Comparative Economic Studies (2021) 63:603–622
https://doi.org/10.1057/s41294-021-00173-0

Gender Regime and Women's Employment in Kazakhstan

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Accepted: 6 October 2021 / Published online: 29 October 2021

Abstract

Researchers have analyzed care policies in the wider Europe in order to understand how these may impact labor force decisions of women. We extend this analysis to Central Asia, focusing on the emerging gender regime in Kazakhstan, which has become a leader in announcing policies to facilitate combining family responsibilities with employment. While childcare services have expanded rapidly in Kazakhstan, female labor force participation has not increased as might have been expected based on the European cases. We draw on the data from the EBRD Life in Transition Survey from 2006, 2010 and 2016 to examine how motherhood and the availability of childcare are related to the employment choices of Kazakhstani women. We find that motherhood of very young children is strongly associated with a lower likelihood of employment and that the availability of childcare does not affect this relationship. Considering possible reasons for this and the typology European gender regimes, we suggest that greater availability of quality care for children under 2 and increased support for caring by fathers which would reduce opportunity costs of employment for women and could help Kazakhstan achieve its goal of increasing gender equity.

Keywords Central Asia · Childcare · Employment · Gender

JEL Classifications J2 · P2 · B52

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Introduction

Over the past decade, researchers have begun to address what Esping-Andersen (1997) called "the blindness of virtually all comparative political economy to the world of families." Feminist economists have detailed the importance of care work within households in producing workers and citizens, emphasizing that there is "nothing automatic about this" reproduction (Razavi 2009). Researchers also highlight how care work affects women's participation in paid labor (Gornick and Hegewisch 2010). The distribution of the costs of reproduction is heavily influenced by national and local markets, state policies, and culture which, when combined, have been described as a "gender regime" (Gillian and Lewis 2004). These regimes are increasingly recognized as impacting a range of key national outcomes, including human capital development, gender equality, economic growth, fiscal health, individual economic security, and dignity (Commission for the European Communities 2008; Mason and King 2001; OECD 2017).

A number of typologies have been developed to analyze the policies and practices used to provide care services (Frericks et. al. 2014) and support labor market participation (Bettio and Plantenga 2004), in order to better understand the impact of varying regimes. Most of this work has focused on Europe, including the formerly socialist countries of the wider Europe (Saraceno and Keck 2010; Pascall and Lewis 2004). The European post-socialist cases differ from the other European cases in important ways. Socialist gender regimes supported relatively high levels of female labor force participation with long maternity leaves and significant government support for childcare for children over three years. The post-socialist cases are also distinguished by the severe post-socialist economic downturn, which devastated government budgets, reducing government support for childcare and families (Gillian and Lewis 2004).

Research to date on gender regimes has not included any of the formerly socialist countries of Central Asia, which differ from the European cases in their relatively high fertility rates (data.worldbank.org) and thus the importance of childcare. Among Central Asian cases, over the past 15 years Kazakhstan been a leader in developing a post-socialist model for supporting combining family responsibilities with employment to increase gender equality. An important element of this has been a radical expansion of childcare availability.

In this paper, we address how Kazakhstan's emerging gender regime compares analytically with the more-studied European models, expanding existing typologies to include the extent to which government policy encourages the sharing of care within couples. We examine trends in childcare availability and women's employment in Kazakhstan, to evaluate whether these conform to expectations based on the Europe-based typologies. Finally, we use the Life in Transition Survey from 2006, 2010, and 2016 to analyze the relationship between children, care availability and female employment controlling for other factors.

We find that Kazakhstan's emerging care regime retains a strong resemblance to the dual-earner, female-caregiver model common under socialism, and predict that this may limit progress on the stated government goal of equal employment

opportunities for men and women. While the state has increased support for childcare among children 3–6 years of age, there is still significantly less institutional care for children 0–2 years of age. Limited support for fathers' participation in parental leave places the burden of care for young children on women, and relatively long leaves are likely to have long-term negative impacts on women's employment outcomes. Regression analysis suggests that the burden of care for very young children is strongly associated with non-employment of mothers, and that greater regional expansion of childcare to date has not changed that relationship. In concluding, we discuss some possible reasons for this limited impact and draw on European examples to suggest a path toward more equal labor market integration for men and women.

Models of Care

Typologies provide an analytical framework for understanding varied national approaches to the provision of care and their relationship to variations in female labor force participation. Situating Kazakhstan's emerging gender regime within these typologies highlights key aspects of its functioning and suggests expected impacts of the policy.

Previous work describing gender regimes has focused on two aspects of care provision—how responsibility for care is shared between the family and the state (Saraceno and Keck 2010) and how care provided by the household is shared among household members (Pascall and Lewis 2004). A key point of reference has been the "Male Breadwinner" model, in which men specialize in paid work and women specialize in unpaid care and housework. The omission of caregiving from the description of the model highlights the invisible and assumed nature of women's work—the model might better be described as "Male Breadwinner, Female Caregiver." The state provides little support for care under this model since, with a full-time caregiver, households are expected to be able to provide that themselves.

