by sex and sector. Table 1 presents a linear probability model for H1, testing for a statistically significant time trend overall and also whether there are any differential trends by sex (model with interactions). The figure shows that care employment, as a share of total employment, was relatively stable from 2009-2015 (19-21%), but fell as a share of employment from 2015 (20%) to be 16-17% in the 2019-2021 period. As of 2021, there were 3.3 million workers in care employment. The multivariate regression model demonstrates a statistically significant drop of 0.4 percentage points per year in care employment as a share of total employment (a significant 0.2 percentage point per year decrease in the model with controls).

Figure 1. Trends in care employment, public sector care employment, and private sector care employment (percentages of total wage employment), by sex



Source: Authors' calculations based on LFS 2009-2021

There are large differences in the share of care employment in men and women's employment. Except for a deviation in 2016-2017, more than half of employed women worked in care employment, and this share remained relatively constant. Only 13% of employed men were in care employment in 2009, and the share fell over time to 9% in 2021.

In Table 1, in models with the gender interactions, we can see that there is a significant decline in care employment over time for men (0.4 percentage points per year both without and with controls). There is a significant difference in the time trend for women compared to men; indeed, women who are employed have not experienced a decline in care employment as a share of their work. Netting the main effect and interaction there is not a significant time trend for women in the model with just the key covariates. In the model with controls, care employment as a share of total employment has actually risen for women. It is important to keep in mind, however, fewer women have been working overall over time (Krafft, Assaad, and Keo 2022).

Care employment is significantly more likely for women than men, by 42.7 percentage points in the model without controls, and 16.0 percentage points for the reference woman in the model with controls (keeping in mind the many interactions with sex). Care employment is especially likely for the (select) married women who work. Ever married individuals are 2.7 percentage points more likely to be in care employment with an additional 11.5 percentage point increase for married women. The sector particularly employs educated individuals and especially educated women.

Table 1. Linear probability model for time trends in care employment, wage employed individuals

	Trend	+gender int. trend	+controls	+controls and gender int. trend
Year (time trend since 2009)	-0.004*** (0.000)	-0.004*** (0.000)	-0.002*** (0.000)	-0.004*** (0.000)
Female (male omit.)		0.427*** (0.003)	0.160*** (0.007)	0.035*** (0.009)
Year and female int.		0.003*** (0.000)		0.013*** (0.001)
Age			0.006*** (0.000)	0.007*** (0.000)
Age sq.			-0.000*** (0.000)	-0.000*** (0.000)
Region (Greater Cairo omit.)				
Alexandria			0.031*** (0.001)	0.031*** (0.001)
Delta			0.050*** (0.001)	0.050*** (0.001)
Canal			0.044*** (0.001)	0.044*** (0.001)

	Trend	+gender int. trend	+controls	+controls and gender int. trend
N. Upper Egypt			0.061*** (0.001)	0.061*** (0.001)
Central Upper Egypt			0.081*** (0.002)	0.081*** (0.002)
S. Upper Egypt			0.057*** (0.001)	0.058*** (0.001)
Rural (urban omit.)			0.027*** (0.001)	0.027*** (0.001)
Presence of children				
Aged 0-2			-0.005*** (0.001)	-0.008*** (0.001)
Aged 3-5			-0.005*** (0.001)	-0.009*** (0.001)
Aged 6-11			-0.001 (0.001)	-0.004** (0.001)
Aged 12-17			0.025*** (0.001)	0.020*** (0.001)
Presence of children and female int.				
Aged 0-2			0.010** (0.003)	0.034*** (0.004)
Aged 3-5			0.010* (0.004)	0.035*** (0.004)
Aged 6-11			0.009* (0.004)	0.025*** (0.004)
Aged 12-17			-0.019*** (0.004)	0.007 (0.004)
Ever married (never omit.)			0.027*** (0.001)	0.029*** (0.001)
Ever married and female int.			0.115*** (0.004)	0.103*** (0.004)
Education (illit. omit.)				
Read and write			0.019*** (0.001)	0.020*** (0.001)
Less than sec.			0.032*** (0.001)	0.033*** (0.001)
Gen. sec.			0.056*** (0.002)	0.057*** (0.002)

	Trend	+gender int. trend	+controls	+controls and gender int. trend
Voc. sec.			0.056*** (0.001)	0.057*** (0.001)
Higher ed.			0.277*** (0.001)	0.277*** (0.001)
Education and female omit.				
Read and write			0.072*** (0.011)	0.069*** (0.011)
Less than sec.			0.009 (0.008)	0.004 (0.008)
Gen. sec.			0.059*** (0.016)	0.059*** (0.016)
Voc. sec.			0.143*** (0.006)	0.146*** (0.006)
Higher ed.			0.152*** (0.006)	0.153*** (0.006)
Constant	0.212*** (0.001)	0.136*** (0.001)	-0.227*** (0.005)	-0.209*** (0.005)
N obs.	786610	786610	766110	766110
R-sq.	.00132	.186	.294	.294

Source: Authors' calculations based on LFS 2009-2021

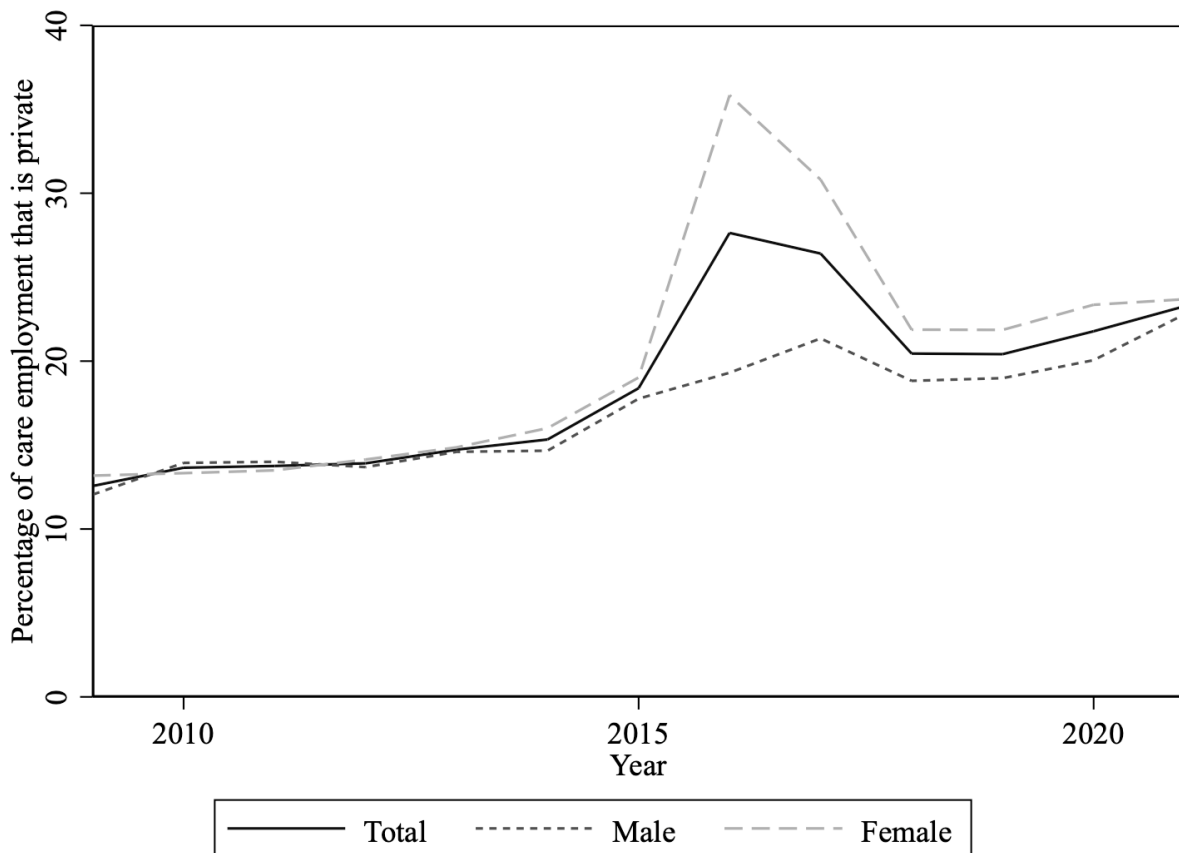
Notes: Standard errors in parentheses. *p<0.05; **p<0.01; ***p<0.001

Almost all care jobs are in care industries (only around 3% of care jobs are not in care industries). Slightly more than half are care occupations in care industries, with the remainder being non-care occupations in care industries (e.g. accountant for a hospital). The vast majority of care work is in the education industry, but this has been falling over time, from 75% in 2009 to 63% in 2021. The share of the health industry has been increasing, from 19% in 2009 to 29% in 2021, and the domestic work industry likewise, from 2% of care work in 2009 to 6% in 2021. These increases within care work have been driven in part by education shrinking, and so the relative share of other industries growing, but the growing industries have also grown slightly within all (not just care) employment. In terms of occupations, education occupations have followed their industry in shrinking from 48% of care employment in 2009 to 43% in 2021. Health occupations have fluctuated but remained around 8% of care employment in both 2009 and 2021, indicating the growth in the health industry has been in non-care occupations. There are very few workers in child care occupations even within care work (0.5% in 2009 and 0.9% in 2021) and likewise personal care (0.3% in 2009 and 0.6% in 2021). These two occupations have grown quite a lot in relative terms, each more than doubling over the period, but remain small in absolute terms.

