



Enrollment in Early Childhood Education and Care in Turkey

Anna Batyra

April 2017

Enrollment in Early Childhood Education and Care in Turkey

Anna Batyra



Bankalar Caddesi No: 2 Kat: 5 Karaköy 34420
İstanbul

T (0212) 292 05 42
F (0212) 292 02 95

egitimreformugirisimi.org



Büyükdere Cad. Stad Han. No:85 Kat:2 34387
Mecidiyeköy / İSTANBUL

T (0212) 213 42 20 / 213 46 39
F (0212) 213 36 60

acev.org

DISCLAIMER

This research was carried out thanks to the generous support of Mother Child Education Foundation (AÇEV) and Education Reform Initiative (ERG). The views expressed are those of the author and not necessarily shared by these institutions.

ACKNOWLEDGEMENTS

This report benefited from the ideas and comments of a number of academics and practitioners whose contribution is warmly acknowledged: Burcu Arık, Batuhan Aydagül, Alper Dinçer, Yeliz Düşkün, Ayla Göksel, Burcu Gündüz, İpek İlkaraçan, Murat Kırdar, Mustafa (Uğur) Kaya, Gökçe Uysal, Nalan Yalçın and Duygu Yaşar. Special thanks go to Aysel Madra for excellent coordination and inputs throughout this project.

EXECUTIVE SUMMARY

1. This work provides a comprehensive analysis of the demand for childcare and pre-primary education in Turkey, using the data on enrollment collected by the Turkish Demographic and Health Survey (TDHS) in 2013. It offers new evidence on the patterns of enrollment by child's age and socioeconomic background and how enrollment at different ages depends on a wide range of family characteristics. As such, it provides a unique picture of inequalities in Turkey, as well as new insights for policy implications.
2. The study shows that childcare remains a woman's issue in Turkey. It is the mother who most frequently takes care of children at home, outside and helps them with homework. The social norm that mother herself should take care of young children is deeply internalized by the mothers – 55% of Turkish women believe that woman should not work if she has small children. Forty-two percent of non-working mothers state that caring for the offspring is the reason they are not working. If mother is working, extended family (grandmothers, other children or relatives) looks after the child in almost 50% of the cases. Kindergarten and baby-sitters are utilized infrequently. Mothers view fertility as an economic issue, but the availability of childcare is not an aspect that would induce them most to have another child.
3. The study confirms that enrollment in childcare and pre-primary education is low in Turkey. Based on TDHS 2013, this study finds that in 2013 less than 1% of zero- to two-year-olds and only 25% of three- to five-year-olds attended childcare and pre-school, comparing to 35% and 80% in the OECD, respectively. Attendance of five-year-olds in educational facilities in 2013 was 74%, but 44% of the five-year-olds attended directly primary schools and only 30% attended pre-primary facilities.
4. The enrollment of three- to five-year-olds in Turkey is low across the entire wealth distribution but it is most deficient at the bottom 40%. Even at the top wealth quintile, only 67% of three- to five-year-olds attend organized facilities, comparing to the OECD average of 80%. Enrollment rates drop to 45% and 43% for the fourth and third wealth quintiles, respectively; and to 32% and 30% for the second and bottom wealth quintiles, respectively. The enrollment disadvantage is larger the younger the child.
5. Differentials in the enrollment of children from different socioeconomic backgrounds start to widen around child's 44th month, are substantial at 54th month and begin to decline when children approach their 66th month of age as at this point a large fraction of families begin to send their children to primary schools.
6. A model controlling for a wide battery of socioeconomic characteristics of families and estimated on the data from the TDHS 2013 finds that the enrollment of three- to four-year-olds is strongly depended on household wealth, mother's schooling, and her employment status even after a large battery of household's socioeconomic characteristics is controlled for. The responsiveness of enrollment to these variables is largest at the age of four. Father's schooling matters for the enrollment of four-year-olds only. The highest elasticity of enrollment at the age of four is consistent with the widely held social norm in Turkey that very small children, on average below the age of four, should be cared for at home. It is also consistent with the fact that facilities for children younger than four are scarce and expensive in Turkey.
7. Mother's schooling is still important for five-year-olds' enrollment in pre-primary facilities, however her work status and household wealth are less crucial. This is consistent with the fact

that the acceptance of sending children to an educational facility at the age of five is almost universal, as well as an ample supply of affordable facilities is provided by the state.

8. While the majority of five-year-olds in 2013 were enrolled in an educational facility, children from the highest socioeconomic backgrounds attended pre-primary facilities. Children below the top wealth quintile, those of less educated mothers and those having many siblings were enrolled directly in primary schools.
9. The above findings suggest that the demand for education services of five-year-olds is to a large extent met in Turkey, although the quality of care offered to children from different socioeconomic backgrounds might be different. It is also encouraging that visible demand for services for four-year-olds does already exist in Turkey. Unfortunately it is constrained by the incomes and economic status of children's parents. There also exists nascent demand for services for three-year-olds, although to a lesser extent than for older children.
10. Child's sex does not determine child's pre-primary enrollment at any age.
11. Residential and regional variables are also generally not significant, after controlling for the socioeconomic background of families.
12. Ethnicity and social conservatism are generally not significant once other socioeconomic factors are controlled for.
13. The presence of extended family does not matter for three- to four-year-olds' attendance in childcare, but the presence of a grandmother reduces the probability of five-year-olds to attend pre-school. This effect is only weakly significant but remains robust across specifications.
14. The number of siblings aged five and below, as well as multiple births, are only a weakly significant determinant of enrollment, and only for five-year-olds.
15. Birth order matters most for three-year-olds. The effect is negative and strongest in the wealthier households – families in top wealth quintiles are substantially less likely to send later-born children to daycare, comparing to their first-borns. Child's birth order has a non-linear effect, which is particularly evident in wealthy households. The result is affected by the inclusion of single children who are also, potentially, first-borns. This is consistent with the resource accumulation over the life-cycle hypothesis, combined with the social norm of unsuitability of organized childcare for very small children. It may also be driven by different net returns to educating first-borns, or behavioral factors whereby parents wish to indulge in or feel more capable to care themselves for children born later.
16. In the richest households, boys whose siblings are mostly boys are also less likely to be enrolled in daycare. Such sex-composition effect is strongest at the ages of three and four. It is also sensitive to the inclusion of single children. A conclusion that emerges is the rich households in Turkey systematically treat later-born children, especially boys, differently than their first-borns.
17. Mother's migration status - if she migrated out of her childhood province and never returned – reduces the probability of a child to attend a pre-primary unit at the age of five, possibly

pointing to the importance of labor market attachment and social networks in integrating women into local economies.

18. When supply side controls are introduced, the ratios of three- to five-year-old populations to teachers and classrooms in provinces do not seem to play a role. While thorough price data at the province level is not available, the affordability of childcare is likely to be extremely important. This is reflected in the significance of family wealth for the enrollment, especially, of three- to four-year-olds.

19. This paper argues that there is room for gains in pre-primary enrollment at every wealth quintile in Turkey but a particular urgency is needed in addressing extremely low pre-primary enrollment at the bottom 40% of the wealth distribution. Because policies remedying enrollment deficiencies in different wealth segments could be different, a case is made for a holistic approach to early childhood education in Turkey.

20. This work supports the conclusions from prior research that supply side interventions making early childhood education and care more widespread and cheaper are absolutely necessary in Turkey. Vouchers handed to families directly are less likely to be effective, unless carefully designed and targeted, because – in the absence of subsidies - there are no gains in enrollment between bottom and second wealth quintiles. Ensuring a uniform quality of service for five-year-olds, enrolled either in kindergartens, nurseries or primary schools, is important because children enrolled at the age of five are segmented in facilities along the socioeconomic lines. Improving the provision of facilities of acceptable quality for children of all ages would also go a long way in changing the perception of parents with respect to the acceptability of organized childcare, especially for young children – four and below. The planned education reform that would introduce in Turkey a compulsory pre-primary education starting at 54th month, or earlier, would help prevent the enrollment gaps that are very large by the time children reach the age of five. This paper also suggests that advocacy and campaigns aimed at changing parental perception of organized early childhood education and care should start with middle-class families, rather than those at the bottom of the wealth distribution.

CONTENTS

1. Introduction.....	9
2. Importance of early childhood education and care in Turkey.....	11
3. Institutional context in Turkey.....	15
4. Data.....	16
5. Explanatory variables and rationale behind them.....	17
6. Early childhood education and care in Turkey – A snapshot.....	20
6.1. Attitudes to early childhood education and care in Turkey.....	20
6.2. Enrollment of the zero- to five-year-old in early childhood education and care.....	24
6.3. Descriptive statistics.....	25
7. Methodology.....	26
8. Analysis.....	27
8.1. Demand for early childhood education of the three-year-old.....	27
8.2. Demand for early childhood education of the four-year-old.....	28
8.3. Demand for early childhood education of the five-year-old.....	29
8.4. A further look at the determinants of enrollment in early childhood education.....	31
8.5. Supply side and enrollment in early childhood education.....	32
8.6. A further look at enrollment in early childhood education by age.....	34
9. Summary and policy implications.....	39
10. Conclusions.....	44
BIBLIOGRAPHY.....	45
TABLES.....	49
TABLE 1: Who spends time with the child.....	50
TABLE 2: Mother’s employment status.....	50
TABLE 3: Not working mothers: Reason for not working.....	50
TABLE 4: Working mothers: Who cares for the youngest child.....	50
TABLE 5: Inner conflict.....	51
TABLE 6: Target group.....	51
TABLE 7: Childcare and fertility decisions.....	52
TABLE 8: Enrollment in early childhood education and care by age.....	52
TABLE 9: Key differentials in enrollment in early childhood education.....	54
TABLE 10: Descriptive statistics.....	56
TABLE 11: Model specifications.....	57
TABLE 12: Probability of attending pre-primary education (36-47 months old): Average marginal effects.....	59
TABLE 13: Probability of attending pre-primary education (48-59 months old): Average marginal effects.....	62
TABLE 14: Probability of attending pre-primary education (60-71 months old): Average marginal effects.....	65
TABLE 15: Probability of attending primary education (60-71 months old): Average marginal effects.....	68
TABLE 16: Average marginal effects of child’s sex by wealth quintile and age.....	71
TABLE 17: Average marginal effects of child’s sex by residence and age.....	71
TABLE 18: Average marginal effects of residence by region and age.....	71
TABLE 19: Average marginal effects of parity by wealth quintile and age.....	73
TABLE 20: Average marginal effects of sex composition by wealth quintile, age and sex.....	73
TABLE 21: Average marginal effects of parity by wealth quintile and age, excluding single children.....	74
TABLE 22: Average marginal effects of sex composition by wealth quintile, age and sex, excluding single children.....	74
TABLE 23: Supply side summary statistics by province.....	75

TABLE 24: Average marginal effects of three- to five-year-old population relative to teacher and classroom numbers by age.....	75
TABLE 25: Predicted enrollment probabilities by age	77
APPENDIX.....	78
TABLE A1: Variables in the indices of conservatism, and their averages	79
TABLE A2: Probability of attending pre-primary education relative to not attending (36-59 months old): Odds ratios	80
TABLE A3: Probability of attending pre-primary relative to primary education (60-71 months old): Odds ratios.....	84
TABLE A4: Key characteristics of households by father’s occupation in agriculture.....	0
TABLE A5: Ethnicity by the place of birth.....	0
TABLE A6A: Teacher and classroom numbers (provinces).....	1
TABLE A6B: Teachers and classrooms relative to three- to five-year-old population (provinces) ..	2
TABLE A6C: Three- to five-year-old population to teacher and classroom numbers (provinces)....	3

1. Introduction

Sustainable Development Goals (SDG) stipulate the universal access to high-quality early childhood development, care and pre-primary education by 2030 (UN (2015), Goal 4). Yet, at the time when the importance of childcare and pre-primary education is recognized worldwide, the enrollment of children in early childhood education and care (ECEC) remains low in Turkey¹. Survey data for Turkey indicates that in 2013 less than 1% of the zero- to two-year-olds attended center-based care; attendance of the three- to five-year-olds stood at 25.05% and the majority of these children, 14.6%, were already enrolled in primary schools rather than the designated pre-schools². By comparison, the enrollment rates of the zero- to two- and three- to five-year-old in the OECD average 35% and 80.3%, respectively (OECD (2014)). Two EU countries at the similar level of development as Turkey, Bulgaria and Romania, perform much better with the net pre-primary enrollment rates for the three- to five-year-old at 80.6% and 84.1%, respectively (EUROSTAT (2016))³.

Turkey's low childcare and pre-primary enrollment rates have drawn the attention of a number of studies. The first group of studies, largely due to the World Bank (e.g. Hentschel et al. (2010), World Bank (2013a, 2013b)), approaches early childhood education mainly from the child-equity perspective. They emphasize strong intergenerational transmission of inequality in Turkey and the role the uneven access to early childhood education and care plays in propagating the unequal life-long outcomes of children coming from different socioeconomic backgrounds. The second group of studies, building upon the feminist economics paradigm (e.g. İlkkaracan (2010, 2012a, 2012b), İlkkaracan et al. (2015)), views the low provision and the high cost of organized childcare and pre-primary facilities as obstacles to gender equality and work-life balance. These studies gauge organized childcare and pre-school as one of the pieces of the larger public infrastructure and social policy, both short in Turkey, responsible for women's low attachment to the labor market, the lack of shared responsibility within the household, and the feminization of poverty. As such, improving the provision of organized facilities for zero- to five-year-olds is seen by these studies as not only contributing to SGD Goal 4, but also SDG Goal 5 which stipulates gender equality and the empowerment of women and girls.

