

Extension of “Childcare, Labor Supply, and Business Development: Experimental Evidence from Uganda”

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1 Extension

In my extension, I explore heterogeneity in the maternal labor supply results across two covariates: whether the target child (the 3- to 5-year-old who may receive free childcare) has an older sister, and the mother’s religion (Christianity or Islam). Older sisters act as caregivers and contributors to younger siblings’ human capital accumulation in sub-Saharan African countries (Clark et al. 2019, Jakielka et al. 2025). I expected that the impact of free childcare on parental labor supply would be muted in families where the target child has an older sister. Older sisters may share caregiving responsibilities with their mothers pre-intervention, in which case the free childcare would not free up as much of the mother’s time. I didn’t have a hypothesis about heterogeneity by the mother’s religion, but I still thought it might be interesting to explore.

Below is the estimating equation for my extension:

$$y_i = \alpha + \sum_{k=1}^3 \beta_k T_{ik} + \sum_{k=1}^3 \delta_k (T_{ik} \times S_i) + \lambda y_{i0} + \Gamma_{i0} + \varepsilon_i 1$$

where y_i is the outcome of interest for respondent i at follow-up (period 1); y_{i0} is the baseline level of the outcome (period 0); $T_{ik} = 1$ if the respondent is in the following treatment group: (i) childcare only ($k = 1$), (ii) cash only ($k = 2$), or (iii) childcare and cash ($k = 3$); S_i is a dummy variable equal to one if the target child has an older sister (presented in Table 1) or the mother is Muslim (presented in Table 2); and Γ_{i0} are indicators for the five variables on which the authors stratified their randomization. The β_k correspond to intention-to-treat (ITT) estimates.

2 Results

Table 1 presents the maternal labor supply results by the presence of an older sister. There is one sizeable interaction effect - the childcare subsidy interacted with the target child having an older sister led to an apparent substantial increase in self employment hours worked (intensive margin), though it’s not clear that this is a meaningful result given that there was no corresponding increase in self employment profits or overall wages in this interaction.

Table 2 presents the maternal labor supply results by the mother’s religion. None of the interactions between the mother being Muslim and the treatment arms are statistically significant, which is not surprising since I didn’t have any priors about a potential effect.

Table 1: Impact of treatments on maternal labor supply: heterogeneity by target child having older sister

	Self emp. profits (1)	Wage (2)	Total Income (3)	Self emp. >0 (4)	Self emp. (hrs) (5)	Wage >0 (6)	Wage (hrs) (7)	Total >0 (8)	Total (hrs) (9)
Childcare	-2.68 (7.30)	1.12 (5.12)	0.23 (9.98)	-0.05 (0.05)	-31.97** (15.76)	0.00 (0.04)	2.44 (8.71)	-0.02 (0.06)	-29.51* (17.03)
Cash	9.00 (8.15)	-5.88 (4.52)	2.55 (9.70)	0.13** (0.06)	32.41* (19.09)	-0.06 (0.04)	-6.44 (8.91)	0.07 (0.06)	28.36 (19.51)
Childcare & cash	20.06** (8.91)	-2.64 (4.92)	17.50 (10.70)	0.14** (0.06)	17.26 (17.92)	-0.02 (0.04)	-4.81 (8.72)	0.11* (0.06)	12.90 (18.41)
Older sister	-3.94 (6.26)	6.30 (4.61)	2.52 (8.29)	-0.05 (0.05)	-30.12** (14.61)	0.01 (0.04)	9.10 (7.88)	-0.03 (0.05)	-21.94 (15.40)
Childcare × older sister	15.47 (9.82)	-8.13 (6.82)	5.26 (12.77)	0.12* (0.07)	57.07*** (20.61)	-0.04 (0.05)	-15.24 (11.25)	0.05 (0.07)	41.76* (22.07)
Cash × older sister	0.17 (9.63)	-2.42 (6.32)	-0.15 (11.99)	0.09 (0.07)	12.73 (23.30)	0.03 (0.05)	-6.75 (11.37)	0.09 (0.07)	5.55 (24.07)
Childcare & cash × older sister	-6.34 (10.60)	-11.38* (6.43)	-15.85 (13.14)	0.04 (0.07)	30.87 (22.77)	-0.06 (0.05)	-18.57* (10.79)	-0.02 (0.07)	12.54 (23.55)
Impact with older sister									
Childcare	12.79** (6.36)	-7.02 (4.53)	5.49 (7.73)	.07* (.04)	25.1* (13.43)	-.04 (.03)	-12.81* (7.2)	.03 (.05)	12.24 (14.15)
Cash	9.18* (5.31)	8.3* (4.5)	2.41 (7.23)	.23*** (.04)	45.14*** (13.32)	-.03* (.03)	-13.19** (7.1)	.16*** (.05)	33.92** (14.1)
Childcare & cash	13.71** (5.74)	-14.03*** (4.08)	1.65 (7.52)	.18*** (.04)	48.12*** (13.99)	-.08*** (.03)	-23.37*** (6.28)	.09** (.05)	25.43** (14.6)
p-value (equal treatment effects)									
Childcare = cash	.586	.767	.702	.001	.162	.71	.955	.004	.146
Childcare = childcare & cash	.896	.075	.647	.022	.125	.262	.072	.214	.392
Cash = childcare & cash	.459	.145	.924	.267	.841	.133	.078	.111	.58
Childcare & cash = childcare + cash	.353	.83	.574	.053	.27	.925	.776	.116	.321
Mean Control (with older sister)	.23	.22	.46	.3	.72	.17	.33	.47	.105
Mean het. variable	.62	.62	.62	.62	.62	.62	.62	.62	.62
Obs.	1414	1414	1414	1414	1414	1414	1414	1414	1414