4.2 Trends in the sectoral composition of care employment

The percentage of care employment that is public sector employment has fallen substantially, while the percentage of total employment that is private sector employment has increased over time. Private sector growth has, however, been insufficient to make up for the retreat of the public sector. In Figure 2 we graph the share of care employment that is in the private sector. This share rose from 13% in 2009 to 23% in 2021 (with a particular but perhaps mismeasured jump in 2016/17). In the latter years, women were slightly more privatized, despite equal shares at the start of the study period.

Figure 2. Trends in private sector share of care employment (percentage), by sex



Source: Authors' calculations based on LFS 2009-2021

The share of care employment that is in the private sector varies substantially by care occupations. Pooling 2009-2021, while just 11% of education workers are in the private sector, 23% of health workers, 49% of personal care workers, 81% of child care workers, and nearly 100% of domestic workers were in the private sector. This compares to 70% of wage workers in private sectors among workers not in care occupations.

Table 2 tests H2, for the privatization of care work, among individuals in care employment. In the model controlling only for the time trend, we see a statistically significant increase of 1.0

percentage points per year in the share of care work that is in the private sector (0.8 percentage points after adding controls). The model including gender interactions but not controls (all results statistically significant) demonstrates that this increase was only 0.8 percentage points per year for men (0.9 percentage points after adding controls). Women started with an 0.8 percentage point higher probability of being in the private sector among care employment, and experienced rapid privatization than men (by an additional 0.4 percentage points per year; 1.2 percentage points per year total).

This result becomes more complex after adding controls, whereby the main effect for the time trend is 0.9 percentage points per year increase in privatization; but this is lower for women by 0.2 percentage points (0.7 percentage points increase in privatization per year on the net), while the main effect for women is a 23.2 percentage point higher probability of private sector work within care employment. The composition of women in care employment changing over time may thus be driving the different results in terms of whether women are experiencing faster or slower privatization than men. The rising privatization of care employment may also contribute to changes in working conditions.

Table 2. Linear probability model for private sector, individuals in care employment

	Trend	+gender int. trend	+controls	+controls and gender int. trend
Year (time trend since 2009)	0.010*** (0.000)	0.008*** (0.000)	0.008*** (0.000)	0.009*** (0.000)
Female (male omit.)		0.008* (0.004)	0.216*** (0.014)	0.232*** (0.016)
Year and female int.		0.004*** (0.001)		-0.002* (0.001)
Age			-0.034*** (0.001)	-0.034*** (0.001)
Age sq.			0.000*** (0.000)	0.000*** (0.000)
Region (Greater Cairo omit.)				
Alexandria			-0.068*** (0.004)	-0.068*** (0.004)
Delta			-0.158*** (0.003)	-0.158*** (0.003)
Canal			-0.183*** (0.003)	-0.183*** (0.003)
N. Upper Egypt			-0.160*** (0.004)	-0.160*** (0.004)
Central Upper Egypt			-0.225*** (0.004)	-0.225*** (0.004)

	<u>Trend</u>	<u>+gender int. trend</u>	<u>+controls</u>	<u>+controls and gender int. trend</u>
S. Upper Egypt			-0.196*** (0.004)	-0.196*** (0.004)
Rural (urban omit.)			-0.091*** (0.002)	-0.090*** (0.002)
Presence of children				
Aged 0-2			0.002 (0.003)	0.004 (0.003)
Aged 3-5			0.002 (0.004)	0.004 (0.004)
Aged 6-11			0.001 (0.004)	0.001 (0.004)
Aged 12-17			-0.017*** (0.004)	-0.015*** (0.004)
Presence of children and female int.				
Aged 0-2			-0.030*** (0.005)	-0.033*** (0.005)
Aged 3-5			-0.028*** (0.005)	-0.031*** (0.006)
Aged 6-11			-0.002 (0.006)	-0.004 (0.006)
Aged 12-17			0.009 (0.005)	0.005 (0.006)
Ever married (never omit.)			-0.018** (0.006)	-0.019** (0.006)
Ever married and female int.			-0.086*** (0.007)	-0.084*** (0.007)
Education (illit. omit.)				
Read and write			-0.203*** (0.010)	-0.203*** (0.010)
Less than sec.			-0.225*** (0.010)	-0.225*** (0.010)
Gen. sec.			-0.250*** (0.018)	-0.250*** (0.018)
Voc. sec.			-0.331*** (0.007)	-0.332*** (0.007)
Higher ed.			-0.418*** (0.007)	-0.419*** (0.007)

	Trend	+gender int. trend	+controls	+controls and gender int. trend
Education and female omit.				
Read and write			0.012 (0.022)	0.012 (0.022)
Less than sec.			0.081*** (0.018)	0.082*** (0.018)
Gen. sec.			-0.061* (0.029)	-0.060* (0.029)
Voc. sec.			-0.155*** (0.012)	-0.155*** (0.012)
Higher ed.			-0.133*** (0.012)	-0.133*** (0.012)
Constant	0.125*** (0.002)	0.122*** (0.002)	1.544*** (0.019)	1.538*** (0.019)
N obs.	155430	155430	154491	154491
R-sq.	.00944	.0114	.26	.26

Source: Authors' calculations based on LFS 2009-2021

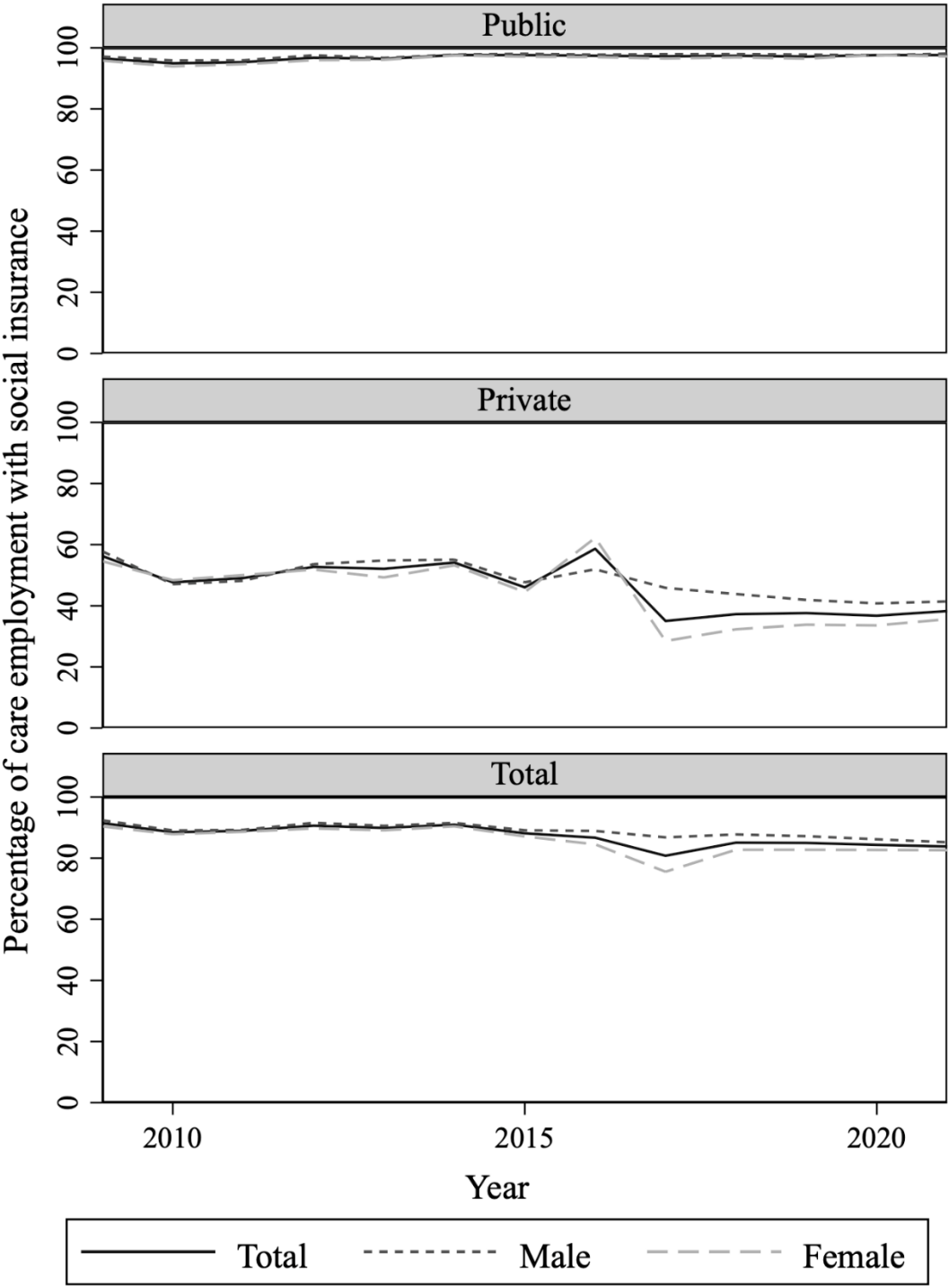
Notes: Standard errors in parentheses. *p<0.05; **p<0.01; ***p<0.001