Owing to rigorous prior research, there exists a consensus that low and uneven enrollment in early childhood education and care in Turkey results from the bottlenecks both on the supply and demand side (e.g. IBRD (2015), İlkkaracan et al. (2015), Paker and Uysal (2015)). The low provision and the high cost of facilities on one hand, and social norms – especially pertaining to the care of very young children - on the other, remain important obstacles to the uptake of services throughout the country. However, different views prevail regarding the feasible modalities for the expansion of early childhood education and care in Turkey. While feminist economists advocate a comprehensive and universal state-sponsored provision of facilities (e.g. İlkkaracan et al. (2015)), the World Bank view favors the enablement of private providers through deregulation, investment subsidies and operational grants (e.g. Aran et al. (2016)). A third mode of childcare and pre-school provision is also advocated by inter-governmental agencies (e.g. UNICEF) and involves alternative community-based models that could be supported by local governments, NGOs and employers (Tuğrul and Yılmaz (2012)). Although all three

¹ A note on terminology: As this report pertains to zero-to-five-years age group, both childcare and pre-primary education are relevant. "Childcare" refers to the service for zero-to-two-year olds, while "early childhood education", "pre-primary education" or "pre-school" refer to the service for three- to five-year-olds. "Childcare" and "early childhood education" (or "pre-primary education" or "pre-school") belong to "early childhood education and care (ECEC)" for the entire zero-to-five-years age group.

² Own calculations based on the Turkish Demographic Survey (2013). Institutional data for Turkey (MONE (2014)) reports 27.7% enrollment rate for three- to five-year-olds in 2013-2014 school year. TDHS was carried out in September-December 2013, while additional children might have still enrolled later in the school year.

³ Numbers for 2013 to match Turkish estimates. More recent 2015 estimates are not much different.

stress the cost-effectiveness of service delivery,⁴ they are rooted in distinct philosophies that conceive of very different levels of involvement on the part of the state, of very different roles it should play in ensuring the universal access to care, and of the extent to which access to care should be considered an inviolable civil right.

The present study takes a step back and investigates anew the patterns of enrollment in organized childcare and pre-primary education in Turkey, bearing in mind the importance of both child and gender equity. It comes at an important moment when the demand for and the supply of organized childcare and pre-primary education lie at the heart of current debate on family policy, not only among the scholars but also policy-makers. Although religious pre-school facilities existed already at the time of the Ottoman Empire and first nurseries were established in Turkey in the early 20th century as Turkey was modernizing along the Western model (Gökçe and Oğuz (2010)), pre-primary education gained more momentum in the second half of 20th century. In 1950s and 1960s it started to be seen in the context of political development and economic growth (Kapçı and Güler (1999)). For similar reasons, it gained increased attention in 2000s (Dağlı and Dağlı (2012)). Although early childhood education in Turkey currently seems to be gauged through the prism of early childhood development, less so of gender equity, first of all it is still perceived in the context of a larger developmental project. While aiming to improve schooling outcomes, Turkey is also eager to raise its female labor force participation rate – the lowest in the OECD countries - and at the same time to increase the fertility rate. Childcare and pre-primary education has become key policy components to meet such ends.

In 2000s, early childhood education policy in Turkey focused essentially on the pre-schooling of five-year-olds, with the aim of preparing them for the entry into primary schools. To this end, starting in 2009, the government expanded the supply of affordable pre-school facilities, which mostly took the form of nursery classes attached to primary schools. Subsequently, early childhood development gained further attention and the State Planning Organization's annual plan for 2011 (part of Turkey's Ninth Development Plan for 2009-2013) elaborated on the instrumental role that early childhood development in general, and education in particular, play in enhancing economic productivity, improving personal development and life skills, and offering positive externalities for the society more broadly. Turkey's Tenth Development Plan for 2014-2018 set the target for the pre-primary enrollment rates of the three- to five-year-olds at 70%, while evoking not only child development but also the importance of work-family balance, women's labor market attachment and higher fertility, all of which could be facilitated by a more widespread use of organized childcare and pre-school facilities. In 2014 a law was passed that bound the nurseries to admit four-year-old children, as well as three-year-old children should capacity exist. Yet, IBRD (2015) report finds that such nursery classes still cater predominantly to five-year-olds. Centers for children below five constitute largely the domain of private providers, and their prices remain beyond the average willingness to pay on the part of potential users.

⁴ The three studies stress the cost effectiveness of respective delivery methods. It is, however, difficult to compare them as they make very different assumptions. İlkkaracan et al. (2015) estimate the demand side effect of ECEC facilities expansion of the size needed to meet the OECD-level enrollment rates for zero- to five-year-olds, and find that it would require 20 billion TL per year. In turn, it would generate more than 700,000 jobs, mostly permanent and for women, be pro-poor and largely self-financing: Seventy-seven percent of the proposed expenditure would return to the government in the form of tax revenues due to higher employment in the education sector and beyond. The estimated cost to government budget per newly enrolled child would be close to 1400 TL annually. Aran and colleagues (2016) focus on the supply side interventions, the cost per child and effect on enrollment. They find that a combination of investment and operational grants to providers achieves the best combination of low cost and high enrollment, as well as benefit incidence favoring the poor. The preferred scenarios involve the net cost of 2.5-4 billion TL to raise three- to five-year-old enrollment rate by 10%, implying the cost per child approximately 1500-2000 TL annually. Yılmaz and Tuğrul (2012) provide the costing of a number of alternative modes of ECEC delivery but do not consider the revenues generated due to backward or forward linkages.

Being able to address low enrollment in early childhood education and care with policy requires a thorough understanding of the patterns of enrollment. To this end, this work aims to provide a comprehensive analysis of enrollment in early childhood education and care in Turkey, using the data collected by the Turkish Demographic and Health Survey (TDHS) in 2013. The TDHS coverage is universal and allows for the study of the country as a whole. The survey collects data from a representative sample of households and women in reproductive age, records information about all household members and asks detailed questions about women and their children. It contains a wide battery of socioeconomic and demographic characteristics of households, as well as a wealth of information on marital behavior, migration history, domestic tasks and social norms. As a result, this research is able to provide a comprehensive picture of childcare and pre-school utilization in Turkey, thereby helping identify the households that are unable or unwilling to benefit from early childhood education and care. This is the first exercise of this sort using Turkish data.

Other studies of the demand for early childhood education and care in Turkey exist but are different in scope and detail. Aran et al. (2014) estimate a simple female labor supply model on the Survey on Income and Living Conditions (SILC) 2009 data. They use the model to assess a hypothetical effect of childcare vouchers, conditional on woman's employment, on female labor force participation and find that such a subsidy is unlikely to be effective in raising demand for childcare, given the constrained supply of childcare services in Turkey to start with. They also find that, if not targeted by socioeconomic status, vouchers are likely to be regressive, benefiting those who already work and use organized facilities. Aran et al. (2016) estimate a simple model of demand for childcare and pre-school based on SILC 2012 data in order to simulate the impact of various supply- and demand-side policies on enrollment. The policies include investment and operational grants to providers, as well as vouchers to families. The study concludes that supply-side interventions in particular are needed in Turkey because an increase in both the capacity and affordability of services is required to spearhead the enrollment of the poorest 40% in early childhood education and care.

Based on women's responses both to the objective and subjective questions, this work starts by providing a picture of attitudes towards early childhood education and care in Turkey. Next, it studies the enrollment of zero- to five-year-olds in early childhood education and care. It confirms that the enrollment of three- to five-year-olds is low (close to 25% in 2013) and the enrollment of zero- to two-year-olds is miniscule (less than 1%) in Turkey. The determinants of enrollment in pre-primary facilities for three- and four-year-olds, and in pre-primary and primary facilities for five-year-olds, are investigated formally. The analysis employs a number of relevant socioeconomic characteristics of parents and households. Parental education and occupational status, ethnicity and household wealth are studied. Regional and residential variables are investigated. The importance of child's sex, sibship size, birth order, sibs' sex composition, as well as the presence of extended family, are considered. This work also controls for a number of features in the marital structure of child's parents. Measures of family's conservatism with respect to gender roles are also weaved in. The analysis is complemented with the inclusion of supply side information at the province level – the ratios of three- to five-year-old populations to teachers and classrooms in public and private pre-primary facilities. It ends with the predicted enrollment rates by child's age in months, disaggregated by the key socioeconomic characteristics of households. Finally, the policy implications of the findings are discussed.

2. Importance of early childhood education and care in Turkey

The importance of early childhood education and care has been acknowledged globally. In the past two decades, as early childhood development interventions have been shown to yield many direct and

indirect benefits to the society,⁵ international community has put a lot of effort into advocacy for policies promoting early childhood development in general, and early childhood education in particular. Early schooling has been a part of the UNESCO's Education for All initiative (UNESCO (2006, 2015)), the UNICEF's work (e.g. UNICEF (2008, 2012)), the OECD's Starting Strong work program (OECD (2001, 2006, 2012, 2015)), the European Union's 2020 strategy (European Commission (2014)), as well as numerous projects carried out by the World Bank (e.g. World Bank (1999), Fernald et al. (2009), Naudeau et al. (2011), WB-SABER⁶). In Turkey, the key three areas where childcare and pre-primary education have been discussed widely by academics and practitioners are: (i) female labor force participation (FLFP), (ii) fertility, and (iii) child development. The weak labor market attachment of Turkish women, expensive trade-offs between production and reproduction, as well as female pecuniary and time poverty have also drawn the attention of feminist scholars interested in the reforms of the care sector with the aim of addressing the work-life balance deficit in Turkey.

To start with female employment, FLFP in Turkey stood at 30.3% in 2015, the lowest level in the OECD but similar to that of the MENA countries. The presence of young children is a well-known factor preventing women from entering the labor market in Turkey (Tunalı (1997, 2006), Karaođlan and Ökten (2012), Aran et al. (2010)). FLFP varies substantially with woman's education – in 2015 it was 27% for women with secondary, 35% with high school and 72% with tertiary education (TURKSTAT (2015)), and thus points to gender inequality anchored in socioeconomic background. Dayiođlu et al. (2015) find that the LFP of Turkish women with secondary education follows an M-shaped pattern, whereby women exit the labor market at the time of childbearing to care themselves for the offspring. The pattern is less pronounced for high school graduates and disappears for university graduates, indicating that more educated women are more likely to turn to an alternative form of childcare (a relative, a babysitter or organized care). The main reason for this is their higher ability to afford childcare, as well as substantial opportunity cost of not working due to higher wages and potential future careers.

Turkish scholars of FLFP have argued extensively that the lack of affordable childcare and pre-school is responsible for low FLFP rates and female poverty, especially in urban areas (e.g. İlkkaracan (2012a)). Hentschel et al. (2010) estimated that, had early childhood education been universal in Turkey, the poverty of mothers would fall by 2.5% if they took full-time jobs. İlkkaracan et al. (2015) estimates that universal childcare and pre-school expansion would create more than 500,000 jobs for women in the care and linked sectors alone, leading to decline in absolute poverty by 1.4%. New evidence based on the Household Labor Force Survey 2013-2015 is encouraging and suggests that the expansion of pre-school facilities in Turkey starting in 2009 has had a positive effect on FLFP, by 1-2% (Soytaş and Şengül (2016)). However, as the absence of affordable care and education options remains an acute problem in Turkey, women are still unwilling to re-join the labor market after childbirth. The lack of equity that arises is an issue of socio-economic stratification. IBRD's report on the supply and demand for early childhood education in Turkey (IBRD (2015)) argues that in particular women with low educational attainment fall out of the labor force because the difference between their potential earnings and the opportunity cost of working (the cost of daycare) is too narrow. IBRD's survey asks specifically about women's willingness to pay. While the median full day price of childcare and pre-school at public service providers is approximately 300 TL, and that at private providers 700 TL, women with at most high school education are not willing to spend more than 300 TL per month for full-time daycare. When asked about the willingness to pay given the quality of service, basic-level

⁵ Related literature is so extensive that it is not possible to do it justice in the limited space here. A recent review can be found, for example, in the Lancet Series on early childhood development (<http://www.thelancet.com/series/ECD2016>).

⁶ World Bank's System Assessment and Benchmarking Education for Results (SABER) collects, synthesizes and disseminates comprehensive information on early childhood development policies around the world (<http://saber.worldbank.org/>).

service commands the maximum willingness to pay of 250 TL for working and 150 TL for not working mothers in urban areas. The willingness to pay in rural Turkey is even lower.

Another factor constraining the demand for childcare is the social norm - a factor that defies social stratification in Turkey. Even among educated women (i.e. those with at least a high school diploma), Paker and Uysal (2015) uncover a deeply held belief that the appropriate care for a child up to the age of six, and in particular up to the age of three, can only be provided by the mother. The majority of women surveyed by Paker and Uysal view organized childcare as inappropriate for children up to the age of three. Daycare is regarded more positively (by 42% of women) when children aged four to six are concerned. Educated women consistently declare a close relative (especially a grandmother) a more suitable caregiver than center-based childcare and pre-school. Moreover, Paker and Uysal show that Turkish women experience an important inner conflict between working and being a mother. Those more troubled by such an inner conflict tend to fall out of the labor force after childbirth. Similar conclusions emerge from the IBRD's report (IBRD (2015)). Parents surveyed by IBRD believe that small children should be raised at home, especially if mother is not working. Conditional on mother working, most women indicate the age of three as acceptable for sending a child to organized care. For the majority of men, on the other hand, the acceptable age is not below four and, very often, five. These findings shed light on the fact that access to facilities is not the sole determinant of childcare utilization – social norms about motherhood are as crucial. As both Paker and Uysal and IBRD's report argue, such attitudes partially reflect the prevailing concern about the quality of organized childcare in Turkey; they are amplified by the lack of positive learning experience because good quality centers – especially for zero- to three-year-olds - are still rare in Turkey; and they are aggravated by the fact that caregivers and pre-school teachers are themselves the victims of the regressive social norm, unable of the transmission of positive attitudes to parents.

