

Online Appendix

The Quantitative Role of Child Care for Female Labor Force Participation
and Fertility

Alexander Bick
Arizona State University

February 2015

A Data Appendix

A.1 Sample Selection

Table A.1: Sample Selection Criteria

Criterion	Frequency	
	Absolute	Relative
West German, born 1955-1975	4921	100.0%
No move to East German territory	4881	99.2%
<i>Mothers</i>	<i>2868</i>	<i>58.8%</i>
<i>Childless</i>	<i>2013</i>	<i>41.2%</i>
<hr/>		
Mothers	2868	100.0%
Births only in relationships	2276	79.4%
Births only in one relationship	2238	78.0%
Relationship intact at last interview	1938	67.6%
<hr/>		
Childless	2013	100.0%
At least age forty at last interview and in a relationship at age forty	424	21.1%
Relationship intact at last interview	177	8.8%
<hr/>		

Women are assigned to West Germany by their location in 1989 or, if this information is not available, by the sample region at their first interview. Childless women are included if they are at least of age forty at their last interview, the assumed age of the end of a woman's fertile period, and if their current relationship started prior to age forty such that they at least theoretically could have had given birth to a child during that marital spell.

A.2 Period Definition

Table A.2 presents the final number of observations for each period grouped by the current number of children. E.g., the sample contains 458 women with two children, where the youngest child is younger than three. To avoid biased means if there are trends in labor participation or child care enrollment within a period, i.e. during a stage of a child's adolescence, only periods that are neither interrupted by another birth nor left or right censored through the first or last interview are included.

Table A.2: Observations

Age Youngest Child	Current Nr. of Children			
	1	2	3	4+
< 3	400	458	126	39
< 6.5	186	332	99	27
< 9.5	131	274	85	30
< 12.5	111	212	59	15
< 15.5	86	129	38	8
< 18.5	64	106	22	8

The period for the age group *zero to two* excludes the month of birth and the subsequent two months to account for the mandatory maternity leave which outlaws women to work in the first eight weeks after the child is born. Depending on when the child is born within a month this implies an exclusion of the first eight to 13 weeks of a child's life. Thus, it is guaranteed that only the months in which it is legally allowed to work contribute to the calculation of the labor force participation status. Hence, by construction this period has a duration of 2.75 years.

The second period for the age group *three to six and a half* lasts from the month in which the child turns three until school entry. According to a cut-off rule, which is very similar across all German states, children who are at least six in July of a given year have to enter mandatory schooling. There are exceptions permitting a child to enter school one year earlier or later. Because of some peculiarities in the timing of the survey the age at school entry cannot always be determined exactly and has to be constructed, in which case I use the cut-off date to determine school entry. Even if the exact entry age is known, the length of the period is heterogenous among children because school starts only once a year. The mean duration in the data is 3.5 years.

A.3 GSOEP Child Care Questions

Information on the child care enrollment status for each child is only available at the interview date, i.e. usually once a year, and is therefore imputed for the other months of the year based on the following reasoning: Since school starts at the same time for all children (at least within one state), the oldest cohort in a daycare center leaves the daycare center together at the same time of the year, i.e. usually at the end of the first half of the year. Therefore the majority of entries into daycare centers occurs at the beginning of the second half of the year. Hence, the child care enrollment status in the first half (January to June) of a year is a good predictor for the status in the second half (July to December) of the previous year. Similarly, the child care enrollment status in the second half of a year is a good predictor for the child care enrollment status in first half of

the next year. If the interview month is in the first half of the year, which is the case for more than 90% of the interviews, I use this child care enrollment status also for the second half of the previous year if no interview has been conducted in the second half of the previous year. Analogously, if the interview month is in the second half of the year I use this child care enrollment status also for the first half of the next year if no interview is conducted in the first half of the next year. Although this reasoning applies more to child care provided in daycare centers, I use the same imputation rule for child care provided by nannies.