The alternative to a Male Breadwinner, Female Caregiver model might be a "Dual-Earner, Dual-Caregiver" model (Gornick and Meyers 2008) in which both parents participate equally in paid work and care. Few countries have made a full transition to such a model, however. While women's labor force participation in Europe increased in the 1990s, their incorporation into the paid labor force remains well below that of men in most countries. There are important variations within Europe, with only 57% of women participating in the paid labor force in Belgium in 2012 (around the middle of the period we consider for Kazakhstan) compared to 73% of men, while 78% did so in Sweden, compared to 83% of men (OECD 2021). Still, in 2008, Gornick and Meyers (2008) found that in all OCED countries, "mothers' employment rates lag behind the 90 percent or higher rates reported among fathers," and that women are more likely than men to work part time.

With men still more specialized in the labor force, women are still more specialized in unpaid work. Analysis of time-use data in the early 2000's suggested that "employed fathers in most OECD countries devote fewer than one-quarter of the hours that their female partners commit to routine housework, and less than half

as much time to caring for their children." As with paid employment, the extent of sharing in care work varies. In Sweden, fathers spent more time caring for children—a little more than half as much time as their female partners (Gornick and Hegewisch 2010: 318).

To address potential work-family conflicts resulting from women's increased labor force participation, European countries have introduced policies including paid and unpaid parental leaves, flexible work schedules, tax concessions and other monetary benefits (which can offset income losses when a parent provides care), and state-provided and state-supported childcare. Looking at 27 European countries, Saraceno and Keck (2010) note that policies generally provide a mix of supporting families in providing care and providing some state-supported care, but may be classified as focusing more on supporting families in providing care ("supported familialization," as in most of the former socialist cases) or on state-provided care ("de-familialization," as in Sweden), or provide little support and leave care up to families ("familialization by default," as in the Netherlands). While most governments provide significant state support for care/preschool for children 3–6 years, the authors find important differences among countries in how care is provided for children under 3 years of age (Saraceno and Keck 2010).

At a given level of state support, policies differ in how much they encourage more equal sharing of paid and care work between parents. Research suggests that maternity leave, particularly paid leave, will increase women's labor force participation prior to giving birth and also the share of women who return to the labor market afterward (De Henau et al. 2007). However, leaves beyond 20 weeks in duration can depress future wages and reduce incentives to return to the labor market (Jaumotte 2003). Likewise, policies which offer financial support for in-home childcare encourage longer times out of the labor force (Gornick and Hegewisch 2010) and greater specialization between spouses.

Policies which support father participation in leave reduce the amount of time women spend out of the labor force and increase female labor force participation. In addition, men who take longer leaves participate more in childcare over the longer term (Huerta et. al. 2014), supporting women's employment by reducing unpaid care burdens on women. If parental leave can be shared freely between parents, however, women take more leave. Paid leave and higher wage replacement rates (80 to 100 percent) reduce the disincentives for men (who typically have higher earnings) to take the leave (Deven and Moss 2005). Leaves that must be specifically taken by the father also increase father uptake. Countries in Europe vary significantly in the extent of such leave, with most offering only 2 weeks. Finland, however, offers 9 weeks (European Commission 2018).

Combining these differences in support for sharing of care between partners with those described by Saraceno and Keck (2010) in state support for care suggests 4 types of state support (or lack of support) for care, as shown in Fig. 1. All four approaches might support a "male-dominated dual-earner female-dominated dual-caregiver" gender regime, but they show how European countries vary significantly within this framework. Figure 1 also shows the ratios of men's to women's average time in paid and unpaid work (hours per week) associated with the varying forms of state support.

State Support for Care		State Support for Family Sharing of Care work: High	State Support for Family Sharing of Care work: Low
	High	Sweden Ratio Paid work: .82 Ratio Unpaid Work: 1.3	Belgium Ratio Paid Work: .78 Ratio Unpaid Work: 1.8
	Low	US Ratio Paid work: .64 Ratio Unpaid Work: 1.6	Italy Ratio Paid Work: .47 Ratio Unpaid Work: 2.8

Fig. 1 State support for care. Source: World Bank Gender Statistics, www.worldbank.org; Time Use Statistics, UN, www.unstats.un.org

Figure 1 illustrates that high levels of state provision of care and support for sharing family duties, as in Sweden, provide the strongest support for women's labor force participation—closer to the Dual-Earner, Dual-Care Giver model. Low levels of support for leave-sharing reduce the likelihood of sharing household work, raising the opportunity costs of women's paid work while reducing their expected earnings. This supports a partial dual-earner model with mainly female caregiving, as in Belgium. Low levels of state support for care combined with low levels of support for sharing of unpaid work, as in Italy, create double disincentives for female employment. Low levels of state support combined with equal access for either partner, as in the US, allows for more equal sharing of the heavy burdens on households but, with a significant wage gap, women are likely to do more care and less paid work.