The availability of childcare options is also considered an important factor in the household's fertility decisions. TDHS 2013 report (Hacettepe University (2014)) shows that the total fertility rate (TFR) in Turkey fell from 4.33 children per woman in 1978 to 2.26 in 2013. Overall, TFR in Turkey is just above the replacement rate and it has stabilized in the past decade; however a steady decline of TFR has become a concern for the government increasingly facing an aging society. There exist important differentials in TFR – rural women, women in Eastern Turkey, those with low educational attainment and in the poorest households – tend to have more children (approximately three per woman). On the other hand, urban women give birth to approximately two children in their lifetime. Women in Turkey's West and those with at least high school education have fewer than two. While organized childcare could benefit rural women by releasing their time, it is urban women and those with high school degrees that should be targeted for the purpose of promoting fertility. There seems to be no study for Turkey linking childcare and fertility. However, international literature suggests that well-designed childcare policy can be effective in raising birth rates (Abiry et al. (2014), Kemnitz and Thum (2015)). A new paradigm emerging both in economic and demographic literature suggests that the countries that promote an egalitarian division of labor in the household begin to show the reversal of fertility decline (Myrskylä et al. (2012), Esping-Andersen and Billari (2015)). A higher utilization of daycare would benefit such an egalitarian division in Turkey, a country with one of the worst records in this regard in the OECD (İlkkaracan (2012b)).

Last but not least, addressing the concern about social inequality, poverty and social exclusion, a better provision of childcare and pre-school in Turkey could go in the direction of helping correct the uneven schooling outcomes of children in later ages, as well as other life-long results that stem from child's early cognitive, linguistic and socio-emotional development (e.g. Hentschel et al. (2010), World Bank (2013a, 2013b)). Turkish children's schooling enrollment and performance exhibit large heterogeneities. While the official net primary school enrollment rates in Turkey are close to 100%, survey-based estimates indicate that the net enrollment rates are lower (Dinçer (2015)). Primary school

enrollment differentials exist across urban and rural localities and regions; they are significant for female children, especially from minority ethnic groups and households where sex ratios are skewed towards boys; they are present for children of the middle birth order; they are attenuated by the low socioeconomic status of households (Kırdar (2009), Dayıoğlu et al. (2009), Hentschel et al. (2010)). There is also evidence that absenteeism in grades one through eight is rising in Turkey, and it concentrates among pupils from low socioeconomic backgrounds and those with low academic achievement (Bakış et al. (2012)). Moreover, the results from TIMMS 2011 for 4th and 8th graders and PISA 2003-2012 for fifteen-year-olds indicate large heterogeneity in scores based on the socioeconomic status of students and their families (e.g. Oral and McGivney (2014), Tansel (2015)).

Solid international evidence exists that out-of-home interventions (childcare, formal and informal pre-schools) have positive effect on a variety of child development indicators (Britto et al. (2016), Engle et al. (2007, 2011)), as well as life-long outcomes in terms of education, health and earnings, among others (Heckman et al. (2013), Heckman (2006, 2008), Heckman and Masterov (2007), Cunha and Heckman (2007), OECD (2010, 2011, 2013)). The aforementioned studies argue that the returns to investing in childhood are maximized when targeted at children from disadvantaged families, whereby they help reduce the inequality of opportunity and ease the grip of poverty transmission. Already the exposure to organized care at young ages, zero-to-three, yields positive effects (Leroy et al. (2012)). Quality matters – high quality programs offer the strongest positive returns (Grantham-McGregor et al. (2014)). The evidence on the benefits of pre-school attendance for three- to five-year-olds is even stronger. Pre-school helps ensure smooth transition to primary school (Hair et al. (2005), Berlinski and Schady (2015)), it benefits children's primary school performance (Halle et al. (2009), Berlinski et al. (2009)) and the gains are higher when programs combine education with nutrition (Nores and Barnett (2010)). While some reviews find better performance in formal pre-schools compared to informal ones (Rao et al. (2014)), home-based pre-schools (Rao et al. (2012)) or creative services based on child-to-child approach (Mundy et al. (2014)) also improve the outcomes of participants compared with non-participants.

For Turkey, in a longitudinal study of the Turkish Early Enrichment Project, Kağıtçıbaşı et al. (2001, 2009) showed that children who in 1980s received mother training or educational pre-school, or both, fared better later in life in terms of educational attainment (at least an additional year of schooling and higher grades), vocabulary scores, occupational status, the age of beginning gainful employment, as well as the social and family adjustment. Mother Child Education Programs that train mothers (and now also fathers) as caregivers have been implemented in Turkey to this day by the Mother & Child Education Foundation (AÇEV) and UNICEF. A related AÇEV-commissioned study calculated that, when expected future earnings are concerned, the monetary returns to early childhood education investment in Turkey are at least 2:1, and often higher (Kaytaz (2005)). Another well-known project called Early Childhood Development Ecologies uncovered that the supply of pre-schools and kindergartens is tilted towards better-off areas in Turkey (Baydar et al. (2010)). It also elaborated on how the socioeconomic status of families is linked to child's vocabulary knowledge, as well as externalizing and pro-social behavior, through the characteristics of their developmental environments - family and neighborhood (Baydar et al. (2013), Baydar and Akçınar (2015)). Relating early childhood education to PISA 2009 scores in Turkey, World Bank (2013b) suggested that if all students benefited from more than one year of pre-school in Turkey, Turkey's average PISA score would jump by 32 points in reading, and 23 points in math and science (equivalent of 0.5-0.75 year of schooling). Most recently, Ağırdağ et al. (2015) investigated PISA 2012 reading and math scores in Turkey and also found that pre-school attendance is associated with higher academic performance, although the benefits are skewed towards children from wealthy families.

To summarize, the literature builds a strong case in favor of childcare and pre-school expansion in Turkey. The debate is largely focused on the growth-enhancing female labor supply and fertility effects,

as well as on the equity-enhancing benefits to children. However, alternative voices have also emerged, pointing to the persistence of conservative social norms, the lack of work-life balance, as well as the feasible demand-side effects of care sector expansion on employment generation and poverty reduction. They reflect the awareness of the crises of care deepening in Turkey.

3. Institutional context in Turkey

Pre-primary schooling is not compulsory in Turkey. The Turkish Ministry of Education introduced a pre-school education program in 2009. The government encouraged pre-primary attendance of five-year-olds by expanding the number of pre-primary facilities, predominantly nursery classes attached to primary schools, throughout the country. Turkey's Tenth Development Plan for 2014-2018 set the target for the pre-primary enrollment rates of the three- to five-year-old at 70%. In 2014 a law was passed that bound the nurseries to admit four-year-old children, as well as three-year-old children should capacity exist. The government envisions introducing compulsory pre-primary schooling for children aged 54 months and above as of 2019.

BOX 1			
Early childhood education facilities in Turkey			
Nurseries and kindergartens (2015-16)			
	Schools	Classrooms	Students
Total	27,793	58,265	1,209,106
Nurseries	21,005	32,964	725,584
Out of Total	0.76	0.57	0.60
#Public	20,061	29,41	682,012
Out of			
Nurseries	0.96	0.89	0.94
#Private	944	3,554	37,925
Out of			
Nurseries	0.04	0.11	0.05
Kindergartens	6,788	25,301	483,522
Out of Total	0.24	0.43	0.40
#Public	3,074	12,156	329,777

BOX 2			
Early childhood education facilities in Turkey			
Public and private (2015-16)			
	Schools	Classrooms	Students
Total	27,793	58,265	1,209,106
Public	23,135	41,566	1,011,789
Out of Total	0.83	0.71	0.84
#Nurseries	20,061	29,41	682,012
Out of Public	0.87	0.71	0.67
#Kindergartens	3,074	12,156	329,777
Out of Public	0.13	0.29	0.33
Private	4,658	16,699	191,670
Out of Total	0.17	0.29	0.16
#Nurseries	944	3,554	37,925
Out of Private	0.20	0.21	0.20
#Kindergartens	3,714	13,142	153,745
Out of Private	0.80	0.79	0.80

In Turkey, early education facilities are both public and private. Public units belong either to the Ministry of National Education or the Ministry of Family and Social Affairs. Private units must be accredited by one of these bodies. Both public and private facilities charge service fees. Median monthly price of full-day care is 300 TL in public units and 700 TL in private units (IBRD (2015)). In 2015-16 Turkey had 27,793 pre-primary facilities in total (Box 1 and Box 2), which provided 58,265 classrooms. Almost 76% of these facilities and 57% of their classrooms were nursery facilities for four- to five-year-olds, and most of them were publicly provided: 96%. Kindergartens for children of all ages constituted a minority of the available service in 2015-16: 6,788 units and 25,301 classrooms. Most of those were private: Fifty-five percent and 52% of units and classrooms, respectively.

In 2015-16 school year 1,209,106 children were enrolled in pre-primary facilities, the majority in public facilities. Sixty percent were enrolled in the designated nursery classes, 40% in kindergartens. Sixty-seven percent of children enrolled in public facilities attended nursery classes. Eighty percent of privately enrolled children attended kindergartens. A picture thus emerges for Turkey where, while enrollment in early childhood education is very low, the publicly provided pre-primary facilities predominantly cater to older children through the

nursery classes⁷, while younger children rely on private kindergartens. The supply side of childcare in Turkey will be further discussed in section 6.5.

The past decade has witnessed a substantial rise in pre-primary enrollment in Turkey. In 2004-2005 the net enrollment rate for the three- to five-year-old was just above 10%, while it was 33% in 2015-2016 (ERG (2015, 2016)). The enrollment rate for this age group grew to 30% in 2011-2012 and then decreased during the transition to the new 4+4+4 education system. When the government introduced the new system starting in the 2012-2013 school year, it also allowed children as young as 66 months (5.5 years) to enter primary schools. It is not surprising that the enrollment of five-year-olds in pre-primary facilities fell sharply at that time, from 66% in 2011-2012 to 40% in 2012-2013 school year (institutional data, ERG (2016)), as a substantial number of parents chose to enroll children in free primary education rather than paid pre-primary facilities. Subsequently, between 2014 and 2016, five-year-olds' enrollment rate at the pre-primary level improved again and, according to MONE (2016), currently stands at 55%.

4. Data

Turkish Demographic and Health Survey (TDHS), carried out since 1993, is a large nationally representative survey of women in the reproductive age (15-49). In 2013, it surveyed 11,794 households, 6,575 ever married and 3,171 never married women. It contains information on women's reproductive behavior, child health and mortality, women's work and migration history, as well as a rich battery of socioeconomic indicators for households and the interviewed individuals. It also records an array of interesting indicators for intra-household relations, such as the division of house chores, as well as responses to subjective questions concerning gender roles and attitudes towards domestic violence. TDHS 2013 for the first time collected data on the kindergarten and pre-school attendance of children up to the age of five.⁸ Mother records provide information about the enrollment of zero- to four-year-old children in daycare centers, kindergartens or pre-primary facilities. Household records tell if children aged four and above are enrolled in pre-primary or primary school, which allows identifying children aged five who are already in primary school rather than organized pre-primary care.

From the household and mother records in TDHS 2013, I construct a dataset of children aged zero to five as of September 2013⁹. There are 4,363 of such children. They spring off 3,220 mothers. As TDHS samples women aged 15-49, missing out on children born to mothers above this age is unavoidable. However, it would mean that a woman would have given birth at the age of 45 or above. The proportion of women giving birth after this age is miniscule in Turkey. The fact that young children, up to the age of five, are studied here also means that mothers in the sample are relatively young – on average 31 years old, their reproductive histories are not complete and hence the results obtained below cannot be generalized to the society as a whole.¹⁰ I start by constructing a snapshot of mothers' attitudes to early childhood education and care, and analyze the enrollment data for zero- to five-year-olds. I then analyze formally the pre-primary and primary enrollment of children aged three to five. My final sample

⁷ This conclusion follows because most nurseries still rarely admit children below the age of four. In 2013, at the time of the DHS, nurseries catered only to five-year-olds, as mentioned in the first paragraph of this section.

⁸ Throughout this paper I use the following age classification by years (months): 0 (0-11), 1 (12-23), 2 (24-35), 3 (36-47), 4 (48-59), 5 (60-71).

⁹ TDHS surveys were carried out from September to December 2013; hence, at the time of the survey some children aged zero to five in September 2013 were already six years old.

¹⁰ The results must be interpreted as reflecting the behavior of young parents at a particular stage in the lifecycle. A generalizable result would be obtained if women that have completed or are close to the completion of their reproductive cycle answered questions about early childhood education of their children (children that might now be much older than 5). Such data set is not available in Turkey.

contains 2,172 children (both non-enrolled and enrolled in pre-primary and primary schools) aged 36-71 months as of September 2013.