Prior to 1995, the GSOEP questionnaire only covered enrollment in child care whereas from 1995 onwards a distinction between daycare centers and nannies was made. In particular, between 1995 and 1999 the distinction between daycare centers and nannies was exclusive and from 2000 onwards non-exclusive. Furthermore, for care provided by nannies from 2004 onwards part- and full-time cannot be distinguished anymore. In the analysis in the main text the following two variables are used: child care enrollment comprises subsidized (daycare centers) and non-subsidized (nannies) child care for all years which can be part- or full-time, and from the year 1995 onwards the fraction of children enrolled in non-subsidized child care (nannies) from all children enrolled in child care (daycare centers and/or nannies). This latter variable assumes that the relative usage of care provided by nannies prior to 1995 was the same as the average of the years 1995 to 2005. This strategy is only feasible because for the calibration exercise only aggregate moments are used but no individual observations.

A.4 Subsidized Child Care Slot Provision

The slot provision rates are calculated from the data provided by the German Statistical Office (Statistik der Jugendhilfe, various years). They are only available for every fourth year between 1986 and 2002. Table A.4 shows the annual averages over the years 1983 to 2005, for which the monthly labor supply status from the GSOEP is used. These averages are constructed for the two age groups zero to two, and three to six and a half as follows: years before the earliest observation of the slot provision rates, i.e. 1983 to 1985, will be assigned the same value as the first observation of the slot provision rate (1986). Similarly, years after the last observation, i.e. 2003 to 2005, will be assigned the same value as the last observation (2002). For the years between two observations the mean of the corresponding two observations will be used. The overall provision rates are then obtained as the mean over all years. From 1994 onwards the provision rates can be further distinguished by part- and full-time from which the fraction of full-time slots from all slots, the full-time share, will be calculated. As for the overall provision rate, the full-time share before the first and after the last observed data points are extrapolated and between two observation interpolated. The annual provision rate of part- and full-time slots is then given by the provision rate of slots times the fraction of part- or full-time slots from all slots. The mean over all these years then finally gives the average provision rate of part- and full-time slots.

Table A.3: Access to Subsidized Child Care

Access in Year			Period Access		History
1	2	3	Mean	Status	Probability
No	No	No	0	No	$(1 - P_P - P_F)^3$
No	No	Part	1/6	No	$(1 - P_P - P_F)^2 P_P$
No	No	Full	1/3	Part	$(1 - P_P - P_F)^2 P_F$
No	Part	Part	1/3	Part	$(1 - P_P - P_F) P_P (1 - P_F)$
No	Part	Full	1/2	Part	$(1 - P_P - P_F) P_P P_F$
No	Full	Full	2/3	Part	$(1 - P_P - P_F) P_F$
Part	Part	Part	1/2	Part	$P_P (1 - P_F)^2$
Part	Part	Full	2/3	Part	$P_P (1 - P_F) P_F$
Part	Full	Full	5/6	Full	$P_P P_F$
Full	Full	Full	1	Full	P_F

These latter rates are used to construct the success probabilities for the slot lottery. If a woman would have only one draw from the slot lottery at age zero and age three, the provision rates could be immediately used as model input. However, there is no way to determine how often mothers apply for a slot within a period which is regarded as a unified entity in the model. I therefore transform the observed provision rates into period equivalents in the following way: As already described for the imputation of the child care status, the majority of entries into daycare centers happens once a year. In addition, new information on the child care enrollment status is usually only once a year available. I assume that in each year a woman can draw once from the lottery and a successful draw implies that the slot is open for the remainder of the period, i.e. until age three is reached or the child enters school. Once a full-time slot is drawn, the woman does not have to redraw until the end of the period. Drawing a part-time slot implies that the woman can redraw but success is then defined only as drawing a full-time slot because she already has access to a part-time slot for the rest of the period. Since a model period corresponds to three years I assume that within a period there is a maximum of three draws which leads to the set of possible access histories displayed in the left panel of Table A.3.