The Socialist Legacy

Socialist countries developed a dual-earner model very early, to support the goal of rapid industrialization. By the late 1980s, 62% of women participated in the labor force in Hungary and 77% did so in Czechoslovakia (Boeri and Sziraczki 1992: 244). To support this, workplaces and the state provided significant levels of childcare for children over 3 years old (Meurs and Ranasinghe 2003). Enrollment rates among pre-school children ranged from 49 percent in Poland to 90 percent in the Czech Republic in 1989 (UNICEF 1999: 133). Women were explicitly recognized as the main caregivers, however, and provided with relatively long (2–3 years) paid maternity leaves and, in some cases, shortened hours to permit them to attend to domestic tasks (Ehrenreich 1993). The model might thus be described as Dual-Earner, Female-Caregiver based on supported familialism, with significant state financial support for care but limited support for parental sharing of care.

This model was never as fully implemented in the socialist republics of Central Asia. Social norms and lower levels of industrialization contributed to lower female labor force participation—36% in Tajikistan and 38% in Kyrgyzstan in 1991. Only

31% of children of pre-school age were enrolled in childcare in Kyrgyzstan by 1989 and 17% in Tajikistan (UNICEF 1999:133). In Kazakhstan, however, 65% of women participated in the labor force in 1990 and 52 percent of pre-school aged children attended childcare (data.worldbank.org), making Kazakhstan more like socialist countries in East and Central Europe.

The post-socialist transformation after 1991 led to significant economic disruption, importantly impacting care provision. Output fell rapidly to 61% of 1989 levels in Kazakhstan by 1994, reaching 1989 levels again only in 2009 (EBRD 2009: 21). Many state enterprises closed, state revenues declined, and government expenditure dropped from 31% of GDP to 19% of the much-reduced GDP from 1990 to 1996. Many state-supported preschools were closed. Preschool enrollment rates dropped from 31% to under 12% from 1990 to 1997. Some maternity leave and child payments continued but were greatly reduced and subject to frequent changes (ILO 2003).

Wages fell rapidly to 33% of 1989 levels (in real terms) by 1994, driving more people into the labor force and pushing labor force participation rates up slightly (UNICEF 1999: 133–141). Despite some public discussion of the virtues of replacing the socialist Dual-Earner model with a male breadwinner model, families continued to need two earners. The greatly reduced access to preschool put extreme pressure on the female caregivers, however, with women providing 6.65 hours of unpaid work per day in 2000, compared to 3.32 hours for men (United Nations 2020).

Toward a New Model?

Since 2003, the government of Kazakhstan has announced a number of policies which may provide a framework for a post-socialist gender regime. The 2003 Concept of Gender Policy, Initiative 6.15 of the 2006 Strategic Development Plan of the Republic of Kazakhstan to 2025, and the Strategy for Gender Equality for 2006–2016 emphasize women's labor force participation as a national goal (Office of the President of the Republic 2005; OECD 2017). The policies accordingly also outline various forms of government support for combining family responsibilities with employment. As in most European post-socialist cases, however, policies leave families mainly responsible for care (a regime of familialization) and do little to support increased male participation in care work.

Mothers in Kazakhstan are eligible for 126 days of paid maternity leave (56 days of which are given after the birth). In addition, one family member is entitled to one year of paid childcare leave after the birth, plus another two years of unpaid leave (OECD 2017). Normally the childcare leave is taken by the mother, but it may be taken by the father, grandparents, another relative or guardian. Payment is insurance based, set at 40% of average monthly income for the previous 24 months, capped at 4 times the minimum wage. If the caregiver had not been employed, a state payment is given. However, a 2011 International Labor Organization report noted that these payments averaged below minimum wage (ILO 2012). As of 2014, the government also pays pension contributions for mothers on leave (Office of the President of the Republic 2016).

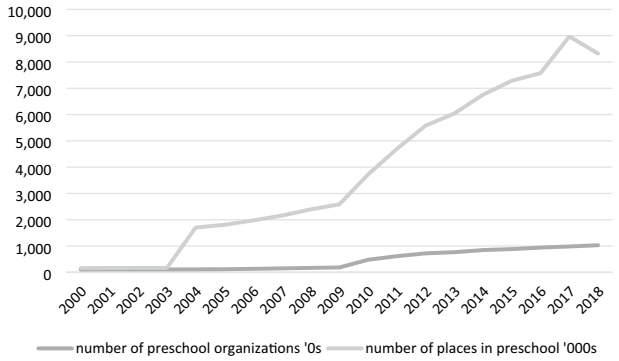

Fig. 2 Childcare Availability in Kazakhstan. Source: National Statistical Office (2020)

The majority of support for early care is directed at mothers, and differential employment opportunities also mitigate against greater participation by fathers in care. Fathers cannot share in the 56 days of post-natal maternity leave. Although fathers may share in the one year of paid leave and two years of unpaid leave, there are no special incentives for them to do so, and employers are not required to provide such leave. Women, the majority of whom find work in lower-paid service sectors including health, education, public administration, wholesale and retail trade (60% of employed women), and agriculture (26% of employed women) (ADB 2013), earn only 69% of what men do on average (in 2016) (UN Women ECA 2021). With a low level of wage replacement, most families face a heavy economic price if the father takes the leave. Few fathers are reported to do so (ILO 2012).