5. Explanatory variables and rationale behind them

Child, parents and household

A wide range of child, mother and household characteristics is extracted from TDHS. Child is characterized by age and sex. Age is an important determinant of enrollment as the parental perception of child's readiness to attend organized care is strongly affected by child's age. Child's sex might also matter if there is son preference, if parents hold differential views about sons and daughters with respect to their ability to cope in an external environment, or if the returns to educating boys and girls differ. For mothers the following information is retained: their age, the years of schooling, if they are literate, their ethnicity (based on mother tongue), if they are proficient in Turkish, if they are working and, if so, in which sector – agriculture, industry or services. Older, more educated mothers, especially working mothers and those outside agriculture, as well as mothers more rooted in social networks, might be more inclined to appreciate early childhood education for their children. I also create an indicator of mother's migration status that records if mother migrated out of the province of her childhood (at age twelve), if she migrated but later returned, or never migrated. Women with migration history may be more detached from the local labor market, more likely to be housewives and hence take care of children themselves. They might also be more distrustful of services provided in the unknown environment. For fathers (or step-fathers) I retain the years of schooling and occupational status. As in the case of mothers, more educated fathers might be more cognizant of the benefits of early childhood education. Their occupational status is coded as in agriculture or otherwise. Father's occupation in agriculture, apart from the possibility that their wives are also in agriculture and may look after children themselves, might imply a need for child labor. Children in my sample are young and, although child labor is unlikely in their case, it certainly cannot be dismissed, especially for children aged five. To control for household's permanent income, I use the wealth index constructed by TDHS based on household's assets and amenities, such as lodgings, sanitation, automobiles, or electronic devices, among others. I use the wealth index divided into wealth quintiles. Wealth is likely to matter in childcare decisions because childcare services remain expensive in Turkey, beyond the willingness to pay of the majority of parents.

Residential and regional variables

Residential information contains the rural-urban distinction and the region of residence. Urban areas are settlements with population above 10,000 inhabitants. Urban-rural distinction, when other factors such as parental education, occupation, wealth, family composition or conservatism are controlled for, could reflect access to facilities. In rural Turkey, pre-primary facilities are fewer and thus access to them might be harder. In 2003-2014, at the time TDHS 2013 was conducted, only 11,216 out of 63,327 pre-primary level teachers and 12,381 out of 50,466 pre-primary level classrooms were based in rural areas (MONE (2014)). However, it is the metropolitan areas where the congestion in the form of students per facility (IBRD (2015)) or in the form of eligible three- to five-year-old children per teacher or classroom (section 7.5 below) is highest in Turkey and might affect the parental perception of the quality of service. Moreover, contrary to the common wisdom, commuting to facilities may be in fact harder in the congested urban settings where public transport is insufficient or inconvenient. It is also worth noting here that the urban-rural distinction in TDHS (below and above 10,000 inhabitants) is too crude to truly reflect the heterogeneity of rural areas and, at the very least, must be interacted with region. Rural experience in Western Turkey, for example, might be very different than that in the East.

I use five-region classification for Turkey – West, South, Central, North and East.¹¹ Regional dummies may proxy for the general level of regional development. They may also reflect on the supply of pre-primary facilities. In fact since 2009, Turkish government has substantially expanded the provision of pre-primary facilities, starting with Western, Southern and Northern Turkey in 2009-2011, followed by Central and Eastern Turkey in 2011-2013.

Marital structure and extended family

TDHS allows controlling for the parental marital structure – mother’s age at first marriage, if mother is currently married, if she has been married more than once and if child’s actual father is part of the household. Mothers who marry later might have a different bargaining power in the household and affect childcare decisions in the direction of their own preferences; women who are divorced or widowed, as well as those that have remarried may also have a distinct decision making capacity. The absence of child’s father, and the presence of a stepfather for example, could also matter with respect to the choice of childcare and pre-school. To describe the extended family, three alternatives are used: the number of household members aged 15 or above, the number of female household members aged 15 or above, and an indicator if at least one grandmother is present in the household. The extended family variables are important in the Turkish context where family remains a crucial support institution. Household members aged 15 and above are more likely than the younger ones to be at home, and female household members are more likely than male ones to be substitute caregivers. Moreover, considering family members as young as 15 accounts for the fact that older children in Turkish families perform childcare functions. Accounting for the presence of a grandmother is natural as grandmothers are the most likely substitute to babysitters and organized daycare in Turkey.

Sibship

I make use of mother’s reproductive histories collected by TDHS to recover child’s sibship structure. First, I record if child comes from a multiple and, if so, if he or she is a twin, triplet or quad. This stands for the presence of siblings with no spacing between them, which might put an unusual stress on family resources. Sibship size is the number of living siblings, excluding the child itself. Sibship size up to the age of five is the number of living siblings aged five and below, excluding the child itself. A higher number of children in the family leads to more children competing for the limited resources¹². A higher number of children aged five and below might make it particularly problematic for the family to attend equally to the early education needs of each child. Naturally, families that have multiple births also are more likely have a higher number of children on average, and below the age of five; hence, my multiple and sibship variables will be correlated. For this reason the indicator of multiple should be seen as communicative about child spacing.

Birth order

I account for child’s birth order by creating a parity index. Birth order is the order in which children are born – the first-born are of order 1 and subsequent children have higher birth orders: 2+. Birth order is important because parents may have different attitudes to their first- and later-born children; they may also feel more experienced caregivers later in life. First-born and later children also grow up in different environments in terms of surrounding children, or even grandparents, and their upbringing might be affected accordingly. Moreover, children of higher parity are more likely to grow up at a later stage in their parents’ life cycle when resource constraints could be less binding. Parents may also perceive different net returns to educating children of different parities. In this spirit, parity may affect childcare

¹¹ TDHS records regional residence at NUTS-1 level (twelve regions). Unfortunately, because my sample of children is relatively small, or rather because the enrollment rates are low, using NUTS-1 classification in the regression puts too much strain on the data. I, therefore, use the broad five-region classification.

¹² Because childcare/preschool and sibship size are jointly determined in families, the results in this paper cannot be generalized in the context of quantity-quality trade-off in childbearing and childrearing.

differently in families in different wealth quintiles. My parity index, following Dayioğlu et al. (2009), forces birth order onto a $(0,1)$ interval using the formula that expresses birth order relative to live births given by the mother.¹³ I correct child's birth order for the presence of multiple births; hence, all twins, triplets and quads in my dataset end up having the same birth order. Relating birth order to live births rather than the number of living children helps reduce collinearity between parity and sibship size, which arises because children in large families are also more likely to be of higher birth orders. Single children in my sample are assigned parity 0 rather than 1. Although they are at the same time first- and last-born, mothers in my sample are young and their reproductive histories are likely not yet complete – those single children may have further siblings later on.

Sex composition

Finally, the sex composition of siblings is investigated because parental attitudes to child's early education might be affected by whether the siblings are mostly boys or girls. Moreover, parents might treat male and female children differently, depending on the sex composition of siblings. Sex composition may also play out differently in families with different wealth levels because the costs of and return to educating boys and girls, both psychological and monetary, differ. I express sex composition as the fraction of boys in the sibship, including the child itself. Using the fraction of boys rather than their absolute number removes the effect of sibship size on sex composition. An example of the mechanism that affects both sibship size and sex composition is parental preference for male children - parents continue reproduction until a boy is born; hence, in large families, sex composition will skew towards girls. Another difficulty arises when single children are included in the sample, as sex composition for single children is identical to child's sex dummy. This means that sex composition and child's sex variables are correlated. I, therefore, additionally consider sex composition expressed as the fraction of boys in the sibship, excluding the child. This alternative is used in a specification where the sample used in the estimation excludes single children.¹⁴

Index of conservatism

A unique feature of TDHS is that it provides answers to a number of objective and subjective questions that allow me to construct an index of social conservatism. This index attempts to capture the social norm that may affect household's decision on how children are cared for. There exists evidence that social conservatism assigns women specific roles, as mothers and caregivers at the domestic core rather than as workers in the labor market. Therefore, socially conservative families may be more prone to care for young children at home. The index runs from 0 to 1, with 1 standing for most conservative. The index and its sub-indices – unless otherwise stated - are created using the principal component method to account for the fact that the variables entering the index are correlated and must be weighted. The variables that form the basis of the index are listed in Table A1 in the appendix. Their levels will be discussed in the next section.

The index of conservatism is constructed from five sub-indices. All variables that constitute the index are coded 0 or 1, with 1 standing for the socially conservative answer. The first sub-index reflects mother's opinion about gender roles based on her answers to subjective questions such as, for example, if important decisions should be taken only by men, or if it is better to educate boys than girls.¹⁵ The second sub-index reflects woman's acceptance of domestic violence and takes the value of 1 if mother accepts at least one instance when domestic violence is justified. The third sub-index derives from the answers to the questions about husband or partner's controlling behavior. Here women are asked, for example, if their partners prevent them from seeing friends and relatives, or monitor their whereabouts.

¹³ Formula for parity is $(i-1)/(N-1)$, where i is child's birth order and N is the number of live births of mother.

¹⁴ Specification without single children also removes the problem of coding parity for single children.

¹⁵ Some women answer "Don't know". I code such answers as conservative = 1 because, as these questions are normative, uncertainty about the rights of woman is in itself an admission of social conservatism.

The fourth sub-index measures husband’s non-involvement in domestic chores that are traditionally perceived as feminine, such as cooking or spending time with children at home. I exclude from the index some activities that belong traditionally in the man’s domain – budgeting, official business, repairs and shopping. To each answer I assign the value of 0 (progressive) if husband, or husband and wife together, perform the task. I assign the value of 1 (conservative) if husband is not at all involved in the specific chore. The final sub-index concerns the family background of the couple and is constructed from seven elements related to consanguinity in the family, the modality of marriage arrangements and parental literacy.

6. Early childhood education and care in Turkey – A snapshot

In this section, answers to a number of objective and subjective questions in TDHS are used to construct a picture of attitudes to the care of zero- to five-year-olds in Turkey. It is followed by the summary of enrollment data for zero- to five-year-olds and descriptive statistics for the final sample of three- to five-year-old children and their families.

6.1. Attitudes to early childhood education and care in Turkey

Turkey belongs to the “patriarchal belt” stretching from South Asia through the Middle East to the Mediterranean (Kandiyoti (1980)) where family units tend to be corporate male-headed entities and where women are relegated to the strict roles in the domestic sphere. In this section I gauge to what extent home making and childcare still remain within women’s domain in Turkey based on the survey of 3220 mothers of zero- to five-year-old children in TDHS.

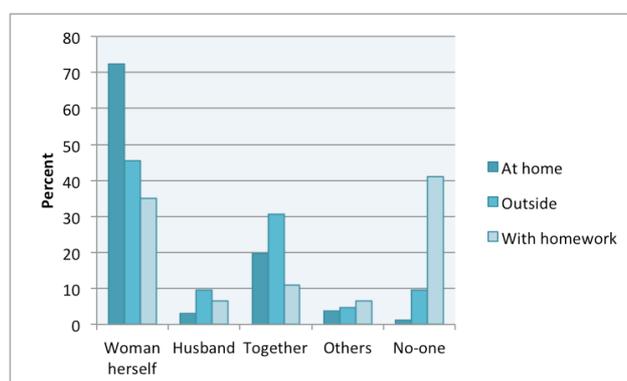


Figure 1. Who spends time with the child

The first observation that emerges is that childcare remains essentially a woman’s issue in Turkey. Figure 1 (as well as Table 1) shows who usually spends time with children at home, outside and who helps them with homework. Seventy-two percent of women care for their children at home alone, and only 20% together with their husbands. The allocation of time is more equitable outside the house. Almost 10% of fathers are involved, and 31% of parents do it together. Mother is nevertheless still the dominant carer – 46% of the mothers are the main adult who takes children outside. As far as child’s homework is concerned, mostly no one (41% of cases) attends to it, followed by mother (35%) or mother and father together (11%). High share of no one most likely reflects the fact that children in my sample are young and might have no homework. Still, when homework requirement exists, it is predominantly the woman who assists with it.

Only 23% of mothers in my sample work (Figure 2, Table 2). This is below the average female labor force participation rate of 30% in Turkey because mothers in the sample are those with small children and thus are likely to be out of the labor market on account of childcare. Indeed, when asked about their reason for not working, 42.5% of non-working women point to caring for children as the primary cause (Figure 3, Table 3). Substantially fewer women describe themselves as permanent homemakers or housewives, 23%.