Consider the case that a woman would always use as much subsidized child care as she is offered. In line with the definition for period child care enrollment status in each year no slot is assigned a 0, part- and full-time slots 0.5 and 1. The mean over the whole period - the three years - is given in column 4 in Table A.3 whereas column 5 corresponds to the associated child care enrollment

Table A.4: Average Annual and Period Provision Rates of Subsidized Child Care Slots

	Ages 0 to 2		Ages 3 to 6.5	
	Annual	Period	Annual	Period
Part-time	0.5	4.3	62.3	71.8
		\Rightarrow		\Rightarrow
Full-time	1.7	1.7	14.6	23.7

status for each possible access history using the same thresholds as before (0.25 and 0.75). Since I assume that a woman does not have to use the slot she has drawn access to for some part of the period or at all, columns 4 and 5 give the period access status as opposed to the period enrollment status. Column 6 displays the probability of observing a specific access history. P_P and P_F are the probabilities of drawing a part- or full-time slot in a given year and correspond to the observed slot provision rates which differ by age. Finally, the probability for having access to no, a part- or full-time slot over the whole period, which then corresponds to the period provision rate, is equal to the sum of the history probabilities that are associated with the respective period access status. For example, the probability to have no slot as defined by the period access status would be the sum over the two first histories (**[No, No, No]**, **[No, No, Part-time]**) and equal to $(1 - P_P - P_F)^3 + (1 - P_P - P_F)^2 P_P$.

Table A.4 presents the annual, i.e. observed, slot provision rates and the period provision rates after the transformation. For example, while there are 62.3 part-time and 14.6 full-time slots per 100 children aged three to six and a half, the probability for a woman that she has access to a part-time slot over the whole period where the child is between age three and six and a half is 71.8% and 23.7% for a full-time slot. Note that by construction, the period provision rates have to be larger than the annual/observed provision rates. This is also the case for children aged zero to two for the non-rounded numbers.

B Calibration Appendix

B.1 Income

The husband's income process (Equation 18) as well as the persistence parameter ρ^* of the income shock ϵ_t^* (Equation 1) are estimated directly from the data. I first calculate for each year the total annual labor income, including side jobs and self-employment, pensions, unemployment benefits (to capture the full risk of the income process), compensation for further training or education, and any additional payments as bonuses, 13th and 14th salary, vacation and Christmas pay received during the year. I then assign to each month in a year the corresponding monthly average of the

Table B.1: Income Process

	η_0^*	η_1^*	η_2^*	ρ^*	σ_{ε^*}	Δ_{gender}
Estimate	11.590	0.055	-0.006	0.815	0.273	-0.238

corresponding annual income. Finally, the period income is defined as the sum of these average monthly incomes over all months in a period. For the husbands the earnings equations (18) and (1) are estimated directly from the data. Table B.1 shows the coefficient estimates. In the estimation I control for the educational level. Specifically, I use the 1997 ISCED classification provided in the GSOEP. I include the dummies for all six educational levels and restrict them to sum up to zero.

For women this is more difficult since a consistent mapping between the measure of experience in the model and experience in the data is only feasible for women observed prior to their first birth. I therefore assume that women face the same earnings process as their husbands but take into account that they are on average 2.9 years younger and introduce a gender gap in mean wages to capture gender differences in education, occupations and potentially discrimination. This procedure is similar to the one used by [Guner et al. \(2012\)](#). The age difference of nearly three years corresponds approximately to one model period. A woman who has worked full-time in all periods, i.e. $\tilde{x}_t = t - 1$, should receive the same (deterministic) wage a male had in the period before because of the age difference. I therefore shift the income process for husbands by one period to obtain that of women:

$$\ln Y_t(\tilde{x}_t = t - 1) = \ln Y_{t-1}^* = \eta_0^* + \eta_1^* \underbrace{(t - 1)}_{\tilde{x}_t} + \eta_2^* \underbrace{(t - 1)^2}_{\tilde{x}_t^2} + \epsilon_t \quad (\text{B.1})$$

Equation (B.1) can then be reformulated to obtain the coefficients of the female income process:

$$\ln Y_t = \underbrace{\eta_0^* - \eta_1^* + \eta_2^*}_{\hat{\eta}_0} + \underbrace{[\eta_1^* - 2\eta_2^*]}_{\eta_1} \tilde{x}_t + \underbrace{\eta_2^*}_{\eta_2} \tilde{x}_t^2 + \epsilon_t \quad (\text{B.2})$$