Childcare availability has increased significantly since 2009 (Fig. 2). The biggest increase has been for children under 3, whose enrollments increased from 5.2% of children in 2009 to 31.7% in 2018. Increased availability of places has permitted this rise in enrollments, but private childcare centers account for much of the expansion in care for very young children. These centers are more expensive than state-provided services. In part due to variations in ability to pay, childcare availability and enrollments for children under 3 vary significantly by region (oblast), with 68% of children under 3 in care in the Turkestan region and but only 14.3% in the poorer, and less well-served, Mangistau region (Atanaeva et. al. 2019).

Once the child reaches the age of 3, mothers are expected to return to work, and state-supported childcare is much more widely available. Government statistics report almost universal participation (95% of children 3–6 years old) in 2018, up from 72% in 2012 and 20% in 2000 (Ministry of Education and Science 2018a, 2012).

The expanded childcare availability was intended to support women's labor force participation, and empirical evidence from OECD countries (Herbst and Barnow 2008; Van Dijk and Siegers 1996) suggest that it might be an effective means of doing so. However, in Kazakhstan, women's labor force participation has not tracked increases in childcare availability (Fig. 2). The near complete post-socialist collapse of state-run childcare in the 1990s coincided with only a 0.5 percentage

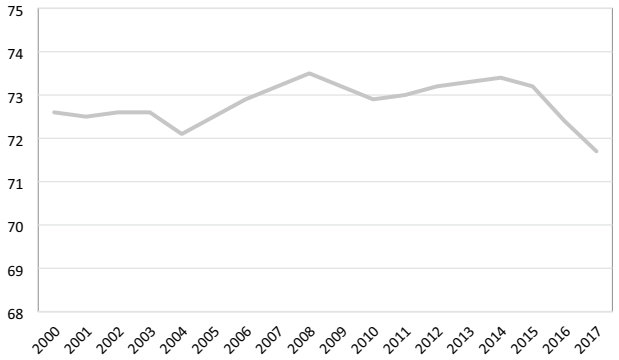

Fig. 3 Women's Labor Force Participation Rate in Kazakhstan. Source: National Statistical Office (2020)

point decline in women's labor force participation from 2000 to 2004, to 72.1%. Pressed by financial need and accustomed to working, women in Kazakhstan cobbled together alternative care. The labor force participation rate recovered from 2004 to 2008, to 73.5%, while childcare availability increased only slightly. More recently, as state support for childcare availability has expanded significantly, female labor force participation rates have remained fairly steady until 2014 and then fell through 2019 to 71.7% (the decline of almost three percentage points is considerably more than during the collapse of state-run childcare in the early 1990s) (Figure 3). This unexpected outcome occurred despite a significant and consistent decline in the female unemployment rate, from 9.6% in 2004 to 5.3% in 2019, according to ILO estimates) (World Bank 2020)[1]. While the female labor force participation rate is higher than that of other Central Asian countries, it remains well below the male labor force participation rate in Kazakhstan and below levels in the 1980s (data.worldbank.org).

While childcare has expanded significantly, persisting supply issues may play a role in limiting change in women's labor force participation. Shortages of places in childcare facilities persist. In 2006, the regional populations of children resulted in between 4 (in Pavlodarskaya) and 36 (in S. Kazakhstan) children per available place, based on official capacity. Government-supported expansion since 2006 has clearly focused on the places with the least supply, and variation was significantly reduced by 2016, but there are still significant shortages, with regions reporting between 2 (Akmolynskaya) to 5 (East Kazakhstan) children per place (National Statistical Office 2020). While the National Statistical Office did not provide data on the supply of centers serving children 0–2 years, shortages of places for very young children are reported to be much greater (OECD 2018).

The government has focused on improving the spatial distribution of services in areas with less supply, providing more rural families with a nearby center. In 2006,

[1] Male unemployment has also fallen, from 7% to 4.3%. The exception is the year 2012, which saw a slight and temporary rise in both male and female unemployment (World Bank 2020).

rural centers were much more widely dispersed than urban centers, with an average of only 0.16 centers per '000 km^2 across the 14 regions, compared to .33 centers per km^2 in urban areas. By 2016, rural areas averaged more centers per '000 km^2, 2.69, compared to an average of 1.14 in urban areas. Care shortages now appear to be more severe in urban areas.

In addition to lack of accessibility, poor quality services may also limit use of childcare services. Crowding is one problem. In 2018 there were almost 106 children enrolled per 100 places in childcare centers, as centers responded to demand by enrolling more children than they were designed for. Furthermore, many centers appear to offer very rudimentary services. In 2018, 20% of centers did not have hot water, 23% did not have sewage services, and 15% did not have water at all. Childcare employees' salaries are among the lowest in Kazakhstan, teachers and nurses may lack qualifications, and centers lack equipment and materials (Ministry of Education and Science 2018a).