Additional analyses, using the Economic Census, show the number and share of firms that are in care industries (among private sector establishments). In both 2012/13 and 2017/18, 0.6% of firms were education establishments (representing 20,702 firms in 2017/18 using expansion weights). In 2012/13, 2.5% were health or social work establishments and this rose to 4.2% in 2017/18 (representing 156,174 firms in 2017/18 using expansion weights). These results corroborate the growth of the private care economy, but growth that could not keep up with the decline of public sector care work.

4.3 Deteriorating working conditions in the care economy

A key aspect of working conditions is contributory social insurance coverage (which taxes wages in order to provide old-age pensions). Registration with social insurance means a wage worker is formal and falls under a host of other regulations and benefits. Figure 3 explores trends in social insurance coverage by sector. In 2009, 91% of care employment had social insurance coverage, and this fell to 84% by 2021. The drop was not due to any change in the public sector, which retained nearly universal coverage. Instead, the increase in private sector employment within care employment was compounded by a drop in social insurance coverage in the private sector. While in 2009, 56% of private sector care employment had social insurance coverage, this had dropped to 38% by 2021. Additionally, although women were nearly equally likely to be covered initially, their coverage (36%) fell below men's (41%) in the private sector by 2021.

Figure 3. Trends in social insurance coverage (percentage of care employment with social insurance coverage), by sex and sector



Source: Authors' calculations based on LFS 2009-2021

There is an enormous degree of variation within care employment, across care occupations, in working conditions. Pooling over the 2009-2021 period, the group with the lowest social insurance coverage in care occupations was domestic workers (2%), followed by child care workers (29%), and personal care workers (59%), while health workers (90%) and education workers (92%) had high social insurance coverage. The high coverage of health and education workers is driven in part by the high shares of these sectors that are public, but also due to higher coverage even in the private sector. Within the private sector, pooling over the 2009-2021 period, 65% of health workers had social insurance coverage, 57% of education workers, 18% of personal care workers, 17% of child care workers, and 2% of domestic workers. This compares to 26% for non-care occupations in the private sector.

Table 3 formally tests H3 for social insurance, testing whether there has been a deterioration in working conditions within the care economy. The results are statistically significant, with a drop of 0.7 percentage points in coverage per year (main model, both with and without controls). In the model with gender interactions but no controls, 0.5 percentage points per year is the decrement for men and an additional 0.3 percentage points per year for women, with women having an initial 1.1 percentage point lower probability of social insurance coverage. After adding controls, the decrement is 0.6 percentage points per year for men, and an additional but insignificant 0.1 decrement for women, with a 21.4 percentage point lower main effect for women. As with private sector trends, shifts in the composition of the care workforce by gender may explain the slightly different results without and with controls.

Table 3. Linear probability model for social insurance coverage, individuals in care employment

	Trend	+gender int. trend	+controls	+controls and gender int. trend
Year (time trend since 2009)	-0.007*** (0.000)	-0.005*** (0.000)	-0.007*** (0.000)	-0.006*** (0.000)
Female (male omit.)		-0.011*** (0.003)	-0.225*** (0.014)	-0.214*** (0.015)
Year and female int.		-0.003*** (0.001)		-0.001 (0.001)
Age			0.038*** (0.001)	0.038*** (0.001)
Age sq.			-0.000*** (0.000)	-0.000*** (0.000)
Region (Greater Cairo omit.)				
Alexandria			0.032*** (0.003)	0.032*** (0.003)
Delta			0.055*** (0.003)	0.055*** (0.003)
Canal			0.090***	0.090***

	<u>Trend</u>	<u>+gender int. trend</u>	<u>+controls</u>	<u>+controls and gender int. trend</u>
			(0.003)	(0.003)
N. Upper Egypt			0.041***	0.041***
			(0.003)	(0.003)
Central Upper Egypt			0.095***	0.095***
			(0.003)	(0.003)
S. Upper Egypt			0.069***	0.069***
			(0.003)	(0.003)
Rural (urban omit.)			0.030***	0.031***
			(0.002)	(0.002)
Presence of children				
Aged 0-2			-0.002	-0.001
			(0.003)	(0.003)
Aged 3-5			-0.003	-0.002
			(0.003)	(0.003)
Aged 6-11			-0.006	-0.006
			(0.003)	(0.003)
Aged 12-17			-0.001	0.000
			(0.003)	(0.003)
Presence of children and female int.				
Aged 0-2			0.030***	0.027***
			(0.004)	(0.004)
Aged 3-5			0.019***	0.017***
			(0.005)	(0.005)
Aged 6-11			-0.010	-0.011*
			(0.005)	(0.005)
Aged 12-17			-0.015**	-0.018***
			(0.005)	(0.005)
Ever married (never omit.)			-0.007	-0.008
			(0.005)	(0.005)
Ever married and female int.			0.069***	0.071***
			(0.007)	(0.007)
Education (illit. omit.)				
Read and write			0.229***	0.229***
			(0.010)	(0.010)
Less than sec.			0.252***	0.251***
			(0.010)	(0.010)
Gen. sec.			0.261***	0.261***

	<u>Trend</u>	<u>+gender int. trend</u>	<u>+controls</u>	<u>+controls and gender int. trend</u>
Voc. sec.			(0.018) 0.368*** (0.008)	(0.018) 0.367*** (0.008)
Higher ed.			0.444*** (0.007)	0.444*** (0.007)
Education and female omit.				
Read and write			-0.030 (0.022)	-0.030 (0.022)
Less than sec.			-0.059** (0.019)	-0.058** (0.019)
Gen. sec.			0.077* (0.030)	0.078** (0.030)
Voc. sec.			0.157*** (0.013)	0.157*** (0.013)
Higher ed.			0.160*** (0.012)	0.161*** (0.012)
Constant	0.913*** (0.002)	0.918*** (0.002)	-0.414*** (0.018)	-0.419*** (0.018)
N obs.	155429	155429	154490	154490
R-sq.	.00553	.00829	.234	.234

Source: Authors' calculations based on LFS 2009-2021

Notes: Standard errors in parentheses. *p<0.05; **p<0.01; ***p<0.001

Table 4 shows working conditions comparing those wage workers who are in care employment versus those who are not in care employment in the ELMPS 2012 and 2018. Working conditions in care employment tend to be better than non-care employment in part due to the disproportionate role of the public sector in care employment, a point we explore further in Table 6. Individuals in care employment have higher social insurance coverage compared to those not in care employment. Those in care employment have witnessed a decline of 20% (18 percentage points) in social insurance coverage from 2012 to 2018 (compared to 26%, 11 percentage points for those not in care employment).

The share of those in care employment with no contract increased from 10% in 2012 to 21% in 2018. This change was more in both absolute and relative terms than for non-care employment, but conditions there remained worse (67% without contracts in 2018). There is a similar share of working poor in care and not care employment, 54-55% in 2018, with slight increases from 2012.⁸

⁸ To put these figures in comparative context, working poverty declined in Jordan overall from 69% in 2010 to 62% in 2016 (Galal and Said 2019). For those working in education, working poverty decreased from 70% to 51% and for education from 55% to 39% over 2010 to 2016. However, it is worth noting that the paid care work definition is different than the definition by the economic activity.