This implies that in the model in a given period, where husbands and women by construction have the same age, women have a lower mean wage and face larger returns to experience than their spouses if $\eta_2^* < 0$. Equation (B.2), however, abstracts from a general wage gap. To account for that I use the full-time log wages of both sexes prior to the first birth, by then 75% of the women are working full-time such that selection into full-employment is less of an issue, and estimate an additional gender wage gap in mean income controlling for age and add it to the log of the gross income:

$$\eta_0 = \hat{\eta} + \Delta_{gender}, \text{ with } \hat{\eta} = \eta_0^* - \eta_1^* + \eta_2^*. \quad (\text{B.3})$$

Table B.2: Annual Tax Burden

Taxable Income	Tax Burden
0 - 3282	0
3283 - 100000	$\sum_{i=1}^7 \beta_i (y - 3282)^i$ $\beta_1 = .08125746$ $\beta_2 = .0000118$ $\beta_3 = -3.650e-10$ $\beta_4 = 8.146e-15$ $\beta_5 = -1.024e-19$ $\beta_6 = 6.636e-25$ $\beta_7 = -1.739e-30$
100001 - ∞	$\sum_{i=1}^7 \beta_i (1e5 - 3282)^i + (y - 1e5) \times 0.52$

Source: German Federal Ministry of Finance, own calculations.

B.2 Taxation and Transfers

The tax code is based on the average income taxes paid by married couples for a given household income over the sample period 2008 € and thus features both progressive and joint taxation. The annual tax codes are available (in nominal terms) for each year on the website of the German Federal Ministry of Finance (<https://www.abgabenrechner.de/>). The tax code consists of three parts separated by two thresholds. First, annual incomes up to 3282€, the smallest income tax allowance in the years 1983 to 2005, are tax-exempted. Second, every € above 100,000 € is taxed linearly at a marginal rate of 52%. Third, every € between the two thresholds is taxed at an increasing marginal rate. The coefficients for this part are obtained by regressing the average tax burden over the sample period on a seventh order polynomial of taxable income, i.e. income less the tax allowance. The upper threshold of 100,000 € was chosen because for higher incomes the marginal tax rate does not change anymore. Table B.2 summarizes the information on the progressivity of the tax code implemented in this paper.

Table B.3: Predicted Values for Monthly Child Care Fees

		Subs.	Non-Subs.
Baseline Fee		63	236
Extra Charges			
Full-time	(+)	46	177
Ages 0 to 2	(+)	19	—
Siblings in subsidized child care			
One further	(-)	27	—
Two further	(-)	45	—
Household income is twice the median	(+)	30	—

B.3 Child Care Fees

Information on the per-child fees for subsidized and non-subsidized child care separately is available in the GSOEP for the years 1996, 2002 and 2005. I pool the reported fees from all households in my sample by type of child care, and transform them in 2008 €. The regressor household income is defined as the average monthly income of both spouses in the year the fee is observed deflated by the OECD equivalence scale, which is also used in the model, to account for different household sizes.

Table B.3 reports the predicted values from the Tobit regression for subsidized child care and the OLS regression for non-subsidized child care for a few specific cases. The **Baseline Fee** is calculated for a couple with one child of age three to six and a half in a part-time child care slot. The household income used is the median household income in my sample with children in subsidized child care and amounts to 4583€ per month and is further deflated by the OECD equivalence scale to account for household size. The lower part of Table B.3 changes always only one characteristic at a time relative to the **Baseline Fee**. For example, full-time subsidized child care for a child aged three to six and a half is more 46€ more expensive than part-time subsidized care, leaving everything else constant, whereas earning twice the median income would increase the cost for part-time subsidized care by 30€.

B.4 Data Targets

In the following I discuss the extent to which certain moments are informative about all parameters except the discount factor β , which is set exogenously, and the parameter related to the preference heterogeneity, θ , which I have discussed in the main text. These arguments made here are only suggestive and not an attempt to prove identification, since all parameters jointly determine all model statistics.

The preference parameters governing the utility of having children are tightly linked to the fertility targets, i.e. the fraction of women without, with one and with two children. ζ matters most for the extensive margin, i.e. whether or not to have children, while δ_2 and γ_2 are more important for the fertility distribution (in terms of number of children).