Additional explanations for the limited impact of expanding childcare on women's labor force participation might be that mothers are not the ones out of the labor force, that they face poor incentives to return to work after an extended period out of the labor force, or that mothers of young children in Kazakhstan simply do not respond to childcare availability by returning to work. In the next section of the paper, we examine the employment decisions of individual women in Kazakhstan in order to examine factors related to the apparent limited response to the changing policies.

Women's Employment and Childcare Availability

In this section, we analyze the relationship between women's employment, motherhood, and childcare availability in Kazakhstan using the Life In Transition Survey (LITS) of the EBRD. To our knowledge, the LITS (www.ebrd.com/what-we-do/economic-research-and-data/data/lits.html) is the only recent, publicly available data on women's employment and household structure for Kazakhstan. The data was collected from 1500 nationally representative households in 2016 and 1000 households in 2010 and 2006. In the 2016 survey, primary (household head) and secondary (a randomly selected individual over 18 years of age) respondents were asked to respond to an employment module. In the 2010 and 2006 surveys, only one individual (a randomly selected individual over 18 years of age) responded to the employment module (EBRD 2009). Including only working age (18 to 50 years) women in our sample and excluding a small number with incomplete data, we have 458 individuals in 2006, 586 in 2010 and 1192 in 2016. For measuring access to childcare, we use Kazakhstan administrative data provided by the National Statistical Office (National Statistical Office 2020).

Of the 2236 women in the sample, we identified 477 as mothers of children 0 to 6 years old. Two hundred and seventy-six had one or more children aged 3–6, but no children under 3 years of age. Two hundred and one had one child under 3.

Eighty-seven percent of the mothers were married, with a higher share of the mothers of children 0–2 (94%). Most (74%) lived in nuclear households. Slightly

Table 1 Reported Sources of Childcare in Kazakhstan, Percent Households Using, 2016. Source: LITS, 2016

	All Households						Working Mother Households	
	0–2 yrs	3–6 yrs	0–2 yrs		3–6 yrs		0–2 yrs	3–6 yrs
	Total		Urban	Rural	Urban	Rural	Total	
Private Care	0.15	0.14	0.10	0.21	0.10	0.21	0.20	0.12
Public Care	0.20	0.26	0.26	0.13	0.28	0.20	0.30	0.27
Nanny	0.07	0.06	0.10	0.04	0.07	0.04	0.05	0.06
Other Non-HH Member	0.07	0.07	0.06	0.08	0.07	0.07	0.05	0.11

over 1% were single mothers, while 19% lived in the same household with their in-laws, and 6% lived in other types of multigenerational households. Mothers with children under 3 were more likely to live in multigenerational households (30% compared to 23% of mothers whose youngest child was 3–6).

Fifty-nine percent of all women reported working or being on leave in the past 7 days in 2016 and 2010, and 51% in 2006 (Table 1). We examine women's employment rather than women's labor force participation (excluding women who are looking for work from our analysis) because in 2016 not all respondents to the employment module were asked whether they were looking for work. Changes in employment reported by survey respondents are not consistent with government data on the broader measure of labor force participation (Fig. 3), even considering the earlier reported changes in unemployment rates.

Comparing women who reported working and those who did not, we find that working women are slightly older (40, compared to 38), more likely to live in an urban area (60% versus 53%), and are more likely to have tertiary or other post-secondary education and therefore higher expected wages. Comparing mothers of children under 7 (school age) to women who do not have such children, we find that 61% of non-mothers report being employed, while only 49% of mothers of children under 7 worked. Of mothers of children under 3, only 39% worked. The share of mothers of children aged 3–6 working increased dramatically over the period 2010 to 2016 during which childcare availability increased, from 51% to 62%, while mothers of children 0–2 years increased their employment from 2006 to 2010 (from 47% to 55%), but then decreased again (to 37%) in 2016. In 2006, about a third of mothers reported being self-employed or independent farmers (compared to about 22% of all women), which would make it easier to combine employment and childcare. By 2016, the vast majority of working mothers (97%) reported working for others, perhaps due to greater availability of childcare or to improved economic conditions.