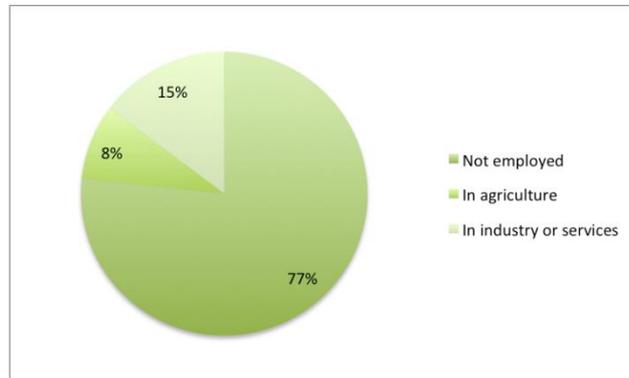


Figure 2. Mother's employment status

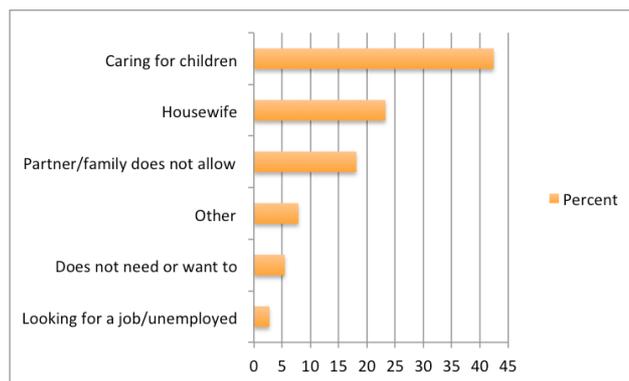


Figure 3. Non-working mothers: Reason for not working

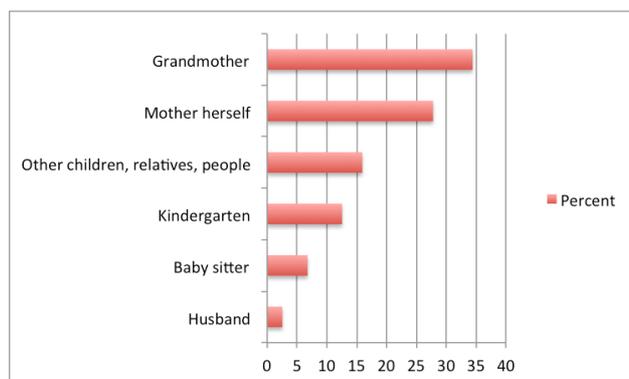


Figure 4. Working mothers: Who cares for the youngest child

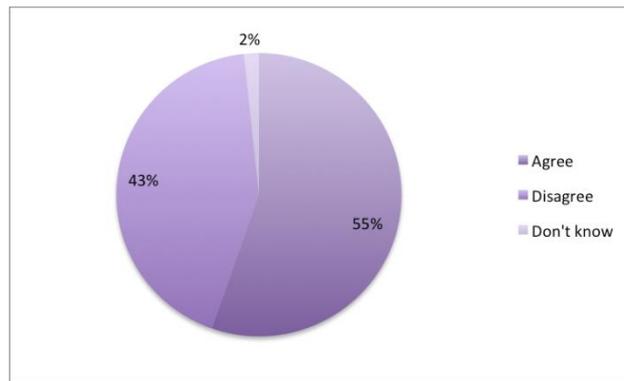


Figure 5. Woman should not work if she has small children

Working mothers, on the other hand, must presumably outsource childcare to another person or institution. Not surprisingly, the focal support source is the extended family – grandmother in 34.5% of the cases and other children, relatives or persons (e.g. neighbors) in 16% of the cases (Figure 4, Table 4). Preference for kindergarten and babysitter is low – 12.5% and 7% respectively. Father is the least expected carer. Surprisingly in 28% of the cases, mothers care for their children themselves while working. This is less of a contradiction when one recognizes that 15% of the working women in Turkey are in agriculture. Another 16% work from home or someone else’s home, and these are in 80% of the cases women outside agriculture. Thus, a substantial fraction of mothers is able to perform the double function of worker and carer at the same time.

When asked if woman should not work if she has small children, the majority of women (57%) agree or are not sure (Figure 5, Table 5A). Overall, TDHS provides the picture of childcare and attitudes to childcare that is very similar to that emerging from the studies of Paker and Uysal (2015) and IBRD (2015): Childcare remains in the woman’s domain and women themselves believe that it should be so. Hence, most Turkish women experience an inner conflict about work and childcare, as documented by Paker and Uysal (2015).

Given that 77% of mothers in my sample do not work (Figure 2) but only 57% agree or do not know if woman should not work if she has small children (Figure 5), there exists a potential target group of mothers who have children aged zero to five, who are not working, but would be willing to do so. This group might be most willing to send children to organized care, if their children are not yet enrolled, and could be targeted by policy. Table 5B tabulates the mothers in the sample by their working status and inner conflict about work and childcare. Nine hundred ninety-four mothers (40% of 2,446 non-working mothers) do not have the inner conflict, yet they do not work. These women constitute 31% of all mothers with children aged zero to five (Figure 6). By far the largest group of women (46% of all mothers) are those that both agree that woman should not work when she has small children, and do not work.

Table 6A breaks down the target group by the age of the youngest child. As expected, the majority of these women have children below the age of three. Eight hundred seventy-two out of 994 youngest children aged zero to five (87.7% of the group) are not enrolled. Their mothers constitute 27% of all mothers in my sample and are characterized in Table 6B. They cluster in the three bottom wealth quintiles. Even if targeted by policy, however, these women might not be willing to enroll their children in organized childcare as most parents in Turkey declare that children below the age of three should be cared for at home by their mothers. Some of them will enroll their children in daycare once the children reach the age of three and above, as is common in Turkey. Others, especially the poorest, will not be able to afford childcare at all.

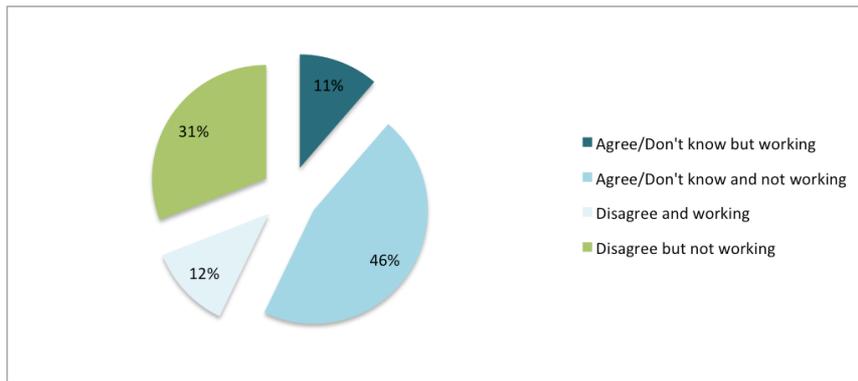


Figure 6. Woman should not work if she has small children, by working status

Instead, 244 of 365 youngest children aged three to five (66.8% of the group) are not enrolled in any early childhood education. Their mothers constitute 7.6% of all mothers in my sample and could be the first to be targeted by an awareness campaign, for example. Table 6C characterizes these mothers. The shares of bottom- and top-wealth mothers fall, comparing to Table 6B, as these women are most likely to return to work. It emerges that the problem group are all families below the top quintile. Both the bottom and fourth wealth quintile families constitute close to 19% of the problem group. By far the largest shares constitute families in the second and third quintile, 25% and 26% respectively.¹⁶

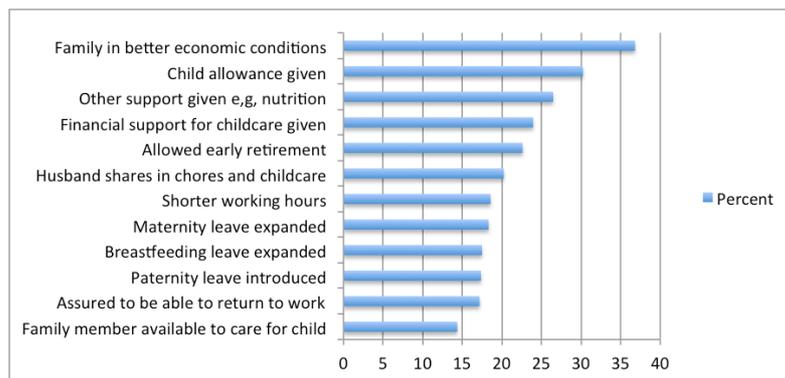


Figure 7. Childcare and fertility decisions

TDHS also allows shedding some light on the nexus between childcare and fertility. Approximately half of the women in the sample do not want to have more children (1567 out of 3220). When asked when they would change their mind, they view fertility very much as an economic decision (Figure 7, Table 7, multiple answers were possible). Thirty-seven percent of those mothers would require better economic conditions for their families. Child allowance and other material support come next, favored by 30% and 26% of women, respectively. Financial support for childcare ranks fourth, with 24% positive replies. Only 20% of women would require their husbands to share more in the care and domestic duties. The availability of a family member to care for a child ranks last, with only 14% positive replies. Issues related to working conditions, as well as maternity and paternity leave, also

¹⁶ Policy implications will be discussed in detail in section 9. Different policies may be needed for different wealth groups. Middle-income families, especially those in third and fourth wealth quintile, could be targeted by awareness campaigns - only such families might have sufficient willingness to pay for the service at the currently prevailing prices in Turkey. Mothers in such families have on average seven to eight years of schooling and their households are mainly located in urban areas. Poorer households, at the bottom and second wealth quintile, might instead require very different policies that improve the availability and affordability of childcare.

come secondary. It might, therefore, be unlikely that a limited policy intervention in the form of childcare vouchers alone, for example, would result in a substantial increase in the uptake of organized childcare and fertility reversal. Similarly, easier access to an additional carer alone is not the key to higher fertility – women understand very well that childbearing is costly and expect a holistic financial support.

6.2. Enrollment of the zero- to five-year-old in early childhood education and care

Table 8A summarizes enrollment numbers for my sample of children aged zero to five. For children aged zero to four, the type of facility they attend is known. For children aged five, I only know if they attend pre-primary or primary school, without the distinction by the type of facility at the pre-primary level. Only half a percentage of children aged zero to two attend any form of organized childcare. This is miniscule, given that the OECD average enrollment for this age group is 35% (OECD (2014)). Children in Turkey start attending at the age of three – 9% of them - mostly in daycare centers. The enrollment of four-year-olds is already much higher at 34%, mostly in kindergartens. In 2013, 74% of five-year-olds attended formal education but the majority of those (44%) were already at primary schools rather than at pre-primary facilities (30%).¹⁷

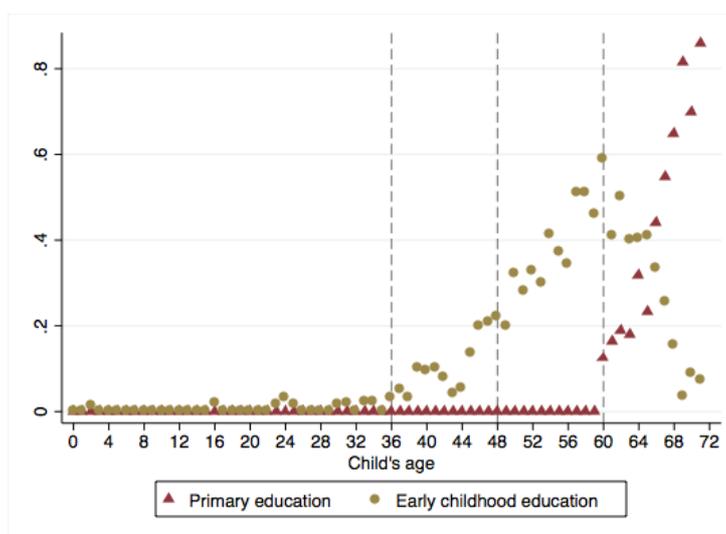


Figure 8. Enrollment in early childhood education: Age in months as of the start of the school year.

Figure 8 shows the fraction of children enrolled in primary and early childhood education by age in months. Thinking about child’s age in months is more suitable when early childhood education is concerned because even a small variation in age may affect child’s preparedness to attend a facility, and the parental perception of it. The attendance starts picking up after child’s 36th month and rises steadily until child’s 60th month. At this point it starts to taper off, while enrollment at primary schools begins to rise. When TDHS was carried out in 2013, children were allowed to enter primary school if

¹⁷ It should be pointed out that TDHS 2013 was collected one year after the implementation of “4+4+4” education reform, which lowered the primary school starting age to 66 months. Due to the reform, pre-primary enrollment of five-year-olds dropped sharply in 2012-13 and only just began to recover in 2013-2014 when TDHS was collected. Between 2014 and 2016, MONE reports a rebound in five-year-old enrollment rates. It means that the picture of 44% vs. 30% for primary vs. pre-primary enrollment seen in this wave of TDHS might no longer be so pessimistic. It is nevertheless still likely that different types of children enroll in either, which is the subject of this study.

at least 66 months old in September. However, parents could send children as young as 60 months to primary schools if they obtained a medical certificate stating child's readiness to attend. With a medical certificate, parents were also allowed to delay child's entrance to primary school until child's 72nd month of age.

The reality of enrollment in early childhood education in Turkey precludes me from analyzing formally the determinants of childcare before the age of three as very few children of this age attend any form of facility. In what follows, I therefore focus on children aged three to five. My final sample is 2,172 children aged three to five (Table 8B). They come from 1125 mothers. Out of these children, 60% are not enrolled, 25% are enrolled at the pre-primary level and 15% are already at primary schools. Table 9 summarizes the key enrollment differentials. Urban children are 10% more likely than rural children to be in pre-primary education. Children in Turkey's East are substantially less likely to be enrolled, comparing to all other regions. Otherwise, regional differentials are not too large, at most 6%. The largest urban-rural differential exists in Turkey's North and South. Urban-rural differential is very small in the East, only 3%. Children coming from Turkish families are almost twice as likely to attend pre-primary facilities, compared to Kurdish and Arabic children. Enrollment varies a lot with family's wealth. Those in the top wealth quintiles are a select group that is substantially more likely than others to be enrolled at the pre-primary level. Pre-primary enrollment differential even between the richest children (top quintile) and upper-middle-class children (fourth quintile) is more than 20%. The differential between upper-middle-class children (fourth quintile) and middle-class children (third quintile) is already much smaller, only 8%. Yet, even the enrollment rate of the richest children in pre-primary facilities is only 56%; it goes down to 33% in the fourth and 25% in the third quintiles. The two bottom quintiles show very low enrollment rates – 13% and 18% respectively. There is thus room for improving pre-primary enrollment both of the middle-class and poorer children. The differential by child's sex is negligible.