The utility weight on leisure (δ_1) is relevant for the participation behavior of women with and without children at the same time. I therefore include the average part- and full-time labor force participation rates of childless women as a target. The remaining parameters are linked to using information on mothers, even though some of them influence the choices of childless women as well. I target the part-time maternal labor force participation rates in period one (ages zero to two), two (ages three to six and a half), three (ages 6.5 to 9.5) and six (ages 15.5 to 18.5). By matching these moments, the model should closely resemble the average part-time *maternal* labor force participation rate (and in fact does so) and thus also the difference relative to the average labor force participation rate by *childless* women. The curvature of consumption (γ_0) is informative about differences in the labor force participation behavior by women with *different numbers of children* through the potential monetary costs for child care and the equivalence scale adjustment. Therefore, γ_0 is implicitly informative about part-time maternal labor force participation in period one because the part-time maternal labor force participation rates in periods two, three and six are closely linked to ξ_2 , ξ_3 and ξ_6 . In fact, in period one none of these three parameters has a direct impact on the utility of time spent with children and hence changes in the participation rate *relative* to period t are therefore informative about $\xi_t \forall t = 2, 3, 6$. Including the full-time maternal labor force participation rate in period six next to the part-time maternal labor force participation rate in period six in the set of targets is informative about the curvature for leisure (γ_1).

The next four parameters govern the benefits of the mother spending time with her children (δ_3, γ_3) and the utility costs of using non-paid child care (δ_4, γ_4), both expressed relative to paid child care. The fact that most working women with children aged zero to two do not use paid child care, which in the form of non-subsidized child care is always available, puts an upper bound on the utility costs of non-paid child care. When the children turn three to six and a half, most of these women continue to work and use paid subsidized child care, which puts a lower bound on the utility costs of non-paid care. The underlying change in the effective price of paid child care and the increase in the usage of paid child care between ages zero to two and three to six and a half are thus informative about the utility costs of using non-paid child care. Non-working women only face

the trade-off between spending time with the children or enjoying leisure. Enjoying leisure in turn requires the mother to either use paid or non-paid child care for the children. In terms of paid child care usage, non-working women behave very similar to working women, i.e. very low enrollment for children aged zero to two, and high enrollment for children aged three to six and a half. Taking as given the utility cost of non-paid child care, the change in the effective price of paid child care and the increase in the usage of paid child care are thus informative about the utility of spending time with the children. This argument applies even though the utility from spending time with children changes as they get older because this change in the utility is disciplined by the change in the maternal labor force participation rate. In general, both the utility from spending time with the children and the costs of non-paid child care are themselves important determinants for the maternal labor force participation choice, along both the extensive and intensive margin. Given these arguments, I choose as remaining targets the full-time maternal labor force participation rate in period one (recall that the part-time maternal labor force participation rate in period one is also a target), the part-time child care enrollment rate in period one, and the part- and full-time child care enrollment rates in period two. I do not include the full-time child care enrollment rate in period one as a target. The differences between the part- and full-time child care enrollment rates in period two should already be informative about the costs of using non-paid child care along the intensive margin.

Again, I emphasize that these are only informal arguments since each parameter affects each statistic.

B.5 Model Evaluation

B.5.1 Cross-Sectional Facts by the Husband’s Income Quintile

Figure [B.1a](#) compares the child care enrollment rate by the husband’s income quintiles in the first two periods. In the data, the child care enrollment rate is basically flat for both age groups and the model falls slightly short of the data for the lowest husband’s income quintile. For the age group zero to two the child care enrollment is a bit too high for the highest husband’s income quintile.

The comparisons in Figure 4 in the main text and Figure [B.1a](#) are all relative to the husband’s income residual/shock, simply because I do not observe any income for non-working women in the data. Two other statistics discussed in the main text, the aggregate female labor supply elasticity and the life-cycle profile of mean accepted earnings, relate to the woman’s income.