Looking at what types of childcare households used in 2016 (the only year in which the question was asked) in Table 2, we see that 35 % of children aged 0–2 and 40% of children aged 3–6 are cared for using institutional childcare (a preschool or nursery). Around 7% of both groups are cared for by a nanny, and another 7% are cared for by another non-household member. These rates of use are much lower

Table 2 Probit Regressions, Women's Employment and Childcare in Kazakhstan, pooled 2006, 2010, 2016

Dependent variable	Worked Past 7 Days or On Leave		
Pseudo R^2	n=2209 0.13	n=2117 0.13	n=2117 0.13
	dy/dx (s.e.)	dy/dx (s.e.)	dy/dx (s.e.)
Independent variables			
	(1)	(2)	(3)
Age	0.0734*** (.0076)	0. 0756*** (0.0078)	0.0747*** (0.0078)
Age^2	− 0.0089*** (0.0001)	− 0.0009*** (0.0001)	− 0.0009*** (0.0001)
Tertiary education	0.2039*** (0.0523)	0. 2118*** (0.0527)	0.2146*** (0.0526)
Post-secondary education	0.1071** (0.0546)	0. 1116** (0.0551)	0.1142** (0.0550)
Secondary education	− 0.0282 (0.0570)	− 0.0263 (0.0575)	− 0.0246 (0.0576)
Bad health	− 0.1408** (0.0452)	− 0.1355** (0.0452)	− 0.1357** (0.0453)
Marital status	− 0.1748*** (0.0240)	− 0. 1740*** (0.0248)	− 0.1732*** (0.0247)
Economic status	0.0186** (0.0077)	0. 0165** (0.0079)	0.0173** (0.0079)
Running water	− 0.0013 (0.0293)	− 0.0085 (0.0297)	− 0.0119 (0.0296)
Urban	0.0390 (0.0252)	0.0396 (0.0258)	0.0417 (0.0257)
Number adult women in hh	-0.0108 (0.0183)	-0.0119 (0.0186)	-0.0122 (0.0190)
Number of children 0–2	-0.1426*** (0.0398)	-0.1408*** (0.0402)	-0.1472*** (0.0402)
Number of children 3–6	-0.0111 (0.0261)	-0.0154 (0.0265)	-0.0157 (0.0266)
Ratio of centers per km^2 in the region		0.0113 (0.0078)	
Ratio of children 0–6 to childcare spaces. in the region			0.0003 (0.0032)

*Variable has significant relationship to outcome at $P < .10$

**Variable has significant relationship to outcome at $P < .05$

***Variable has significant relationship to outcome at $P < .01$

than those suggested by government statistics (Fig. 3). In rural compared to urban areas children, especially children under 3 years, are more likely to be enrolled in a private child institution, which is consistent with the data showing that new centers, which are more likely to be private, are more likely to be in rural areas. Looking at only households of working mothers, children aged 3–6 are about equally to be in institutional care compared to those of non-working mothers, but children aged 0–2 are more likely to be in institutional care, both private (20% of households use such care) and public (30% of households).

Regression also includes 14 region and 3 survey year dummies.*=Variable has significant relationship to outcome at p <.10**=Variable has significant relationship to outcome at p <.05***= Variable has significant relationship to outcome at p <.01.

The largest share of children in both age groups is cared for by a household member. Although the survey does not ask which household member provides care, a small survey of 300 households in Almaty and the Almaty region found that the majority of children were cared for by their mother. Grandmothers might appear to offer an alternative source of household care, but the increasing prevalence of nuclear households may make this option more difficult. Only a relatively small share of children in the Almaty survey (12%) were cared for by their grandmother (or grandfather) (Nugmanova et. al. 2019). Similarly, the LITS survey data indicate that living in a multigenerational household is not associated with a greater likelihood of the mother working. Forty-five percent of mothers living in multigenerational households reported working, compared to 51% of mothers in nuclear households. Only 3% of children were cared for by their father according to the small Almaty survey (Nugmanova, et. al. 2019).

Other data from the LITS survey suggest that care responsibilities weigh heavily on women regardless of the household division of paid labor, in line with social norms. Asked in the 2016 LITS survey whether they agreed that "women should do most of the household work even if the man in not working," 85% of interviewed working age women agreed or strongly agreed. Of women who reported being out of the labor force in the LITS survey in 2006 and 2016, 40% gave "looking after family and household" as the reason (fewer, 25%, did so in 2010, but this was still the most common response), and in the 2016 survey 69% of working age women agreed or strongly agreed that "It is better for everyone involved if the man earns the money and the women takes care of the home and children".

We use a probit regression to analyze factors associated with women's employment, controlling for factors standard in the literature (Connelly 1992). Expected wages are one significant factor, with higher expected wages increasing incentives for employment. Unfortunately, the LITS provides data on wages only in 2016, and this includes many missing and unreasonably high or low numbers given the reported pay period and hours worked. We use education (dummy variables distinguishing less than high school education, high school education, post-secondary non-tertiary education, and tertiary education) to proxy for expected wages. More educated women are expected to have stronger incentives to participate in the labor market. To control for other demands on women's time which may make it more difficult to participate in the labor market, we include a dummy variable for household

access to tap water and the number of adult women in the household, both of which may facilitate taking up paid work. We control for age, age^2 (older women are more likely to be employed both because they have more experience and thus higher expected wages and because they are more likely to be past their child bearing years, but the effect is not expected to be linear), marital status (currently married=1) (married women are less likely to be in the labor force), residence in an urban area (where there may be more jobs and more childcare) and the presence of small children, which may discourage employment. We distinguish the number of children 0–2 years and 3–6 years. Because of the much more limited supply of childcare for children 0–2 years, having a child 0–2 years is expected to have a stronger association with employment.