Notes: "Older sister" is a dummy variable equal to 1 if the target child had an older sister at baseline. Outcome variables are as follows: (1) self employment: profits last month, (2) wage labor: income last month, (3) all labor: profits last month, (4) self employment: total hours worked last month including co-owner (extensive margin), (5) self employment: total hours worked last month including co-owner, (6) wage labor: total hours worked last month (extensive margin), (7) wage labor: total hours worked last month, (8) all labor: total hours worked last month (extensive margin), (9) all labor: total hours worked last month including co-owner. All monetary values are in thousands of Ugandan shillings and are winsorized at the top ninety-ninth percentile.

Robust standard errors in parentheses.

Table 2: Impact of treatments on maternal labor supply: heterogeneity by mother's religion

	Self emp. profits (1)	Wage (2)	Total Income (3)	Self emp. >0 (4)	Self emp. (hrs) (5)	Wage >0 (6)	Wage (hrs) (7)	Total >0 (8)	Total (hrs) (9)
Childcare	6.90 (5.21)	-2.08 (4.22)	5.44 (7.08)	0.04 (0.04)	10.43 (12.29)	-0.01 (0.03)	-5.51 (6.90)	0.04 (0.04)	5.10 (13.12)
Cash	9.02* (5.09)	-5.94 (3.89)	3.96 (6.92)	0.17*** (0.04)	30.33** (12.60)	-0.01 (0.03)	-9.11 (6.73)	0.13*** (0.04)	22.90* (13.22)
Childcare & cash	19.71*** (5.78)	-8.65** (3.80)	12.57** (7.46)	0.15*** (0.04)	29.05** (12.68)	-0.04* (0.03)	-15.97** (6.28)	0.11** (0.04)	14.49 (13.15)
Mother's religion is Islam	5.96 (8.02)	1.38 (5.32)	4.78 (9.58)	-0.02 (0.05)	-10.90 (16.94)	0.03 (0.04)	-4.32 (8.24)	0.03 (0.06)	-15.16 (17.54)
Childcare × Muslim	-1.26 (11.53)	-6.24 (6.93)	-7.65 (13.48)	-0.05 (0.07)	-26.74 (22.40)	-0.06 (0.06)	-4.46 (11.41)	-0.12 (0.08)	-31.90 (23.43)
Cash × Muslim	-0.27 (11.18)	-4.79 (7.31)	-5.40 (13.22)	0.07 (0.08)	34.04 (25.79)	-0.10* (0.05)	-4.88 (11.86)	-0.02 (0.08)	30.58 (26.70)
Childcare & cash × Muslim	-14.45 (11.01)	-4.13 (6.34)	-20.08 (12.96)	0.06 (0.08)	27.88 (25.97)	-0.06 (0.05)	-2.04 (10.34)	-0.04 (0.08)	22.36 (26.92)
Impact for Muslim mothers									
Childcare	5.65 (10.33)	-8.32 (5.53)	-2.21 (11.54)	-.01 (.06)	-16.3 (18.75)	-.07 (.05)	-9.98 (9.06)	-.08 (.07)	-26.81 (19.42)
Cash	8.75 (9.91)	-10.73* (6.2)	-1.44 (11.22)	.24*** (.07)	64.37*** (22.4)	-.11** (.04)	-13.99* (9.7)	.11* (.07)	53.49** (23.08)
Childcare & cash	5.26 (9.25)	-12.78** (5.05)	-7.51 (10.39)	.2** (.07)	56.94** (22.6)	-.1** (.04)	-18.01** (8.14)	.06 (.07)	36.85** (23.41)
p-value (equal treatment effects)									
Childcare = cash	.757	.666	.945	0	0	.285	.675	.007	0
Childcare = childcare & cash	.967	.311	.607	.002	.001	.478	.322	.045	.005
Cash = childcare & cash	.688	.689	.531	.603	.76	.682	.647	.499	.51
Childcare & cash = childcare + cash	.5	.411	.798	.755	.774	.181	.638	.782	.75
Mean Control (Muslim mothers)	.30	.19	.50	.31	.80	.19	.26	.5	.107
Mean het. variable	.27	.27	.27	.27	.27	.27	.27	.27	.27
Obs.	1414	1414	1414	1414	1414	1414	1414	1414	1414

Notes: Muslim is a dummy variable equal to 1 if the mother listed her religion as Islam at baseline. Outcome variables are as follows: (1) self employment: profits last month, (2) wage labor: income last month, (3) all labor: profits last month, (4) self employment: total hours worked last month including co-owner (extensive margin), (5) self employment: total hours worked last month including co-owner, (6) wage labor: total hours worked last month (extensive margin), (7) wage labor: total hours worked last month, (8) all labor: total hours worked last month (extensive margin), (9) all labor: total hours worked last month including co-owner. All monetary values are in thousands of Ugandan shillings and are winsorized at the top ninety-ninth percentile.

Robust standard errors in parentheses.

3 Works Cited

Clark, S., Kabiru, C.W., Laszlo, S., & Muthuri, S. (2019). The Impact of Childcare on Poor Urban Women's Economic Empowerment in Africa. *Demography*, 56(4), 1247-1272. <https://pubmed.ncbi.nlm.nih.gov/31286428/>

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