6.3. Descriptive statistics

Table 10 contains the descriptive statistics for the sample, by the type of facility child attends. It is not surprising that children differ in age when attendance is concerned. Children in pre-primary units are on average eight months older than the non-attending ones and 10.5 months younger than those in primary schools. The mothers of pre-primary pupils are only slightly older than the others, but they have approximately three more years of schooling and are substantially less likely to be illiterate. Turkish ethnicity dominates at the pre-primary level, and so do the children of working mothers. Thirty-six percent of children with pre-primary attendance have working mothers, as opposed to 20% and 25% for the non-attending and primary school pupils, respectively. These mothers are also less likely to work in agriculture and more likely to be employed in industry or services. The fathers (or step-fathers) of pre-primary students are also more educated than the others (at least 2.5 more years of schooling) and less likely to work in agriculture.

The households of children who attend pre-school are richer, by about 60-70 points of the wealth index, which is approximately 0.7 of the standard deviation of wealth. Looking at wealth quintiles, 30% of pre-primary enrolled children come from the top wealth quintile, while only 7% and 10% do, respectively, if not attending at all or attending a primary school. Children enrolled in pre-primary facilities are 9-11% more likely to live in urban areas. They also draw significantly from the Western part of Turkey. Similar fraction, 26%, of the pre-primary pupils also draw from the East but this is the artifact of the population dynamics – families in the East have higher fertility rates and a large number of children in the sample live in the East. Note that the highest fraction of not attending and primary school children, 40% and 38% respectively, also come from the East.

Parental marital structure does not exhibit much variation, except that the mothers of children in pre-primary care married 1.5-2 years later than the others. Extended family variables are interesting –

children in the middle column live in households with fewer members aged 15 and above, and are less likely to have a grandmother present. They also have fewer siblings, are more likely to come from a multiple birth and be born earlier. The mothers of children in early childhood education are less socially conservative on account of every sub-index of conservatism, as well as the composite index overall. Table A1 in the appendix provides the averages for every variable in the index, as well as tests if the differences in the means for the pre-primary and primary enrolled are significant relative to the non-enrolled. Except husband's controlling behavior, the mothers of children in pre-primary units are significantly less conservative than the mothers' of not attending children. No such significant difference exists for the mothers of children enrolled in primary schools.

Finally, 44% of the mothers of children in the middle column migrated out of their province of origin, comparing to 38% and 37% of the mothers of non-attending and primary school children, respectively.

7. Methodology

The descriptive statistics indicate that there are important differences in the characteristics of the parents and households of children not attending and attending different facilities. Below, I study if and in what way these differences account for child's enrollment in pre-primary education, as opposed to not attending any facility or attending primary school instead.

On the pooled sample of three- and four-year-olds, when there are two possible outcomes (not attending or attending pre-school), I estimate a logit model in order to study the probability of a child to attend pre-school. I run a regression on the sample of the 36-59-month-old (age as of September 2013) and then calculate the average marginal effects (AME) for two sub-samples: the 36-47 and 48-59-month-old. Ideally, I would like to have two stand-alone estimations by age, separately for three- and four-year-olds. However, there are rather few three-year-olds attending pre-primary education in my sample, making a stand-alone estimation by age difficult. The full output from the regression is reported in the form of odds ratios for the probability of attending pre-school versus not attending in the appendix.

For five-year-olds (60-71-month-old as of September 2013), I estimate a multinomial logit model because this age group has three possible outcomes (not attending, attending pre-school, attending primary school). Here, I estimate the probabilities of a child to attend pre-school and the probability of child to attend primary school, and calculate the average marginal effects for the two outcomes. The full output from the regression is reported in the form of odds ratios for the probability of attending pre-primary versus primary school in the appendix. Both in the logit and multinomial logit estimations, the standard errors are clustered on mothers as some mothers have multiple children.

A number of models are estimated by including explanatory variables step-wise. All specifications are listed in Table 11. In all cases, I control for child's age in months (as of September 2013) as well as the month of the survey. I start with the baseline (Model A) containing child's sex, mother's age and age squared, mother's schooling, and the controls for mother's literacy, ethnicity, and Turkish language proficiency. I add household wealth and interact it with child's sex as families with different economic status might treat sons and daughters differently. Next, I account for the residential and regional variables (Model B). I also interact the residential status with child's sex (again the treatment of boys and girls might be different in urban and rural areas) and also with regions (rural experience is likely very different in different parts of the country). In Model C, father's or stepfather's schooling is added.

Model D controls for the parental marital structure. Models E, F and G explore alternative specifications for the extended family. I retain Model G with the indicator of grandmother present and construct model H with the variables related to sibship. I have included each variable stepwise to see its own effect but, in the interest of space, I report the composite model H with the full battery of sibship controls. In particular, following the related literature, both parity and parity squared are used, as the effect of birth

order might be non-linear. I interact both with wealth because the effect of parity is likely to vary with family's socioeconomic status. Sex composition is also interacted with wealth, child's sex, and then both of those, as the effect of sex composition may play out differently depending on household's status and child's sex.

Models I, J, K and L explore different measures of conservatism – starting with the simplest indicator of mother's belief about the relative importance of work and childcare; followed by the sub-index of mother's beliefs about gender roles more broadly; her acceptance of domestic violence; father's non-involvement in chores; and finally the composite index of conservatism. I have run alternative regressions with all sub-indices of conservatism but, in the interest of space, I do not present those when partner's controlling behavior and family background are used, as they add nothing distinct in terms of result. Model M controls for mother's migration history. Model N combines all child, household and regional variables with conservatism and migration.

Last, parental occupational variables are included. Model O includes mother's employment status. Father or stepfather's occupational status enters Model P. For the reasons that I will elaborate on subsequently, model O without father's occupational status is a preferred one. It will be the basis for the inclusion of some supply side variables – teacher and classroom ratios – in Models Q and R.

Before proceeding further, it is necessary to stress that the relationships that will be established below cannot be interpreted as causal, but rather should be thought of as conditional correlations. Many of the variables entering the regressions are endogenously determined. For example, some unobservable characteristics of households may affect both the child education decision and woman's employment status. Therefore, the average marginal effect of mother's work status tells us to what extent mother's employment status is still correlated with pre-primary enrollment, after controlling for other characteristics of the mother and household. Similar issue arises in other cases, especially in the case of the sibship structure. Because sibship size and education decisions are made jointly in the families, the results below cannot be generalized in the wider context of quantity-quality trade-off in childbearing and childrearing. One must therefore be cautious in drawing conclusions and must discuss the plausibility of the results. Finally, as already mentioned above, the reproductive histories of mothers in the sample are not complete as mothers are young, on average 31 years old, with young children, and the result could be different if the data on women with complete reproductive cycles were available.

8. Analysis

This section discusses how child's probability to attend pre-primary education is affected by different household and family characteristics. I start with three-year-olds; then I move to four- and five-year-olds. Next, I discuss a number of nuances resulting from the interactions in the regression. I also attempt to check if supply-side matters for enrollment. To this end, the ratios of three- to five-year-olds to teachers and classrooms at the province level are included. Finally, the predicted probabilities of enrollment by child's age are presented.

8.1. Demand for early childhood education of the three-year-old

The outcome of the logistic regression for three- to four-year-olds, with all interactions and in the form of odds ratios, is provided in Table A2 in the appendix. Because the interpretation of coefficient and odds ratios from a logistic regression is not straightforward, I present the average marginal effects of individual variables. Marginal effects should be interpreted as a change in the probability of a child attending pre-school when an explanatory variable changes by one unit.

The results of the pooled regression are used to calculate the marginal effects for 36-47-month-olds. They are presented in Table 12. A surprising observation is that child's sex is not important. In the

literature on school enrollment, child's sex tends to be a crucial determinant of enrollment, but it does not seem to matter at this early age. Out of mother's characteristics, the most persistent is the effect of mother's schooling, highly significant at 1% level. An additional year of mother's schooling increases the probability of her child attending pre-school by 1%. The effect of father's schooling is close to zero. Mother's age matters but its effect is also tiny, close to zero. Out of the household characteristics, not surprisingly, wealth is a crucial determinant of pre-primary enrollment. Children in the third wealth quintile are 5% more likely than those in the bottom quintile to be enrolled at pre-primary facilities. The probability of attendance of children in the fourth and fifth quintiles is even larger – 8% and 10% higher, respectively, comparing to children at the bottom of the wealth distribution.

Rural residents are as likely as urban ones to send three-year-olds to daycare. Children in the North are more likely (by about 4-5%) to be enrolled at this age, comparing to children in Turkey's West (West is the base category for the purpose of comparisons). The effect of the North persists throughout all the specifications, mostly at 5% level of significance. It may be related to the fact that the first wave of the expansion of pre-school facilities started in northern provinces. It may also reflect North's higher female labor force participation. Indeed when mother's work status is controlled for, the significance of the North falls. Parental marital structure and extended family do not seem to be important. The fact that even grandmother's presence is not important is telling – the presence of substitute carers might not affect much the decision to send child to daycare at such a young age. What seems to matter is parity – the order in which child was born. Being born last rather than first decreases the probability of enrollment by 12%. The effect persists throughout all the specifications. This may be behavioral, a result of parental attitudes to children born later being different than to the first-borns. Alternatively, parents may see themselves as more experienced carers when subsequent children are born. It also may reflect the wealth accumulation over the life cycle. Later born children might also be born at a time when parents have already accumulated sufficient wealth to afford private babysitting, for example¹⁸. Parity and wealth will be discussed in more detail below.

Ethnicity and conservatism are generally not significant throughout, so is mother's migration status. After controlling for the socioeconomic characteristics of the household and family, mother's work status remains significant. The children of mothers working in services or industry are 6-7% more likely to attend daycare at age three, comparing to the children whose mothers are not employed or work in agriculture. Father's occupational status is not significant. Controlling for father's occupational status is a natural step; however - in the case of this dataset – it is problematic. In TDHS, women report their partners' occupational status. As in the case of any other variable reported by a woman on behalf of her child or spouse, a measurement error is likely to arise – woman may answer incorrectly. Here, however, a larger problem is the missing data. Table A4 in the appendix shows that father's occupational status is missing for 195 children, which is close to 10% of the sample. Important is the socioeconomic status of the missing observations. They come systematically from lower socioeconomic backgrounds. They draw from households in which women work in industry and services, mostly in urban areas, but have low schooling, as do their spouses. They come predominantly from the bottom wealth quintile. Therefore, the inclusion of paternal occupational status is likely to bias some coefficients, such as on wealth for example, because a substantial fraction of poor households will not be accounted for. Consequently, I remain cautious in interpreting the estimates from Model P.

8.2. Demand for early childhood education of the four-year-old

Table 13 shows the average marginal effects for 48-59-month-old children. The key observation is that enrollment in early childhood education is much more elastic for four-year-olds than three-year-olds –

¹⁸ Because the analysis is not strictly causal, the result may also partially reflect the fact that mother is more likely to stay at home if she has more than one child. However, this effect is likely to be very small because a large battery of factors affecting female force participation, including the number of children, have been controlled for.

the effect of a unit change in a number of variables commands a higher impact on the probability of a child attending daycare. This is not surprising, given that parents in Turkey start considering their children ready to attend organized facilities around this age. The supply of facilities catering to four-year-olds is also larger.

Child's sex is still not an important factor, as earlier. Mother's schooling is now more crucial – an additional year of mother's schooling increases the probability of child attending pre-primary facility by 3%. It was 1% for three-year-olds. The effect of father's schooling is also more important for four-year-olds. An additional year of father's schooling increases the probability of pre-primary attendance by 1% for four-year-olds. Mother's age is also more important – an additional year of age increasing the probability of child's enrollment by 1%. Wealth remains crucial. In fact, the magnitudes of its effect are substantially higher than for three-year-olds. Third, fourth and fifth quintile households are 12%, 14% and 19% more likely, respectively, to send children to pre-primary schooling than the households with the lowest wealth.

Residential variable is puzzling. Rural children are 7-8% more likely than urban ones to be enrolled at the age of four. This could be interpreted in a number of ways. Perhaps access to pre-schools, in spite of their lower numbers in rural areas, is better on account of lower congestion in terms of students per facility outside metropolitan areas, as well as fewer inconveniences related to urban living (traffic or public transport). Another explanation is more likely, however. Rural dummy becomes significant across the models after the extended family and sibship are controlled for. Families in rural areas are larger than those in urban centers, both in terms of the extended family that could serve as a substitute to organized childcare, as well as in terms of the sibship that competes for the available resources. This is the reason why rural children might be less likely to be enrolled than urban children overall but, once such circumstances are controlled for, the disadvantage is reversed. Rural differentials by region will be further discussed below in section 8.4. As in the case of three-year-olds, children in the North are still more likely to be enrolled, comparing to children in Turkey's West, but the effect is only weakly significant. In the sibship structure, only parity is highly significant - as for three-year-olds, last children are 12% less likely to be enrolled – but the inspection of the log likelihood in Models G and H (Table A2 in the appendix) points to sibship being jointly an important determinant of enrollment.

Kurdish families seem to be 7% more likely to send their children to childcare, however this effect is only weakly significant and not robust across specifications. Conservatism remains non-significant; so does mother's migration status. However, mother's work status is more important for the enrollment of four-year-olds than three-year-olds. Even after the inclusion of a wide range of controls, mother's employment in industry or services is associated with 16% higher probability of a child being in pre-school, comparing to not working women. It was only 6-7% in the case of three-year-olds.