We also include a dummy variable for whether the respondent reports being in "bad" or "very bad" health, which may interfere with paid work, and a measure of the wealth of the household (self-reported position on a 10-step "ladder"), which might affect both need to work and ability to pay for care, thus having an uncertain effect. Fixed effects for survey year and the 14 regions provide additional controls for unobserved regional variations in labor market conditions and childcare services. Descriptive statistics are reported in the online appendix (Table 3).

Analysis of the relationship between children, childcare availability and women's employment is complicated by two issues. One issue is that while the presence of very young children may impact women's employment, employment may also impact the presence of young children. This endogeneity problem has been addressed in other research by using a two-stage analysis to first estimate an expected number of children under 2 (Connelly 1992), and more recently by using a regression discontinuity approach exploiting differences in childbirth dates and rules about the age to begin childcare (Dang, Hiraga and Nguyen 2021). Sample size in the LITS data does not support either approach, so while we are able to examine the relationship between employment and children and report whether childcare availability affects this relationship, we cannot determine the direction of causality of the child–employment relationship.

A second issue for the analysis is that a positive association between childcare supply and women's employment may indicate either that increased supply of childcare causes greater employment or that greater employment causes childcare supply to increase. Herbst and Barnow (2008), studying the question in the U.S., find evidence of both dynamics, suggesting that if our analysis finds a positive association between care availability and employment, the estimates may be biased upward.

Regression results are presented in Table 3. In column 2, we see that individual and household characteristics have the expected relationship to employment. Likelihood of employment increases with age at a decreasing rate, as well as increasingly with tertiary and other post-secondary education and with a higher evaluation of household economic position, while married women and women in bad health are much less to be employed. Other demands on women's time do not have an impact on women's employment. The number of children 3–6 years is not associated with likelihood of employment.

However, mothers of children under 3 years of age are 14% less likely to be employed than women without such children. This association is about equal to the

association with bad health, and more than offsets post-secondary (non-tertiary) education. While mothers are entitled to up to 14 months of paid leave, families face almost another 2 years of care before children are eligible for the relatively more available and affordable childcare for children over 3. This gap, or concerns about quality of care in the case of very young children, may be important factors linking the presence of small children with employment. At the same time, it is also the case that women who are not employed at this time may be more likely to have decided to have a baby as a result of being unemployed than women whose children are now 3–6. Some of the strong association is likely attributable to this second dynamic.

The year controls are not significant. Women are just as likely, controlling for other factors, to be employed in 2006 and 2010 compared to 2016 (the omitted year), despite the significant overall increase in childcare availability over time. About half of the regional controls are not significant (6 of 13 regions do not differ significantly from the Almaty region). In two regions (Atyrauskaya and Zhambylskaya), women are less likely to be employed, controlling for other variables, than in the Almaty region, while in four regions (Aktyubinskaya, East Kazakhstan, West Kazakhstan, and Pavlodarskaya), women are more likely to be employed. There is no particular spatial pattern in these relationships—East and West Kazakhstan are at opposite ends of the country, while Aktubinskaya is on the northern border and Zhambylskaya on the southern.

An important question in view of policy related to the emerging gender regime is whether local variations in childcare availability are associated with variations in the relationship between children and employment. To examine this question, in columns 3 and 4 we include the availability of childcare, measured as the density of childcare centers per km^2 in the respondent's region and the ratio of the population of children under 7 in the region to childcare places[2]. As seen above, there has historically been significant variation in availability across regions, and this variation has been reduced over time. We include all women in the analysis, as access to childcare can have long term impacts on women's expected earnings and thus affect decisions before and long after the birth of a child. We see that neither density of centers nor the number of childcare places has a significant association with a woman's likelihood of employment, and the inclusion of these variables does not change the association between children and employment. Other variables retain the about same associations as in the previous regression.

A limitation of our data is the National Statistical Office provided only data on childcare centers generally, so we cannot distinguish availability specifically of centers offering care for children under 3. To check the robustness of our results in view of this limitation, we ran two additional regressions[3]. As discussed above,

[2] This data was provided by the National Statistical Office to the Gender Economics Research Center at Narxoz University in the framework of a project on care in Kazakhstan funded by UN Women.

[3] Results available from the authors upon request.

private centers account for much of the available care for children under 3 (Atanaeva 2019). Controlling for the share of centers which are private, and thus more likely to offer care for the youngest children, does not change the significance of variables compared to the results presented in Table 3. In a second test of the robustness of the results, we use the share of children under 3 enrolled in childcare in region in the prior year as a proxy for the availability of places in centers serving children under 3 relative to population in the year of the outcome.[4] This measure of childcare availability is also not significantly related to the employment outcome and does not change the relationship between having children of this age and employment.