Care workers are much more likely to be rather or fully satisfied with their jobs than non-care workers. Although satisfaction declined over time for both groups, it did so more so for those not in care employment. Few of those in care employment face involuntary part time work, and their jobs are much more likely to be permanent. Commutes are also shorter, averaging 25 minutes in 2018 for care employment versus 35 minutes for non-care employment.

In terms of skills, 36% of those working in the care employment report their job requires technical skills in 2018, slightly higher than 29% for non-care employment in 2018, and experiencing less of a decrement over time than non-care employment. In terms of general skills, 87% report that their job in care employment requires basic literacy in 2018 (vs. 46% for non-care employment), while 63% say that it requires mathematical or statistical skills (versus 37% for non-care employment). Only 39% report that their job requires computer skills in care employment, but this is higher than the 18% for non-care employment. Physical fitness skills are required in 47% of care employment in 2018, versus 55% of non-care employment.

Table 4. Working conditions (percentages and percent changes) by care employment and year, 2012 and 2018

	Care Employment			Not Care Employment		
	2012	2018	% change	2012	2018	% change
Social insurance	86	68	-20	42	31	-26
No contract	10	21	108	60	67	12
Working poor	52	54	5	48	55	13
Job satisfaction						
Fully dissatisfied	4	2	-39	10	6	-43
Rather dissatisfied	3	2	-48	10	7	-27
Neither satisfied nor dissatisfied	4	2	-53	14	7	-49
Rather satisfied	23	35	48	28	49	73
Fully satisfied	65	59	-9	38	32	-18
Part-time						
Involuntary part-time as a % of part-time	1	1	-36	7	6	-12
Job stability						
Permanent	90	87	-3	60	57	-4
Temporary	9	10	8	11	17	61
Seasonal	0	1		1	3	243
Casual	1	2	67	29	23	-21
Travel time to work (minutes)	24	25	3	36	35	-3
Technical skills requirement						
Requires technical skills	39	36	-6	41	29	-29
Skill requirements						
Basic literacy	90	87	-2	53	46	-12
Math or Statistics	55	63	16	29	37	29
Physical fitness	47	47	1	71	55	-22
Computer skills	33	39	18	15	18	15
N	2,115	2,205	4	8,161	10,122	24

Source: Authors' calculations based on ELMPS 2012 and 2018.

Table 5 shows the working conditions in care employment by gender and the change over the years 2012 and 2018. On average, the situation of women in care employment is worse than men in terms of social insurance coverage. However, the gender gap decreased in 2018 not due to an improvement in the situation of women but rather due to worsening of the situation of men. The share of women with social insurance declined from 83% in 2012 to 68% in 2018, while men's coverage fell from 89% in 2012 to 69% in 2018. We note this gender trend is disparate from that in the LFS, which may be due to the different time frames considered.

The share of men working with no contract rose from 9% in 2012 to 20% in 2018, while the share of women in care employment without contracts increased from 11% to 22%.

More than half of women in care employment were working poor (59% in 2018 versus 49% for men). The two groups, however, show similar job satisfaction and changes in job satisfaction. In

2012, women were more likely to be in temporary situations (12% versus 6% for men) but this converged by 2018. Women in care employment have shorter commutes than men, 23 minutes in 2018 versus 28 for men, although women experienced a slight increase over time while men did not. Men and women in care employment have similar skill requirements.

Table 5. Working conditions (percentages and percent changes) in care employment by gender and year, 2012 and 2018

	2012			2018			% change		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Social insurance	89	83	86	69	68	68	-22	-18	-20
No contract	9	11	10	20	22	21	124	95	108
Working poor	45	58	52	49	59	54	11	1	5
Job satisfaction									
Fully dissatisfied	3	4	4	2	3	2	-36	-41	-39
Rather dissatisfied	4	3	3	2	2	2	-41	-53	-48
Neither satisfied nor dissatisfied	4	4	4	2	2	2	-48	-57	-53
Rather satisfied	23	23	23	35	35	35	48	49	48
Fully satisfied	66	65	65	59	59	59	-10	-8	-9
Part-time									
Involuntary part-time	1	1	1	1	1	1	-12	-52	-36
Job stability									
Permanent	94	86	90	89	86	87	-5	0	-3
Temporary	6	12	9	9	11	10	56	-12	8
Seasonal	0	0	0	0	1	1			
Casual	1	2	1	1	2	2	100	55	67
Travel time to work (in minutes)	28	21	24	28	23	25	-2	9	3
Technical skills requirement									
Requires technical skills	37	40	39	35	37	36	-5	-7	-6
Skill requirements									
Basic literacy	88	91	90	87	87	87	-1	-4	-2
Math or Statistics	57	53	55	64	63	63	13	18	16
Physical fitness	52	42	47	51	44	47	-1	4	1
Computer skills	34	32	33	39	39	39	15	21	18
N	1,002	1,113	2,115	1,041	1,164	2,205	4	5	4

Source: Authors' calculations based on ELMPS 2012 and 2018.

Table 6 shows the working conditions in the private versus the public sector for care versus non-care employment in 2018. Social insurance coverage is much better in the public sector (82% for care work and 81% for not care work) compared to the private sector, (22% care work, 17% not care work). Patterns of no contract are similar, with only 7% of public sector care workers and 10% of public sector non-care workers lacking a contract, compared to 68% of private sector care workers and 84% of private sector non-care workers lacking contracts. There is higher working poverty in care jobs in both the public and private sectors, although the level is lower in the public sector (50% for care jobs in the public sector versus 69% in the private sector).

Workers are much more satisfied with public sector jobs, care or otherwise. In the private sector, workers are more satisfied with care jobs than non-care jobs, but far less so than public sector jobs. Job stability in the public sector is consistency permanent, although in the private sector care jobs are slightly more likely to be permanent and much more likely to be temporary, but less seasonal or casual, than non-care jobs. Interestingly, commute times are longest in non-care public sector jobs (41 minutes on average), followed by non-care private sector jobs (34 minutes), care private sector jobs (27 minutes), and lastly care public sector jobs (25 minutes).

There are mixed patterns in terms of skill requirements, depending on the type of skill. Technical skills are most frequently required for public sector care jobs (40%), followed by public-sector non-care jobs (30%), private sector non-care jobs (29%) and private sector care jobs (24%). However, literacy, math, and computer skills requirements are consistently higher in the public sector and specifically care jobs than any type of private sector jobs. This is a concerning finding in regards to the skill level and implied quality of care provided in the private sector.