B.5.2 Aggregate Female Labor Supply Elasticity

To compute the aggregate labor supply elasticity I simulate six different life-cycles for the each of the 100,000 women used to generate the model moments. In each life-cycle each woman experiences

a surprise earnings increase of 5% in just one of the six periods of her life.¹ I then pool the individual data using only the period in which the surprise wage change occurred and calculate the implied aggregate participation elasticity (in technical terms this is the own uncompensated earnings elasticity) which turns out to be 0.77. This is closely in line with the survey of empirical estimates in the Handbook of Labor Economics chapter by [Blundell and MaCurdy \(1999\)](#). The mean (median) elasticity across the studies stated in Table 2 in there for married women is 0.71 (0.79).

B.5.3 Accepted Earnings

The comparison of the life-cycle profile of mean accepted earnings by mothers between the model and the data comes along with various caveats, since there is no one to one mapping between the earnings I can measure for women in the data and what I use in the model. In the model women can only work part- or full-time, with full-time earnings being twice as large as part-time earnings. In the data there is variation in hours worked both among part- and full-time working women. As a consequence, the reported earnings for each months of a year in the GSOEP reflect both differences in productivity and in hours worked. Since information on hours worked is only available in the interview month, I can compute the accepted earnings statistics only for the interview month. I first divide for each mother in my sample for each interview month the reported monthly earnings by actual weekly hours worked. In a next step I multiply this number by 39.7, which are the mean hours of those working at least 30 hours a week, to obtain full-time equivalent monthly earnings. Furthermore, I control for education by regressing these full-time equivalent monthly earnings on a full set of educational dummies which are restricted to sum to one (as for the male earnings regression – see Section B.1 – I use the 1997 ISCED classification provided in the GSOEP) and period dummies.

Figure B.1b compares for each period, i.e. children’s age group, the mean of the accepted earnings (both expressed in full-time monthly equivalents) for all working mothers in the model and the data relative to the first period. For the data I use the coefficient estimates of the period dummies from the above mentioned regression. The model closely tracks the life-cycle profile of accepted earnings in the data which suggests that the model captures well the selection into employment. Accepted earnings are the highest while children are the youngest, i.e. of ages zero to two, and drop by 14% in the model and 9% in the data, when children are of ages three to six and a half. Since there is a drastic increase in maternal labor force participation between these two periods, this pattern reflects a strong selection mechanism in the data which is captured by the model. The response

¹To solve the model I use the optimal decision rules from the original dynamic program up to the period where the woman receives the surprise increase in the wage. In that period I let her reoptimize her choices. In the periods after the one with the surprise earnings increase, I use again the optimal decision rules from the original dynamic problem but take into account the potential changes in the state variables due to the optimal response to the surprise earnings increase.

in the model is stronger because the maternal labor force participation in period two is somewhat overpredicted.

In terms of levels, the mean monthly accepted full-time equivalent earnings in the data are average roughly 900 € or 27% lower than in the model. About 27% of that level difference can be attributed to the different earnings concepts used in the data for this exercise and the model. The female earnings used in Figure B.1b for the “Data” are based only on the monthly earnings, whereas the earnings fed into the model are based on all annual earnings including additional payments as bonuses, 13th and 14th salary, vacation and Christmas pay received during the year. To get an idea of how large the effect of not using all this additional income information might be, I compute the hypothetical monthly earnings for men using only the earnings in the interview month (exactly what I do for women here in this exercise) and compare them with the earnings using all the information (expressed as monthly earnings). Assuming the same relationship for men also holds for women, 27% of the level difference between the empirically observed accepted earnings can be attributed to measurement differences. Overall, this suggests that the model provides a good prediction of accepted earnings, specifically for the mean life-cycle profile but also in levels, and thus the selection into employment.

B.5.4 Cross-Sectional Facts by Household Income

Figure B.2 breaks Figure 4 in the paper down by households with below and above mean household income. The model captures most of the patterns qualitatively. Quantitatively the fit is particularly good for the first period, which is the most relevant one for the policy experiments.

Compared to “Above Mean” mothers, the empirical part-time labor force participation rates of “Below Mean” mothers are substantially lower in the first two periods and quite similar afterwards with the exception of the last period, see Figure B.2a. The model replicates this pattern for the first two periods but overpredicts the part-time labor force participation rate of “Above Mean” mothers relative to “Below Mean” mothers afterwards. The model closely replicates the empirical part-time child care enrollment rates for both groups.