8.3. Demand for early childhood education of the five-year-old

Five-year-old children may find themselves in three potential states – not attending any facility, attending a pre-primary school or attending a primary school. Table 14 shows the marginal effects of explanatory variables on the probability of child's pre-primary enrollment as opposed to all other options – non-enrollment and primary school enrollment. Table 15 shows the marginal effects of explanatory variables on the probability of child's primary enrollment as opposed to all other options – non-enrollment and pre-primary enrollment. Table A3 in the appendix shows the effect of explanatory variables on the odds ratio for the probability of pre-primary enrollment relative to the probability of primary enrollment. I focus on marginal effects and only in interesting cases revert to the odds ratios.

Child's sex matters neither for pre-primary nor primary enrollment. Mother's years of schooling remain important for pre-primary enrollment – an additional year increases the probability of child's enrollment in pre-school by 2%. This is in-between the effects observed for three- and four-year-olds, which is reasonable – demand for care is inelastic at very young age, it is very elastic with respect to

socioeconomic status for four-year-olds and becomes again less dependent on parental background at the age of five when enrollment of children in some sort of schooling is already widely accepted, and pre-primary facilities are more readily available. Mother's schooling does not affect primary enrollment. Mother's age is no longer important, and so is not father's schooling. An interesting observation is that wealth is no longer such an important determinant of enrollment for five-year-olds, either. High wealth still increases the probability of pre-primary enrollment and decreases that of primary enrollment, but the effect is in general weakly significant.

Rural-urban distinction is not important and there is very little evidence that regional distinctions matter either. The inspection of odds ratios and residential-regional interactions in Table A3 in the appendix reveals nothing substantial. Children in the South are slightly more likely to attend pre-school rather than primary school, but this is no longer the case when maternal occupation is controlled for. Marital structure again matters little, but the extended family starts to play a role. The presence of grandmother decreases the probability of child's enrollment in a pre-primary facility by 6-7% and increases the probability of child's enrollment in a primary school by 7-8%. The inspection of the odds ratios in Table A3 shows that the presence of grandmother reduces the odds of pre-primary relative to primary enrollment by about 50%. Although the significance of this effect is low, it is interesting. Age five is an operational age at which the majority of parents weigh the costs and benefits of sending their children to an educational facility. If grandmother is present, they might postpone child's enrollment. Alternatively, they might send the child directly to primary school, especially if grandmother can accompany the child to the facility.

Only two items in the sibship structure seem to matter, although weakly. Coming from a multiple lowers the probability of primary enrollment, but its effect on the odds ratio of pre-primary to primary attendance is only significant at 10% level and not robust to the specification. The size of sibship aged five and below matters for enrollment in pre-primary schooling. An additional sibling aged five or below reduces child's probability of being at a pre-primary unit by 8%. The odds of pre-primary to primary enrollment fall by half. Although the effect is only weakly significant, it is plausible as pre-primary education is costly in Turkey, while many families are already willing to send five-year-olds directly to primary schools.

Arabic children are 22-23% more likely than Turkish children to enroll in primary schools at the age of five. Ethnicity matters little for pre-primary level enrollment – Arabic ethnicity has a negative effect here but it's only weakly significant and not robust to specification. Arabic children are relatively few in my sample and this estimate might not be very reliable. Nevertheless, to shed some light on why Arabic children are more likely to enroll in primary schools, I check where their mothers were born (Table A5 in the appendix). Around 10% of Arabic children spring off mothers that were born abroad. By comparison only 2% of Turkish mothers were born abroad. It is, therefore, possible that TDHS carried out in 2013 already accounts for the inflow of migrants due to the conflict in the Middle East.¹⁹

Conservatism is not significant for five-year-olds. Mother's migration status plays a role by reducing the probability of pre-primary attendance of five-year-olds by 6% if mother left her childhood province and never returned, comparing to mothers who never migrated. This is plausible, as migrating women tend to have lower attachment to the local labor market, are more likely to be homemakers and care for their children themselves. Finally, parental occupation – neither mothers' nor fathers' – is any longer important in the case of five-year-olds. It is not unexpected given the social acceptance of the enrollment of five-year-olds in the Turkish society. However, it should be noted that the presence of grandmother and mother's migration status were significant in this regression, and these are likely to determine

¹⁹ In the regression, I have controlled for mother's proficiency in Turkish. Arabic ethnicity remains significant nevertheless. In the sample of three- to five-year-old children, if born in Turkey, 12% of Kurdish mothers are not proficient in Turkish, as opposed to 8% of Arabic mothers. Almost all Kurdish mothers were born in Turkey. 9.5% of Arabic mothers were born abroad and the majority of those are not proficient in Turkish.

woman's work status to start with. As this analysis is not causal, we cannot say with certainty that mother's work does not matter for the enrollment of five-year-olds. Yet, it is plausible that its impact is lower than in the case of three- or four-year-olds.

8.4. A further look at the determinants of enrollment in early childhood education

Given the number of interactions in the regressions, in this section I take a look at some of them in more detail. The first interaction is that of child's sex with wealth and residence. Child's sex is not significant at any age. In Table 16 and Table 17, I show that it also does not matter at any level of wealth or residential status. Rural girls look 12% more likely to attend primary school comparing to rural boys, but the significance of this effect is low. The marginal effects of residence (urban-rural) by region are presented in Table 18. In general, there is no difference between urban and rural areas in Turkey in terms of pre-primary enrollment. However, it can be seen that the urban-rural advantage reverses in Turkey's East. The puzzling rural advantage, which was observed for four-year-olds, is thus driven by Turkey's East. In raw data, urban-rural differential in the East was very small, only 3%.²⁰ It is, therefore, not surprising that, after controlling for a wide range of socioeconomic characteristics and demographics of families, such a reversal is observed.

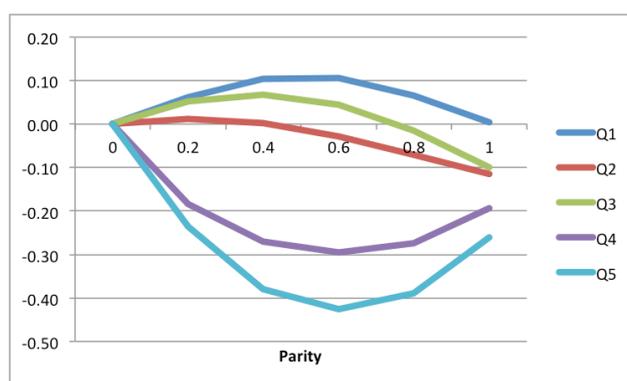


Figure 9. Enrollment gap between children of various parities and that of the first-born, by wealth quintile. Children aged 36-59 months.

Birth order, accounted for by the parity index, is important for three- and four-year-olds. Table 19 shows that parity matters essentially only for three-year-olds, and its effect is particularly large and strongly significant at the top wealth quintile. This is possibly the result of the social norm in Turkey that sending a very young child to daycare is not desirable. As family's wealth rises over the life cycle, an alternative mode of childcare can become affordable (e.g. private baby-sitting). As households tend to accumulate wealth over time, children born later are less likely to face binding resource constraints.

Parity squared is also included in the regressions, and odds ratios in Table A2 show that a non-linear effect of parity exists for three- to four-year-olds. In Figure 9, for children aged 36-59 months, I plot the enrollment gap between the children of various parities and the first-born, for different wealth quintiles. Parabolic effect is strongest for the two top wealth quintiles, as should be expected from the inspection of the interactions of parity squared with wealth in Table A2. In those quintiles, the gap in enrollment is very large for children of higher parities. For example, the middle child in the top wealth

²⁰ Enrollment in Turkey's East is the lowest in Turkey. Small urban-rural differential might be the result of the fact that the expansion of pre-primary facilities was implemented in Turkey's East last, with facilities still lacking regardless of the residential status.

quintile is 40% less likely than the first-born to be enrolled in organized childcare. The gap is about 30% in the fourth wealth quintile.²¹ The parabolic effect may be the result of the already-mentioned resource accumulation over the life cycle. It may also arise if parents view the future returns from educating first-borns to be the highest. Alternatively, it might arise due behavioral considerations whereby parents at a later age wish to indulge in a young child, or feel more comfortable taking care of the child alone. The gap decreases subsequently, possibly because parents revise their beliefs about organized childcare, or because the net returns to educating a subsequent child rise again. Parents in poorer families might also rather not send later-born children to daycare; however they might be forced to do so, for example, if mothers have to work due to the household's financial constraints.²²

Table A3 in the appendix reveals that some coefficients on sex composition and its interactions are significant. In Table 20, I show the average marginal effects of sex composition by wealth quintile and child's sex, at different ages. When sex composition skews towards boys, male children seem to be affected in rich households.²³ The standard deviation of sex composition is 0.36. A one standard deviation shift in sex composition towards boys reduces the probability of a male child in the top wealth quintile being enrolled at a pre-primary facility by 1.26% at the age of three and by 1% at the age of four. The effect is only weakly significant for five-year-olds. Because care provided at home is preferred to organized care as far as very young children are concerned in Turkey, this finding does not mean that boys are being discriminated against in rich families. Rather, the finding speaks to the special treatment of boys aged three to four if they have other male siblings. As is explained below, this effect is most likely driven by the presence of older male siblings.

Because sex composition in the case of single children equals the sex dummy, I check how sex composition plays out when single children are excluded from my sample. In this case, I define the sex composition of sibs as the fraction of boys in the sibs excluding the child him- or her-self. First, the average marginal effect of parity disappears in rich households (Table 21). However, the parabolic effect is still present. The coefficients on parity squared and its interactions with wealth are significant. If an alternative Figure 9 were drawn based on the new estimation, it would be similar to the original one. Second, the average marginal effect of sex composition becomes smaller and less significant in the wealthiest families (Table 22). This lends itself to the conclusion that the results are affected by the inclusion of single - and potentially oldest²⁴ - children in the sample, meaning that wealthy parents treat their single and potentially oldest children differently to the children born later.

8.5. Supply side and enrollment in early childhood education

The supply of early childhood education facilities is likely to be an important determinant of enrollment. Higher supply potentially means easier access, lower prices, as well as an opportunity to change parental perception about the suitability of organized care for their children.

²¹ The question that naturally arises is to what extent rich families in Turkey actually have more than two children. Twenty-three percent of families in the top wealth quintile in our sample of three- to five-year-old children have three or more children. Thirty-three percent of families in the fourth wealth quintile have three or more children. Thirty-one percent of families in the third quintile have three or more children.

²² As mentioned in section 8.1, because the analysis is not strictly causal, the result may also partially reflect the fact that mother is more likely to stay at home if she has more than one child. However, this effect is likely to be very small because a large battery of factors affecting female workforce participation, including the number of children, have been controlled for.

²³ Note that average marginal effects are calculated using counterfactuals. Sometimes counterfactuals are not natural to imagine. For example, it is in reality not possible to be a male child and have sex composition of all sibs equal 0 (i.e. no males). In the same manner, it is not possible to be a female and have the sex composition of all sibs equal 1 (i.e. all males).

²⁴ Very few families in Turkey have no or just one child. The majority of single children thus eventually become eldest children.

The provision of facilities

This section checks if the supply of kindergartens and nursery classes matters in the estimated model of enrollment. I use the data on the number of teachers and classrooms per province, rather than the number of schools, because schools may have different capacity. The data come from the statistical tables provided by the Ministry of National Education for the school year 2013-14 (MONE (2014)), and are matched at province level with TDHS data. Table 23A summarizes the teacher and classroom numbers per province. On average, provinces have 682 public and 100 private pre-primary teachers, and 521 public and 102 private classrooms. However, there is a wide variation across Turkey, both in public and private facilities. Table A6A in the appendix lists the provinces in the descending order in terms of the supply of teachers and classrooms. Not surprising, metropolitan centers such as Istanbul, Ankara and İzmir lead in terms of the numbers. Provinces in Turkey's East, for example Ardahan, Tunceli or Kilis are at the bottom.

A measure that better reflects the supply side, taking into account the congestion due to the size of three- to five-year-old population, is the ratio of teachers and classrooms to that population in the province. These ratios are summarized in Table 23B. They average is 0.017 for public and 0.001 for private teachers per one three- to five-year-old in the province, and 0.014 for public and 0.001 for private classrooms per one three- to five-year-old. Table A6B lists provinces in the descending order of these ratios. The picture is very different now. While metropolitan centers such as Istanbul, Ankara and İzmir have the highest number of private facilities per one three- to five-year-old, they fare much worse in terms of public facilities. Istanbul is at the very bottom in terms of both public teachers and classrooms per one three- to five-year-old. Eastern provinces score badly in terms of private facilities, but do better in terms of public ones. It might be more transparent to work with the inverse of teacher and classroom ratios – the number of three- to five-year-olds per teacher or classroom. The ratios expressed in this way are summarized in Table 23C and Table A6C in the appendix. It is striking to see how scarce private facilities are, with thousands of children per one private teacher or one private classroom. Even public facilities are potentially very congested, with 62 and 77 children per teacher and classroom, respectively. In reality, not all three- to five-year-olds are enrolled; hence, student-to-teacher and student-to-classroom ratios are not as high (16.7 and 21, respectively). Yet, the lack of adequate capacity to cater for the existing population of three- to five-year-olds is undeniable.

Table 24 shows the average marginal effects of children-to-teacher and children-to-classroom ratios, public and private separately, resulting from the estimation of the model with teachers (Model Q) and classrooms (Model R). The effects are tiny and not significant at any point. Coefficients on other variables are not affected by the addition of the supply-side variables, hence are not reported. What is a surprising result brings one to speculate instead about the importance of the price of early childhood education. A higher supply of facilities, as used in the regression, could potentially proxy for lower prices. Yet, the result suggests that this is not the case, possibly because the majority of facilities in Turkey are publicly provided, which severs the link between quantity and price.