Table 6. Working conditions (percentages) by sector and care employment, 2018

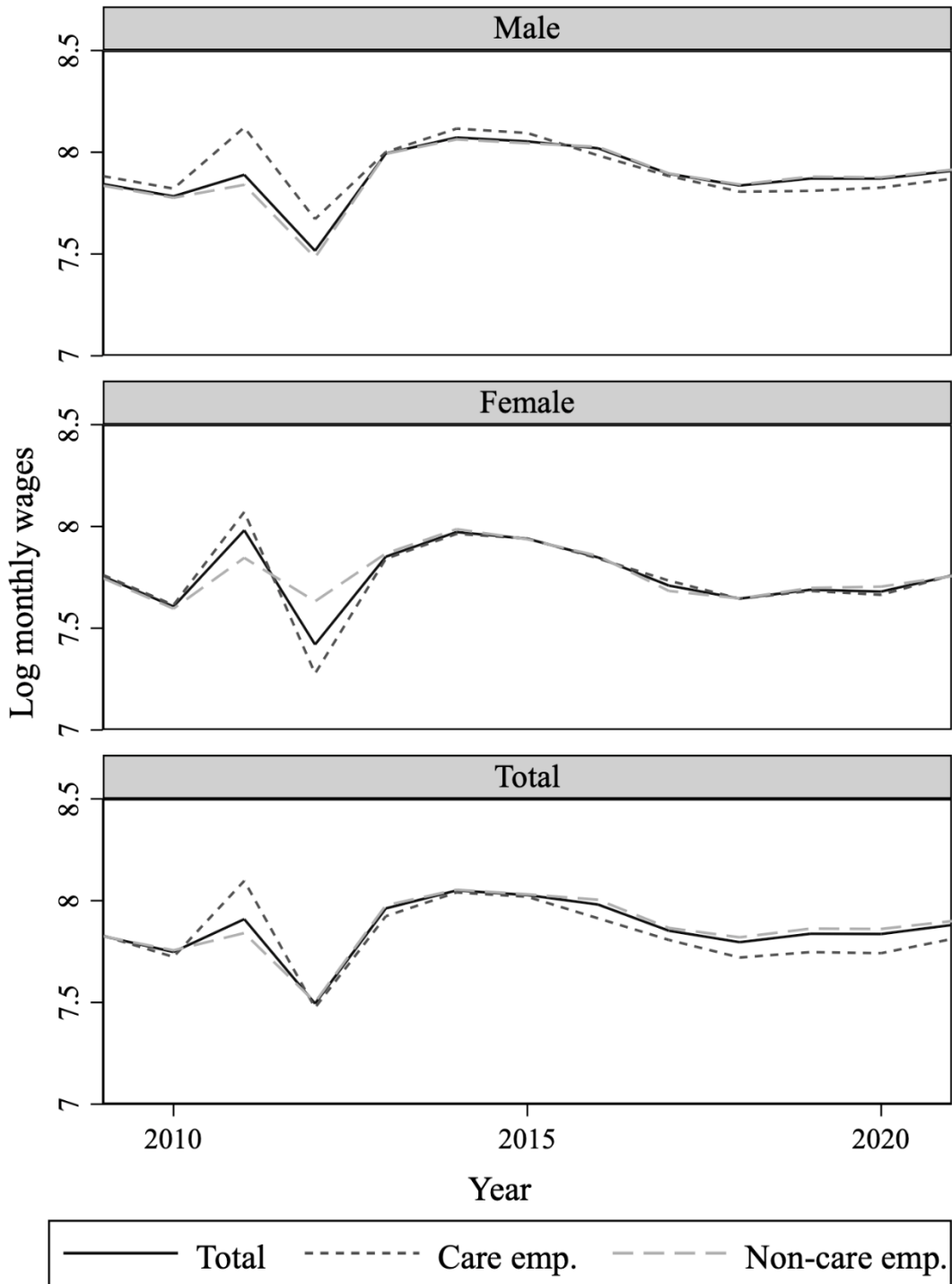
	Public		Private	
	Care	Not care	Care	Not care
Social insurance	82	81	22	17
No contract	7	10	68	84
Working poor	50	41	69	59
Job satisfaction				
Fully dissatisfied	1	1	6	7
Rather dissatisfied	1	1	4	9
Neither satisfied nor dissatisfied	1	2	5	8
Rather satisfied	31	32	48	53
Fully satisfied	66	64	36	23
Part-time				
Involuntary part-time	0	0	2	8
Job stability				
Permanent	98	96	53	46
Temporary	2	3	36	21
Seasonal	0	0	3	4
Casual	0	1	8	29
Travel time to work (minutes)	25	41	27	34
Technical skills requirement				
Requires technical skills	40	30	24	29
Requires skills				
Basic literacy	93	81	68	36
Math or Statistics	67	62	50	30
Physical fitness	47	54	49	55
Computer skills	41	38	31	12
N	1,740	2,082	462	8,014

Source: Authors' calculations based on ELMPS 2018.

4.4 The formation of a care pay gap

In addition to declining working conditions, a care pay gap has formed over time in Egypt. Figure 4 shows the trend in real (2021 prices) monthly log wages, by sex and whether or not an individual is in care employment. Initially, care employment had similar or (for men) slightly higher wages than non-care employment. Starting around 2015, care employment wages fell relative to non-care employment, primarily for men.

Figure 4. Trends in log monthly wages (real 2021 prices), by care employment and sex

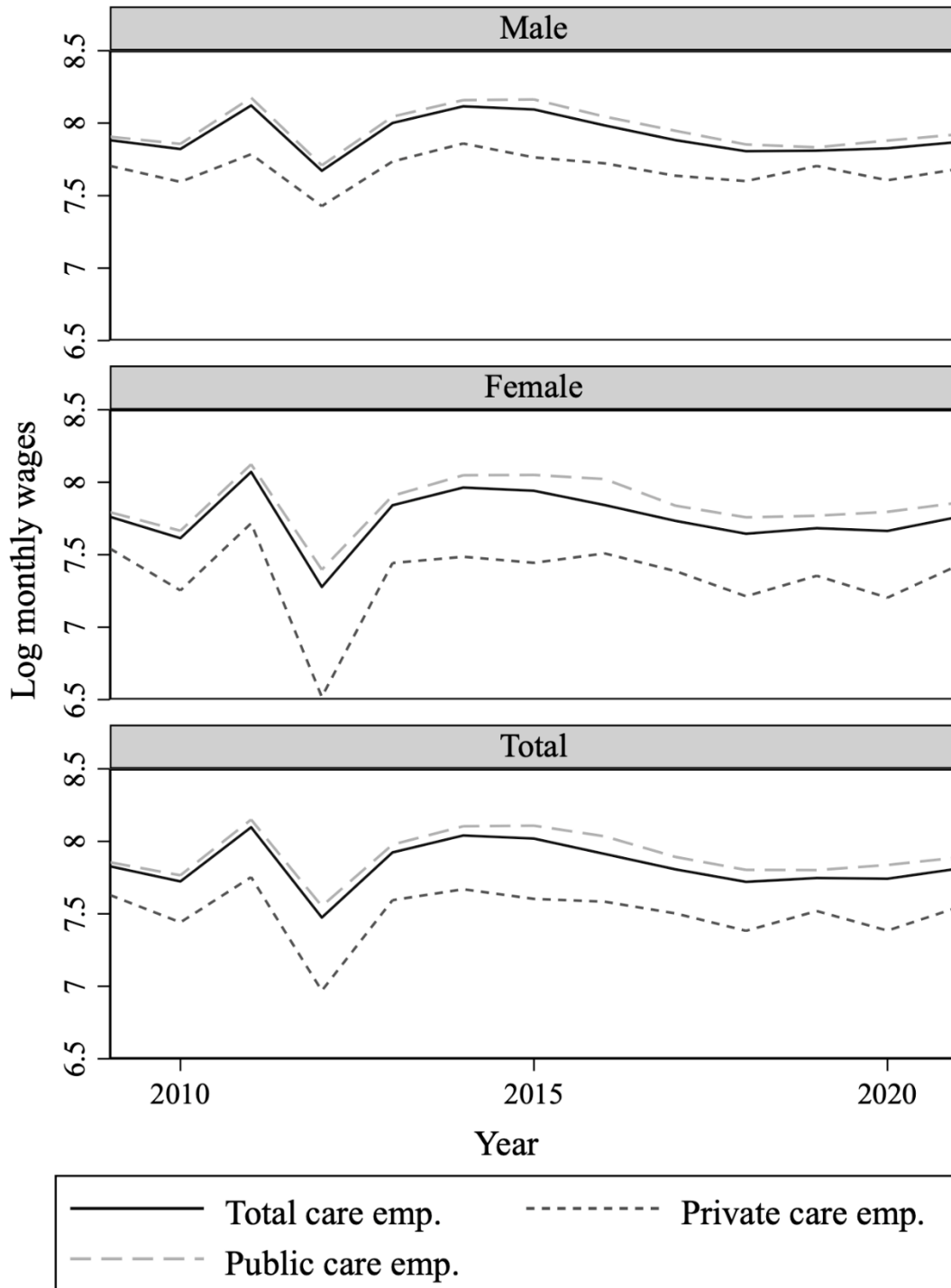


Source: Authors' calculations based on LFS 2009-2021
 Notes: Annual mean of the real (2021 prices) log monthly wage.

Examining pay by care occupation, child care workers are the lowest paid, at a mean of 1,465 Egyptian pounds (EGP) per month (in 2021 real terms, pooling 2009-2021 data). Their pay is particularly low in the private sector (1,281 EGP) but still low in the public sector (2,250 EGP). Domestic workers have the next lowest mean pay, at 2,389 EGP per month, followed by personal care workers at 2,700 EGP. Education workers average 3,094 EGP per month (3,201 EGP in the public sector, 2,254 EGP in the private). Health care workers earn on average 3,418 EGP per month (with only small sectoral differences, 3,426 EGP per month in the public sector and 3,389 in the private sector). These pay disparities may relate in part to the characteristics and qualifications of workers by sector. For instance, 89% of health and 85% of education workers have higher education, compared to only 32% of personal care workers, 18% of child care workers, 22% of wage workers not in care occupations, and 3% of domestic workers.

Within care employment (Figure 5), there are sizeable pay gaps by sector. Private sector care workers earn substantially less than public sector care workers. This gap has widened over time. The public-private pay gap in care work is particularly large for women and has widened more for them over time.