“Below Mean” mothers have lower full-time labor force participation and child care enrollment rates than “Above Mean” mothers in the model and the data. The quantitative fit of the full-time labor force participation rate is better for the “Above Mean” mothers. The full-time labor force participation rate of “Below Mean” mothers in the model exceeds the corresponding rate in the data except for period one.

Household income is constructed as follows. Similar to the calculation of accepted earnings I use only the interview months and eliminate differences in earnings stemming from differences in hours worked. However, since I am interested in household income I need to make a distinction between part- and full-time work. For full-time working women I calculate the wage exactly in the same way as for accepted earnings. For part-time working women, i.e. those working less than 30 hours

per week, I follow the same logic as before but multiply the ratio of monthly earnings to weekly hours worked by 19.2 hours, the mean hours worked of part-time working women. For consistency, I use for the husbands as well only the monthly earnings from the interview month. I then add for each couple and each period the woman's and husband's earnings to obtain the household income. Non-working women contribute with zero earnings to household income. Next, I calculate for each period the mean household income and split the sample accordingly.

Figure B.1

(a) Child Care Enrollment Rate by Husband's Income Quintile (b) Accepted Full-time Equivalent Monthly Earnings by Mothers Relative to Ages 0 to 2

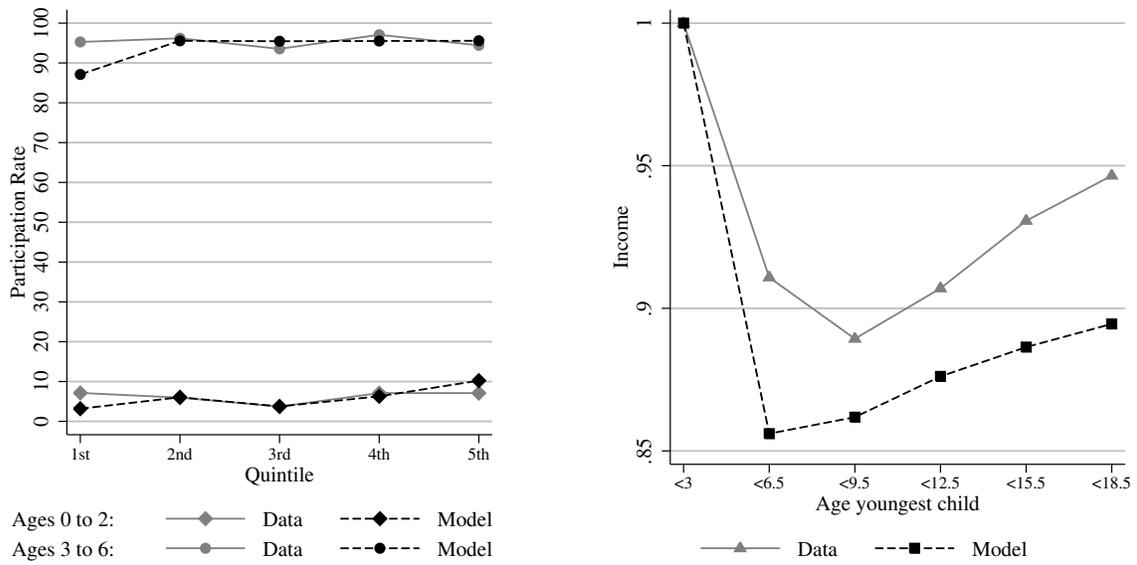
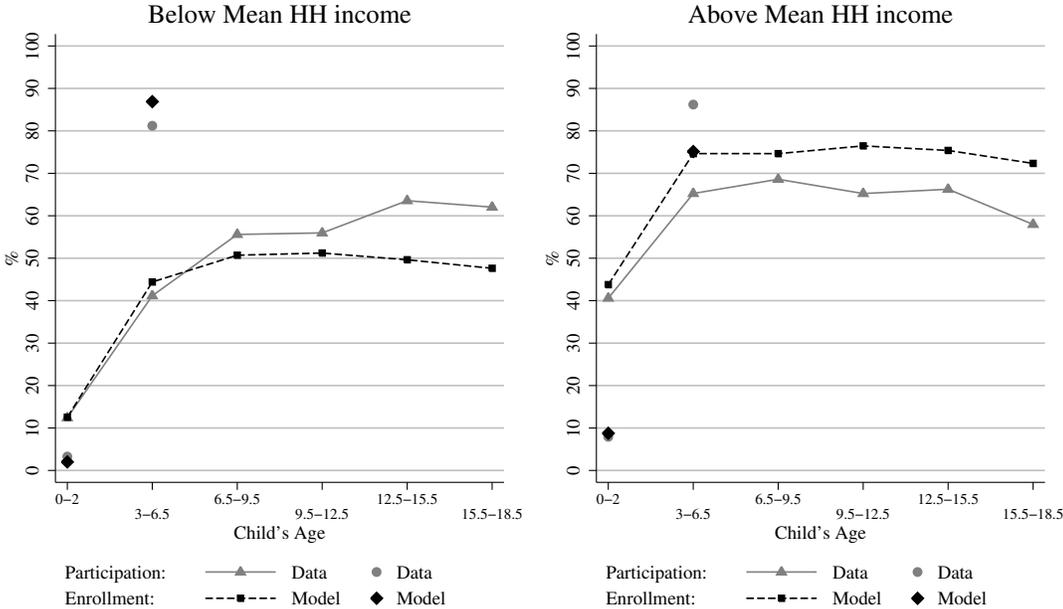
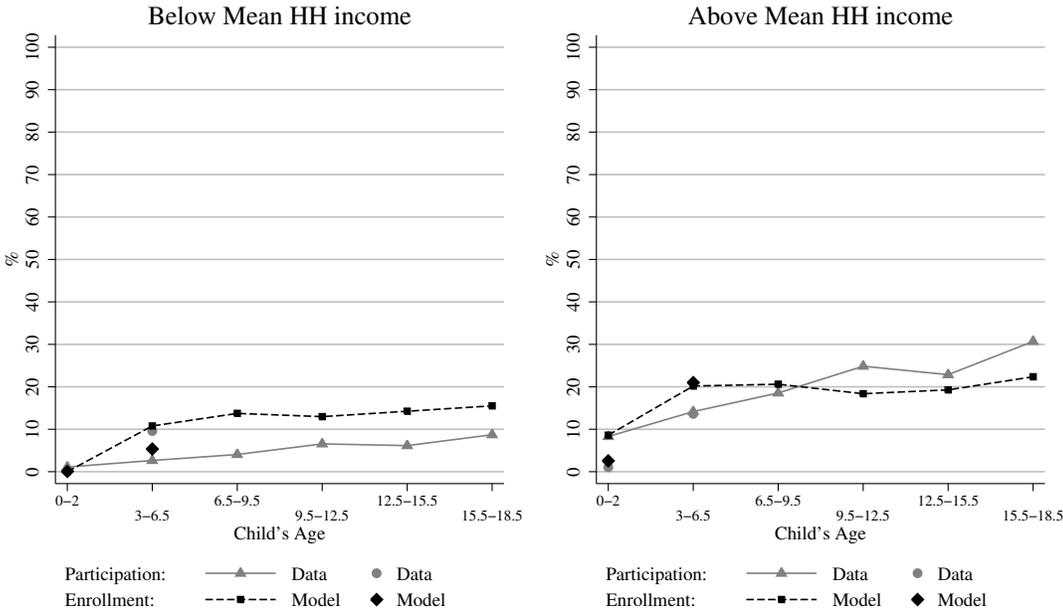


Figure B.2: Maternal Labor Force Participation and Child Care Enrollment by Household Income

(a) Part-time Rates



(b) Full-time Rates



References

- Blundell, R. and MaCurdy, T. (1999). Labor Supply: A Review of Alternative Approaches, *in* O. Ashenfelter and D. Card (eds), *Handbook of Labor Economics*, Elsevier Science B.V., pp. 1559–1695.
- Guner, N., Kaygusuz, R. and Ventura, G. (2012). Taxation and Household Labor Supply, *Review of Economic Studies* **79**: 1113–1149.