Conclusions

Kazakhstan's emerging gender regime strongly resembles the Dual-Earner, Female-Caregiver model common under socialism and relies on a supported familial form of care provision (Saraceno and Keck 2010). Kazakhstan provides some, very limited, support for parental sharing of care in the form of allowing for any part of the paid year of care to be taken by fathers, if fathers choose to take this leave and employers permit it. As in other post-socialist cases, the state has focused support on providing institutional childcare for children 3–6 and relatively long paid leaves, and generally expects mothers to provide care for younger children.

Recent policies of the government of Kazakhstan claim a strong commitment to promoting gender equality in employment. To support work-family balance, the state has significantly increased childcare availability since 2006, and significantly reduced regional variation in access. Kazakhstan's heavy investment in childcare and other policy initiatives have failed to elicit the expected response, however. Women's labor force participation rates have not increased since the 2000s and, most recently, have even declined.

Analyzing employment decisions of individual women, we see that women with children under 3 years of age are significantly less likely to be employed than other women. Examining the varying accessibility of childcare driven by the dramatic government expansion, we see that neither regional density of childcare centers nor the population of children per place is associated with the likelihood of women's employment, and controlling for these factors does not change the association between small children and employment.

One possible explanation for this finding is that the government has not yet done enough to expand care for very young children. Although we have used two proxy measures for the availability of care for children in this age group, it is possible that

[4] Given the extreme shortage of places reported for this age group (OECD, 2018), there is unlikely to be unused capacity.

our data does not adequately measure the availability of care for children under 3, and shortages of such care are related to women not being employed. Another possible explanation is the prevalence of quality issues, including poor sanitary conditions, which might raise particular concerns for parents of very young children.

Another explanation might be the continued high opportunity cost of the time of mothers of young children, given the limited incentives for fathers to participate in care, compared to low expected labor market returns in poorly paid service sector jobs. This explanation is supported by the finding that women with higher expected wages (those with post-secondary or tertiary education) are more likely to be employed. One policy enhancement suggested by this is to expand support for fathers' sharing in parental leave, by raising levels of wage replacement and designating leave explicitly for fathers.

A factor contributing to the high opportunity costs of mothers' time may be the persistence of social norms reinforced by the dual-earner, female-caregiver model of the socialist period. Women responding to the LITS survey described a commitment to a traditional household division of labor, and these may underlie women's heavy burden of unpaid work reflected in the time use data.

Combined, these factors may make it difficult to resist taking a break from employment when children are young. However, as extended periods out of the labor force for childcare negatively impact women's employment outcomes over their lifetime, finding a policy mix that will better incorporate mothers of small children into employment can have an important long-term impact on both gender equality and broader economic performance.

Appendix

See Table 3.

Table 3 Descriptive Statistics

	2006 n=458			2010 n=480			2016 n=1192		
	Mean (s.d.)	Min	Max	Mean (s.d.)	Min	Max	Mean (s.d.)	Min	Max
Works	0.5131 (0.5004)	0	1	0.5870 (0.4928)	0	1	0.5922 (0.4916)	0	1
Age (years)	37.12 (11.65)	18	59	39.98 (10.87)	18	59	39.43 (10.90)	18	59
Tertiary education	0.2227 (0.4165)	0	1	0.3083 (0.4622)	0	1	0.3666 (0.4820)	0	1
Post-secondary education	0.3580 (0.4799)	0	1	0.4229 (0.4945)	0	1	0.4662 (0.3187)	0	1
Secondary education	0.3733 (0.4842)	0	1	0.2479 (0.4322)	0	1	0.2533 (0.4351)	0	1
Marital status	0.6048 (0.4894)	0	1	0.6250 (0.4846)	0	1	0.6803 (0.4665)	0	1
Bad health	0.0511 (0.2204)	0	1	0.0833 (0.2766)	0	1	0.0511 (0.2204)	0	1
Number of adult women	1.4825 (0.7006)	1	5	2.3145 (1.0251)	1	6	1.3112 (0.5977)	1	5
Running water	0.5371 (0.4991)	0	1	0.7500 (0.4334)	0	1	0 .7978 (0.4017)	0	1
Urban	0.5720 (0.4953)	0	1	0.5750 (0.4948)	0	1	0.5738 (0.4947)	0	1
Number Children 0–2	0.0478 (0.2211)	0	2	0.0229 (0.1497)	0	1	0.0478 (0.2211)	0	2
Number Children 3–6	0.1434 (0.3805)	0	3	0.1062 (0.3151)	0	2	0.1434 (0.3805)	0	3
Region centers per km^2	0.6978 (0.3728)	0.22	1.3	1.6421 (1.1449)	0.44	5.46	5.0818 (5.0818)	1.19	13.27
Region children per place	11.40 (9.724)	4.4	35.78	3.5530 (2.0380)	1.13	8.15	3.3826 (0.5519)	2.31	4.71
Region share centers state-run	0.8943 (0.0820)	0.7	1	0.8909 (0.0807)	.78	1	0.8046 (0.1486)	0	1

Acknowledgements We are grateful for the support of the UN Women Kazakhstan, the Soros Foundation Kazakhstan, the National Statistical Office, and the detailed feedback from two anonymous referees.

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