Figure 5. Trends in log monthly wages (real 2021 prices), by sector and sex, care employment



Source: Authors' calculations based on LFS 2009-2021

Notes: Annual mean of the real (2021 prices) log monthly wage.

Care pay trends are formally tested in Table 7, where we can see there was an initial care pay premium (by 5.7%). While wages increased over time generally (by 0.9% per year), the time and care employment interaction was a 1.4% decline (0.6% decline net of the main effect). In the model with controls, there was an initial care pay penalty (by 2.6%) and a positive overall trend (1.3% increase in wages per year) but a negative interaction with care employment (1.7% per year, 0.4% decline per year on the net). The widening care pay penalty (consistent with H3) is thus confirmed in the multivariate model. The model with interactions by gender shows both a gender pay gap and that the care pay gap widened more so for men than women (as interactions with female are positive).

Table 7. Ordinary least squares model for log monthly wages (real 2021 prices)

	<u>Trend</u>	<u>+gender int. trend</u>	<u>+controls</u>	<u>+controls and gender int. trend</u>
Care job	0.057*** (0.004)	0.138*** (0.005)	-0.026*** (0.004)	-0.017*** (0.005)
Year (time trend since 2009)	0.009*** (0.000)	0.010*** (0.000)	0.013*** (0.000)	0.014*** (0.000)
Care job and time int.	-0.014*** (0.001)	-0.017*** (0.001)	-0.017*** (0.001)	-0.020*** (0.001)
Female (male omit.)		-0.041*** (0.006)	-0.418*** (0.013)	-0.344*** (0.016)
Care job and female int.		-0.144*** (0.009)		-0.047*** (0.009)
Year and female int.		-0.012*** (0.001)		-0.010*** (0.001)
Care job and female and time int.		0.016*** (0.001)		0.011*** (0.001)
Age			0.025*** (0.001)	0.025*** (0.001)
Age sq.			-0.000*** (0.000)	-0.000*** (0.000)
Region (Greater Cairo omit.)				
Alexandria			0.006* (0.003)	0.006* (0.003)
Delta			-0.071*** (0.002)	-0.071*** (0.002)
Canal			0.026*** (0.003)	0.026*** (0.003)
N. Upper Egypt			-0.102***	-0.102***

	<u>Trend</u>	<u>+gender int. trend</u>	<u>+controls</u>	<u>+controls and gender int. trend</u>
			(0.003)	(0.003)
Central Upper Egypt			-0.081*** (0.005)	-0.081*** (0.005)
S. Upper Egypt			-0.040*** (0.003)	-0.040*** (0.003)
Rural (urban omit.)			-0.016*** (0.002)	-0.016*** (0.002)
Presence of children				
Aged 0-2			0.026*** (0.002)	0.027*** (0.002)
Aged 3-5			0.018*** (0.003)	0.019*** (0.003)
Aged 6-11			0.002 (0.002)	0.003 (0.002)
Aged 12-17			-0.000 (0.002)	0.002 (0.002)
Presence of children and female int.				
Aged 0-2			-0.008 (0.005)	-0.015** (0.005)
Aged 3-5			0.005 (0.006)	-0.004 (0.006)
Aged 6-11			-0.026*** (0.006)	-0.032*** (0.006)
Aged 12-17			0.007 (0.005)	-0.002 (0.006)
Ever married (never omit.)			0.047*** (0.004)	0.047*** (0.004)
Ever married and female int.			0.114*** (0.006)	0.113*** (0.006)
Education (illit. omit.)				
Read and write			0.050*** (0.005)	0.050*** (0.005)
Less than sec.			0.103*** (0.004)	0.102*** (0.004)
Gen. sec.			0.168*** (0.009)	0.168*** (0.009)

	Trend	+gender int. trend	+controls	+controls and gender int. trend
Voc. sec.			0.216*** (0.004)	0.215*** (0.004)
Higher ed.			0.402*** (0.004)	0.403*** (0.004)
Education and female omit.				
Read and write			0.019 (0.027)	0.020 (0.027)
Less than sec.			0.042* (0.017)	0.045** (0.017)
Gen. sec.			0.151*** (0.028)	0.150*** (0.028)
Voc. sec.			0.205*** (0.012)	0.201*** (0.012)
Higher ed.			0.213*** (0.012)	0.205*** (0.012)
Constant	7.813*** (0.002)	7.820*** (0.002)	6.820*** (0.013)	6.812*** (0.013)
N obs.	587109	587109	575385	575385
R-sq.	.00267	.00935	.136	.137

Source: Authors' calculations based on LFS 2009-2021

Notes: Standard errors in parentheses. *p<0.05; **p<0.01; ***p<0.001

5 Conclusions

Despite efforts to expand education, child care, and access to health services in Egypt (Ministry of Social Solidarity 2018; World Bank 2018a; Ministry of Planning and Economic Development 2015; World Bank 2018b), paid care employment has been shrinking as a share of wage employment in Egypt over 2009-2021 (counter to H1). Our findings on the shrinking of the care economy are consistent with other research showing, for example, decreases in the availability of nurseries between 2006 and 2017 in Egypt (Economic Research Forum and UN Women 2020). Calls to recognize, reduce, and redistribute care work emphasize both redistribution of care work from women to men and from households to society (International Labour Organization 2018). Egypt is struggling with redistribution from households to societies.

The decline in paid care employment is likely to increase unpaid care work for women. Women disproportionately undertake unpaid care work in Egypt, and do so to a greater extent than in most other countries (Assaad, Krafft, and Selwaness 2022; El-Feki, Heilman, and Barker 2017; International Labour Organization 2018; Hendy and Yassin 2022). Additional unpaid care responsibilities, decreasing care services, and decreasing employment in the care economy may

be factors contributing to women’s ongoing declines in employment in Egypt (Krafft, Assaad, and Keo 2022). Women’s employment rates fell from 22% in 2006 to 17% in 2018 (Krafft, Assaad, and Keo 2022). As of 2022, women’s employment rate had fallen to 13% (CAPMAS 2022). When women cannot find employment reconcilable with their care responsibilities, they tend to withdraw from the labor force (Assaad et al. 2020; Assaad, Krafft, and Selwaness 2022; Assaad, Krafft, and Salemi 2023).

Economic and demographic trends are likely to increase the need for care while decreasing women-friendly employment opportunities. Deindustrialization and job growth that is skewed towards industries disproportionately employing men in Egypt (Assaad et al. 2019) may further exacerbate the difficulties women face in reconciling care responsibilities and paid work. At the same time, care needs in society may increase, particularly in terms of long-term care for the elderly, as Egypt is projected to experience rapid growth in its elderly population by 2050 (Angeli and Novelli 2017; Assaad 2022). A shift towards nuclear households over time (Assaad, Krafft, and Rolando 2021) may also be reducing the availability of extended family care for both young children and the elderly.

The decline in paid care employment is in part due to shrinking public sector care employment. Care employment has become increasingly privatized (consistent with H2), but the growth in paid care employment in the private sector has not been large enough to compensate for the retreat of the public sector. Our results on the privatization of paid care work are consistent with trends towards privatization of formerly public paid care work globally, and the linkages with structural adjustment in LMICs (Razavi and Staab 2010).

Working conditions, including social insurance coverage (employment formality) and wages have been worsening in paid care employment (consistent with H3). The decline in social insurance coverage is driven by both privatization and a decline in coverage within the private sector. Public sector workers, both generally and in the care economy, tend to have substantially better working conditions. The trend towards privatization is thus worsening working conditions in the care economy and may also be affecting the quality of care. Women have been particularly affected by privatization and the decline in social insurance coverage, indicating the rising vulnerability of those employed in this sector.

While initially care pay was in fact a slight premium, our results substantiate a growing “care pay penalty” in Egypt. Research on care pay penalties has been common in HICs (Hirsch and Manzella 2015; Heyes 2005; Budig and Misra 2010; Barron and West 2013; Folbre, Gautham, and Smith 2021; 2023; Pietrykowski 2017) but limited in LMICs. Consistent with findings for HICs (Hirsch and Manzella 2015), we find the care pay penalty particularly affects men in Egypt.

5.1 Limitations

There are a number of important limitations to keep in mind with these analyses. Given the triangulation of data sources, while we are confident in our overall conclusions, some nuances may be artifacts of the data, such as the spike in private sector care work around 2016 in the LFS. We focused on the overall trends, without accounting for selection into employment overall, or care employment specifically. These overall trends – such as the privatization and informalization of

care employment and the development of a care wage penalty – are important. However, they may be in part driven by the changing composition of workers, particularly among women who are increasingly leaving the labor force (Krafft, Assaad, and Keo 2022). For instance, when we controlled for worker characteristics, some of the patterns of differences by gender changed. Since there has been relatively limited research on care employment, trends in care employment, working conditions, or care pay penalties in Egypt, MENA, or LMICs, even the observed trends provide new insights, but future research could work towards stronger identification of, for example, the care pay penalty.

This research focused on paid care employment; however, further research is also needed on unpaid care work. While past research has highlighted the “second shift” women face when they combine paid work and family (Assaad, Krafft, and Selwaness 2022), the data collected were limited. Egypt’s last time use survey was in 2015 (World Bank 2018b), and is not, to the best of the authors’ knowledge, publicly available. Publicly available time use data, with a full twenty-four-hour detailed calendar, capturing both primary and secondary activities, is critically important to measuring unpaid care work and ultimately recognizing such work.

5.2 Policy implications

Globally, public provision of care services improves the job quality of care employment (International Labour Organization 2018). Structural reform in Egypt, and the consequent shrinking of public sector care employment, is thus in tension with creating a robust care economy. Developing a new social contract that ensures availability of care services may require revisiting the role of the public sector. Universal coverage of care services by public provision or funding could be one long-term goal, starting by targeting the most vulnerable in the short-run (ILO and UN Women 2021).

Alternatively, mixed-market models are options (Folbre 2018), where care services can be subsidized or provided publicly for the most vulnerable, while those with more resources pay for services on the private market. Non-profit organizations also tend to have a particularly important role in providing care services in many LMICs (International Labour Organization 2018). Cooperatives are one model for providing care that can also help workers organize and improve working conditions. However, this model requires a supportive policy environment, including legal recognition and the right to provide services (International Labour Organization 2018).

Critically important to robust paid care services and job quality is sustainable public funding for paid care work. Egypt has committed in its constitution to spend 4% of GDP on education and 2% specifically on higher education (Egypt State Information Service 2014). There is not, however, a similar commitment to providing universal quality pre-primary education. Unequal access to quality early care and education may exacerbate educational inequality (Krafft and Alawode 2018).

Concerted efforts to improve pay and working conditions in the care economy are also possible with a concerted activist and policy push, without necessarily changing the sectoral structure of the care economy (Charlesworth and Heap 2020). Ensuring workers in the care economy have decent working conditions is important not only from the perspective of workers’ rights and

wellbeing, but also for the quality of care. For instance, high rates of turnover in care fields due to low wages may negatively impact the quality of care (Duffy, Baughman, and Smith 2021). There is, however, an important tension to be considered between the affordability of services and their quality, as higher pay for care workers may improve the quality of care but make such care less affordable (International Labour Organization 2018).

Although the data do capture some paid domestic work and highlighted the growth of this sector from 2% to 6% over 2009-2021, this sector is particularly likely to be mismeasured. Other research has highlighted that, in households that hire domestic workers, women spend less time on care work (Economic Research Forum and UN Women 2020). Such paid domestic work is, however, almost entirely in the private sector and very likely to be informal (Economic Research Forum and UN Women 2020). Professionalizing this sector and improving job quality, while at the same time increasing the affordability and access of domestic support, are important areas for future work. Likewise, early childhood care and education services are disproportionately private sector employment (Economic Research Forum and UN Women 2020), and would benefit from additional investment to professionalize the sector and thus improve both job quality and the quality of services.

As well as structural issues, such as the decline of public sector paid care employment, gender norms that emphasize women's caregiving role may constrain redistribution of care work within the household or from the household to the market (Caria et al. 2022; El-Feki, Heilman, and Barker 2017). For instance, 68% of Egyptians thought household duties should not be compensated or that they should not be considered work (Osman 2019). Such norms may also reduce professionalization, pay, and job quality.

Consequently, in sectors such as child care, willingness to pay by parents is limited and at the same time caregivers are not perceived as professional or trustworthy (Girgis and Adel 2021). Public investments to professionalize and raise quality of care services may need to be coupled with raising awareness about the value and quality of such services. Careful design of professionalization for care workers needs to be considered; requiring a four-year higher education for all care workers, for instance, is likely to limit labor supply and raise the costs of care. Models such as the West Bank and Gaza's one-year professional degree for Kindergarten workers may help professionalize and raise quality of care services while also limiting cost increases (World Bank 2019).

Policies and public campaigns to change gender norms around caregiving can be an important support to accessible care and decent care work. Gender norms change can even happen early, during school years (Dhar, Jain, and Jayachandran 2022). Norms change can also be integrated into social institutions, for instance, religious leaders can help increase the involvement of fathers in caregiving (UNICEF 2009). Changing norms around care can potentially complement more direct efforts to improve both quality of care and working conditions.

References

- Abbott, Sam. 2021. "The Child Care Economy: How Investments in Early Care and Education Can Fuel U.S. Economic Growth Immediately and over the Long Term." Washington Center for Equitable Growth.
- Angeli, Aurora, and Marco Novelli. 2017. "Transitions in Late-Life Living Arrangements and Socio-Economic Conditions of the Elderly in Egypt, Jordan, and Tunisia." Economic Research Forum Working Paper Series 1083. Cairo, Egypt.
- Assaad, Ragui. 2014. "Making Sense of Arab Labor Markets: The Enduring Legacy of Dualism." *IZA Journal of Labor & Development* 3 (6): 1–25.
- . 2022. "Beware of the Echo: The Evolution of Egypt's Population and Labor Force from 2000 to 2050." *Middle East Development Journal*, 1–31.
- Assaad, Ragui, Abdelaziz AlSharawy, and Colette Salemi. 2022. "Is The Egyptian Economy Creating Good Jobs? Job Creation and Economic Vulnerability from 1998 to 2018." In *The Egyptian Labor Market: A Focus on Gender and Vulnerability*, edited by Caroline Krafft and Ragui Assaad. Oxford, UK: Oxford University Press.
- Assaad, Ragui, and Melanie Arntz. 2005. "Constrained Geographical Mobility and Gendered Labor Market Outcomes Under Structural Adjustment: Evidence from Egypt." *World Development* 33 (3): 431–54.
- Assaad, Ragui, Rana Hendy, Moundir Lassassi, and Shaimaa Yassin. 2020. "Explaining the MENA Paradox: Rising Educational Attainment, Yet Stagnant Female Labor Force Participation." *Demographic Research* 43 (28): 817–50.
- Assaad, Ragui, Caroline Krafft, Khandker Wahedur Rahman, and Irène Selwaness. 2019. "Job Creation in Egypt: A Sectoral and Geographical Analysis Focusing on Private Establishments, 1996-2017." Economic Research Forum Policy Paper. Cairo, Egypt.
- Assaad, Ragui, Caroline Krafft, and Dominique J. Rolando. 2021. "Evaluating the Impact of Housing Market Liberalization on the Timing of Marriage: Evidence from Egypt." *Population Studies* 75 (3): 343–61.
- Assaad, Ragui, Caroline Krafft, and Colette Salemi. 2023. "Socioeconomic Status and the Changing Nature of School-to-Work Transitions in Egypt, Jordan, and Tunisia." *ILR Review* 76 (4): 697–723.
- Assaad, Ragui, Caroline Krafft, and Irene Selwaness. 2022. "The Impact of Marriage on Women's Employment in The Middle East and North Africa." *Feminist Economics* 28 (2): 247–79.
- Barron, David N., and Elizabeth West. 2013. "The Financial Costs of Caring in the British Labour Market: Is There a Wage Penalty for Workers in Caring Occupations?: The Financial Costs of Caring." *British Journal of Industrial Relations* 51 (1): 104–23.
- Barsoum, Ghada. 2021. "Why Is the Public Sector the Employer of Choice among Women in the Middle East? A Gendered Qualitative Inquiry into PSM in a Global Context." *Review of Public Personnel Administration* 41 (4): 771–91.
- Barsoum, Ghada, and Dina Abdalla. 2022. "Still the Employer of Choice: Evolution of Public Sector Employment in Egypt." In *The Egyptian Labor Market: A Focus on Gender and Vulnerability*, edited by Caroline Krafft and Ragui Assaad, 156–73. Oxford, UK: Oxford University Press.
- Budig, Michelle J., and Joya Misra. 2010. "How Care-Work Employment Shapes Earnings in Cross-National Perspective." *International Labour Review* 149 (4): 441–60.
- CAPMAS. 2022. "Quarterly Bulletin Labour Force Survey The First Quarter Jan. Feb. Mar. 2022." Cairo, Egypt: CAPMAS.

- Caria, Stefano, Bruno Crepon, Hala ElBehairy, Noha Fadlalmawla, Caroline Krafft, AbdelRahman Nagy, Lili Mottaghi, Nahla Zeitoun, and Souraya El Assiouty. 2022. "Child Care Subsidies, Employment Services and Women's Labor Market Outcomes in Egypt: First Midline Results."
- Charlesworth, Sara, and Lisa Heap. 2020. "Redressing Gendered Undervaluation in New Zealand Aged Care: Institutions, Activism and Coalitions." *Journal of Industrial Relations* 62 (4): 608–29.
- De Henau, Jérôme, and Susan Himmelweit. 2021. "A Care-Led Recovery From Covid-19: Investing in High-Quality Care to Stimulate And Rebalance The Economy." *Feminist Economics* 27 (1–2): 453–69.
- Devarajan, Shantayanan, and Elena Ianchovichina. 2018. "A Broken Social Contract, Not High Inequality, Led to the Arab Spring." *Review of Income and Wealth* 64 (S1): S5–25.
- Dhar, Diva, Tarun Jain, and Seema Jayachandran. 2022. "Reshaping Adolescents' Gender Attitudes: Evidence from a School-Based Experiment in India." *American Economic Review* 112 (3): 899–927.
- Duffy, Mignon, Reagan Baughman, and Kristin Smith. 2021. "The Flip Side of Turnover: Employment Transitions and Occupational Attachment Among Low-Wage Care Workers in the United States." *Feminist Economics* 27 (4): 62–89.
- Economic Research Forum, and UN Women. 2020. "Progress of Women in the Arab States 2020: The Role of the Care Economy in Promoting Gender Equality." Cairo, Egypt: UN Women.
- Egypt State Information Service. 2014. *Constitution of The Arab Republic of Egypt (English Translation)*. <http://www.sis.gov.eg/Newvr/Dustor-en001.pdf>.
- El-Feki, Shereen, Brian Heilman, and Gary Barker, eds. 2017. *Understanding Masculinities: Results from the International Men and Gender Equality Survey (IMAGES) - Middle East and North Africa*. UN Women and Promundo-US.
- El-Haddad, Amirah. 2020. "Redefining the Social Contract in the Wake of the Arab Spring: The Experiences of Egypt, Morocco and Tunisia." *World Development* 127 (104774): 1–22.
- England, Paula. 2005. "Emerging Theories of Care Work." *Annual Review of Sociology* 31 (1): 381–99.
- Ezzat, Asmaa, and Maye Ehab. 2019. "The Determinants of Job Satisfaction in the Egyptian Labor Market." *Review of Economics and Political Science* 4 (1): 54–72.
- Folbre, Nancy. 2001. *The Invisible Heart: Economics and Family Values*. New York.
- . 2018. "Developing Care: Recent Research on the Care Economy and Economic Development." Ottawa, Canada: International Development Research Centre (IDRC).
- Folbre, Nancy, Leila Gautham, and Kristin Smith. 2021. "Essential Workers and Care Penalties in the United States." *Feminist Economics* 27 (1–2): 173–87.
- . 2023. "Gender Inequality, Bargaining, and Pay in Care Services in the United States." *ILR Review* 76 (1): 86–111.
- Galal, Rami, and Mona Said. 2019. "The Evolution of Wage Formation and Inequality in Jordan, 2010–2016." In *The Jordanian Labor Market Between Fragility and Resilience*, edited by Caroline Krafft and Ragui Assaad, 79–99. Oxford, UK: Oxford University Press.
- Girgis, Hanan, and Noha Adel. 2021. "Childcare Services and Its Impact on Women Economic Participation." National Council for Women, Baseera, and the World Bank.
- Halim, Daniel, Elizaveta Perova, and Sarah Reynolds. 2023. "Childcare and Mothers' Labor Market Outcomes in Lower- and Middle-Income Countries." *The World Bank Research Observer* 38 (1): 73–114.

- Hendy, Rana, and Shaimaa Yassin. 2022. "COVID-19...Who Will Wash the Dishes and Change the Diapers? Evidence from a Post COVID-19 Time Use Survey on Egypt." Economic Research Forum Working Paper Series.
- Heyes, Anthony. 2005. "The Economics of Vocation or 'Why Is a Badly Paid Nurse a Good Nurse'?" *Journal of Health Economics* 24 (3): 561–69.
- Hirsch, Barry T., and Julia Manzella. 2015. "Who Cares – and Does It Matter? Measuring Wage Penalties for Caring Work." In *Research in Labor Economics*, edited by Solomon W. Polachek, Konstantinos Tatsiramos, and Klaus F. Zimmermann, 41:213–75. Emerald Group Publishing Limited.
- Ibrahim, Solava. 2021. "The Dynamics of the Egyptian Social Contract: How the Political Changes Affected the Poor." *World Development* 138: 105254.
- ILO, and UN Women. 2021. "A Guide to Public Investments in the Care Economy: Policy Support Tool for Estimating Care Deficits, Investment Costs and Economic Return."
- International Labour Organization. 2013. "Measuring Informality: A Statistical Manual on the Informal Sector and Informal Employment." Geneva, Switzerland: International Labour Organization.
- . 2018. "Care Work and Care Jobs for the Future of Decent Work." Geneva.
- Kim, Kijong, İpek İlkkaracan, and Tolga Kaya. 2019. "Public Investment in Care Services in Turkey: Promoting Employment & Gender Inclusive Growth." *Journal of Policy Modeling* 41 (6): 1210–29.
- Krafft, Caroline. 2015. "Increasing Educational Attainment in Egypt: The Impact of Early Childhood Care and Education." *Economics of Education Review* 46: 127–43.
- Krafft, Caroline, and Halimat Alawode. 2018. "Inequality of Opportunity in Higher Education in the Middle East and North Africa." *International Journal of Educational Development* 62: 234–44.
- Krafft, Caroline, Ragui Assaad, and Caitlyn Keo. 2022. "The Evolution of Labor Supply in Egypt, 1988-2018." In *The Egyptian Labor Market: A Focus on Gender and Vulnerability*, edited by Caroline Krafft and Ragui Assaad, 13–48. Oxford: Oxford University Press.
- Krafft, Caroline, Ragui Assaad, and Khandker Wahedur Rahman. 2021. "Introducing the Egypt Labor Market Panel Survey 2018." *IZA Journal of Development and Migration* 12 (12): 1–40.
- Krafft, Caroline, and Moundir Lassassi. 2023. "Public Pre-Primary and Maternal Employment in Algeria: Evidence from a Natural Experiment." *The World Bank Economic Review*, lhad024.
- Ministry of Planning and Economic Development. 2015. "Egypt Vision 2030."
- Ministry of Social Solidarity. 2018. "Early Childhood Development Program - Egypt." Cairo, Egypt.
- Morrissey, Taryn W. 2017. "Child Care and Parent Labor Force Participation: A Review of the Research Literature." *Review of Economics of the Household* 15 (1): 1–24.
- OAMDI. 2019. "Labor Market Panel Surveys (LMPS). Version 2.0 of Licensed Data Files; ELMPS 2018." 2019.
- . 2023. "OAMDI, 2023. Egypt - Labor Force Survey (LFS). Various Rounds."
- Osman, Magued. 2019. "Egyptians' Perceptions Regarding Women Economic Participation in Egypt." Cairo, Egypt: Baseera.
- Pietrykowski, Bruce. 2017. "The Return to Caring Skills: Gender, Class, and Occupational Wages in the US." *Feminist Economics* 23 (4): 32–61.

- Razavi, Shahra, and Silke Staab. 2010. "Underpaid and Overworked: A Cross-National Perspective on Care Workers." *International Labour Review* 149 (4): 407–22.
- UNICEF. 2009. "Jordan's Early Childhood Development Initiative: Making Jordan Fit for Children."
- Vakulabharanam, Vamsi, and Sripad Motiram. 2023. "Gender and Work Patterns in Indian Cities: A Socio-Spatial Analysis." *Feminist Economics* 29 (2): 64–95.
- Verick, Sher. 2018. "Female Labor Force Participation and Development." *IZA World of Labor* 87v2: 1–11.
- World Bank. 2018a. "Supporting Egypt Education Reform Project. Project Appraisal Document." Washington, D.C.: World Bank.
<http://documents.worldbank.org/curated/en/346091522415590465/Egypt-Supporting-Egypt-Education-Reform-Project>.
- . 2018b. "Women Economic Empowerment Study." Washington, DC: World Bank.
- . 2019. "Project Appraisal Document for the Improving Early Childhood Development in the West Bank and Gaza."