Affordability

Ideally, one would like to account for the average or median prices of childcare relative to median incomes in each province, but such data is not available for all Turkish provinces. The provincial units of the Ministry of Education publish the guidelines for the range in which the prices of public providers should fall. However, these do not reflect the actual prices charged on the ground. IBRD (2015) team collected their own price data in six provinces. They found that the median monthly cost of full-time daycare in public facilities is 300 TL, while the Ministry's guideline is on average 150 TL. This is nowhere near the price charged by private providers, on average 700 TL per month. The dearth of data in this respect suggests that a thorough investigation of childcare and pre-school costs across the country would be needed.

IBRD (2015) report establishes that the affordability is extremely important to parents. It finds that the affordable nursery classes still cater predominantly to five-year-olds. Centers for children below the age of five largely constitute the domain of private providers, and their prices remain beyond the average willingness to pay on the part of potential users. On average, women with at most high school education are not willing to spend more than 300 TL per month for full-time daycare, which precludes them from sending children to private facilities. Women with university degrees are on average willing to pay the double of this, meaning that they are more likely to benefit from the quality private service. When asked about the willingness to pay given the quality of service, basic-level service commands the maximum willingness to pay of 250 TL for a working and 150 TL for a not working mother in urban areas. The willingness to pay in rural Turkey is even lower – 90 TL. The report concludes that it is thus not surprising that, at current prices, the demand for childcare and pre-school in Turkey is low. Unfortunately, Aran et al. (2014, 2016) find that voucher subsidies to families are unlikely to be effective in raising demand, given the constrained supply of services in Turkey. If not targeted by socioeconomic status, vouchers are also likely to be regressive, benefiting those who already use organized facilities.

IBRD (2015) also uncover why the cost of private facilities is prohibitive in Turkey. Having surveyed 600 facilities, the authors conclude that the costs are driven by infrastructure costs – especially the cost of buildings – as well as the costs of teaching materials. They find that strict regulations that apply to private but not public providers, such as the requirement to have access to a garden, drive the supply of private facilities down and prices up. As a result, the quality of privately provided service is higher but the facilities remain few and expensive. Aran et al. (2016) simulate the impact of various supply- and demand-side policies: investment and operational grants to providers, as well as vouchers to families. The study concludes that supply-side interventions are needed in Turkey in order to meaningfully lift early childhood education enrollment rates.

In this study, the inability to control for the price of childcare facilities may be the reason why wealth comes out so crucial for enrollment, especially at very young ages. Other unobserved characteristics of households could naturally be responsible for such a strong dependence of enrollment on wealth. However, TDHS allows controlling for a very large battery of family and household characteristics, including family's conservatism. This leads to a conclusion that affordability remains an important factor in parental decisions as far as childcare and pre-school are concerned.

8.6. A further look at enrollment in early childhood education by age

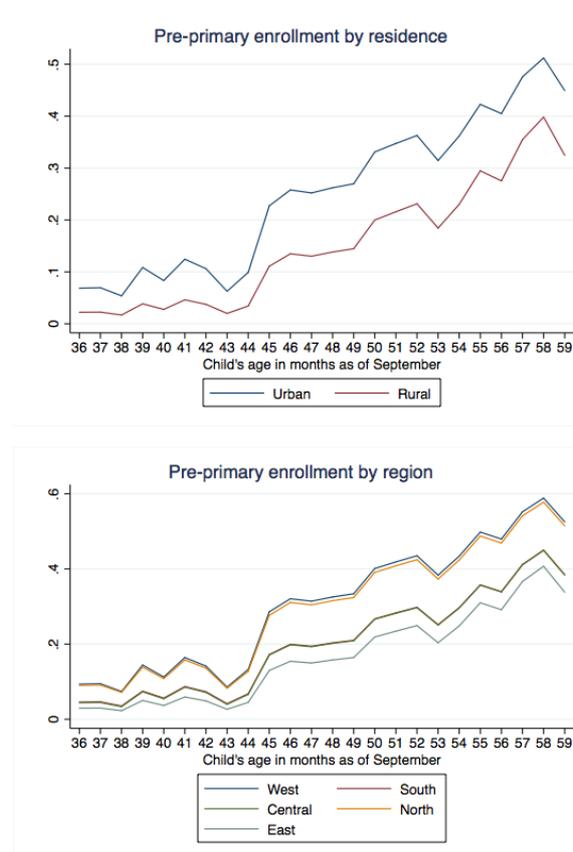
Child's age in months is an important marker of the parental perception of child's readiness to attend organized daycare, as well as of government's family policy. Parents in Turkey declare that the age of four, on average, is when child becomes ready to be cared for outside home. Turkish government is considering compulsory pre-primary schooling for children aged 54 months (4.5 years) starting in 2019.

In this section the predicted enrollment rates²⁵ by child's age in months are computed for different values of the key explanatory variables. Previous sections uncovered that mother's schooling and household's wealth, as well as mother's employment status, are the leading determinants of child's enrollment in early childhood education. Controlling for a large number of family and household characteristics, residential and regional variables or ethnicity were mostly not significant, although

²⁵ Predictions based on Model O.

substantial differences in raw enrollment rates exist between urban and rural areas, across Turkish regions and ethnic denominations.²⁶

The estimated model predicts enrollment very well. Predicted enrollment rates in Table 25A are very close to the actual rates reported in Table 8B. Figure 10 and 11 display the predicted enrollment rates for three- to four- and five-year-olds, respectively, by the type of residence, region, ethnicity, mother's years of schooling, household's wealth and mother's employment status. Table 25B reports the predicted enrollment rates at the age of 42, 54 and 66 months. The first observation is how compact enrollment is up to the age of 44 months, approximately. Until then, enrollment rates do not diverge too much for children of different backgrounds. Urban-rural differential is 7% at 42nd month. It rises to 13% at 54th month. Enrollment gap between Turkey's West (or North) and the East is 9% at 42nd month and 18% at 54th month. Turkish children at 42nd month are 8% more likely than Kurdish or Arabic ones to be enrolled in childcare. At 54th month the gap rises to 17-19%. Relatively little difference in enrollment exists also for the children of mothers with different schooling levels. When 3.5 years old, the children of mothers with 15 years of schooling are 4% more likely to be enrolled in childcare, comparing to the children of mothers with 11 years of schooling, and 13% comparing to the children of mothers with five years of schooling. When children are 4.5 years old, the differential becomes 13% and 31%, respectively.



²⁶ Although rural, regional and ethnic dummies were generally not significant in the regressions, differentials in enrollment exist on account of the differences in the socio-economic characteristics of the populations that form rural, regional or ethnic communities.

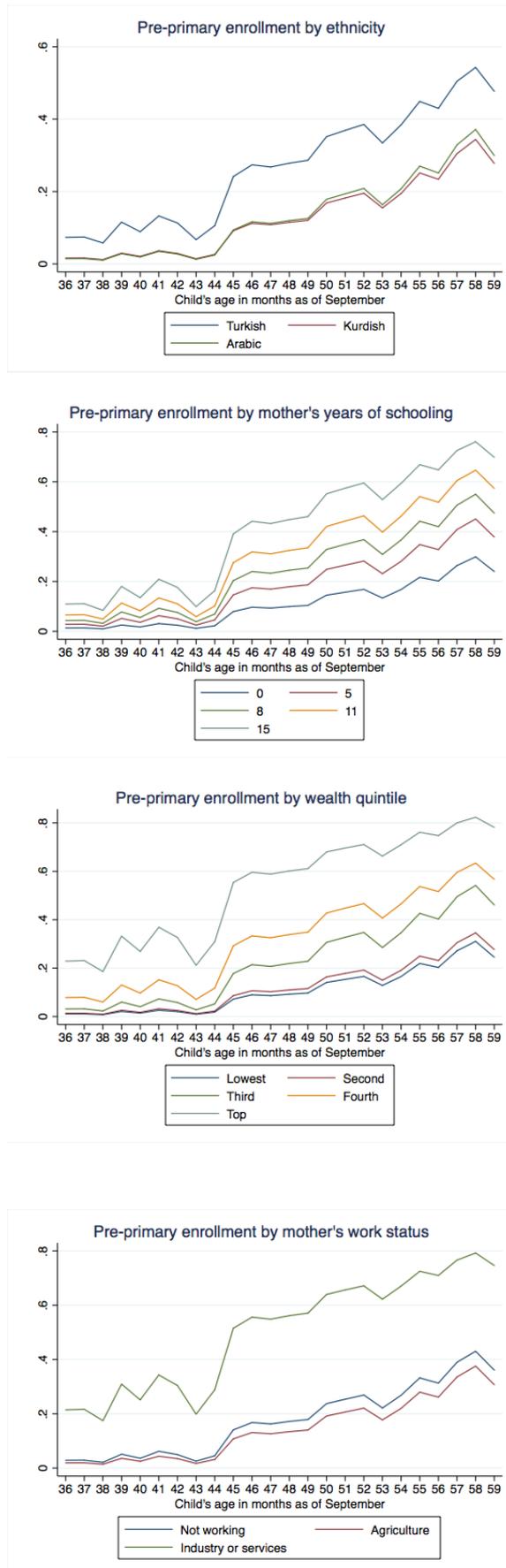
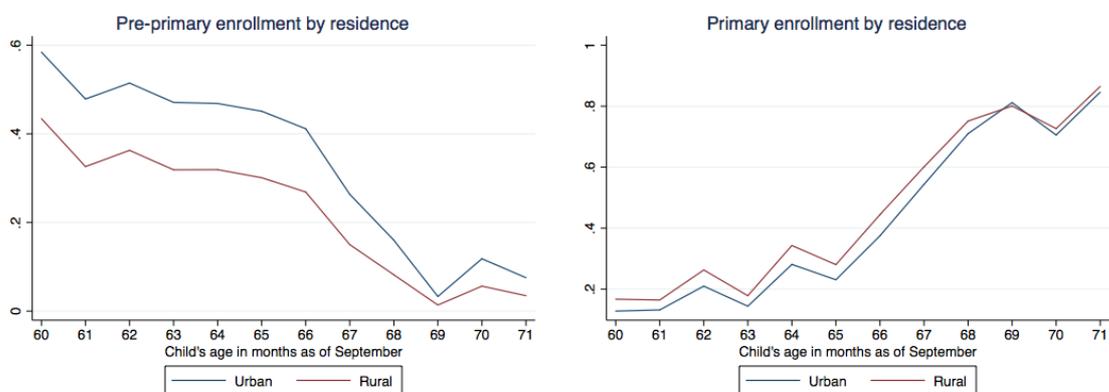
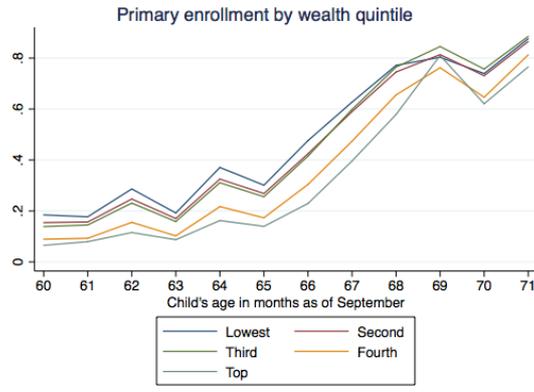
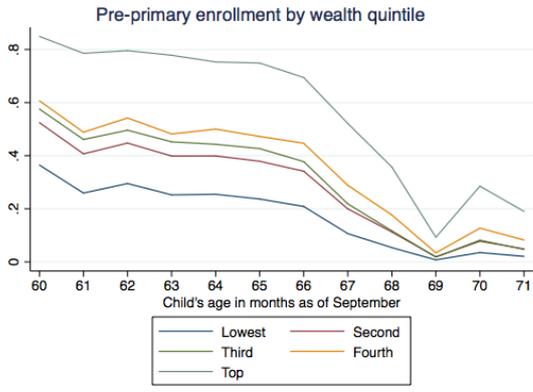
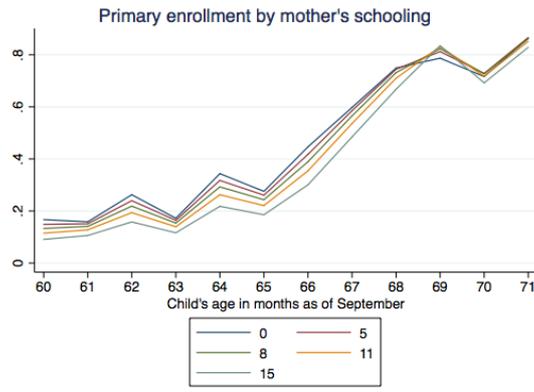
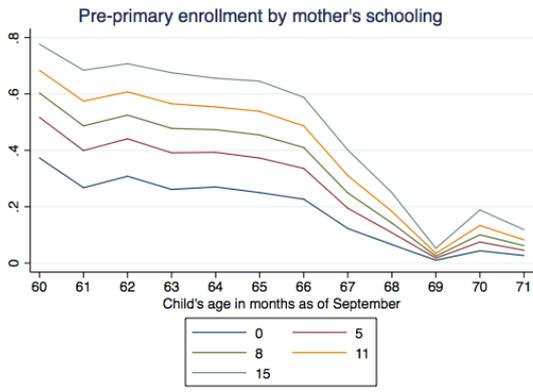
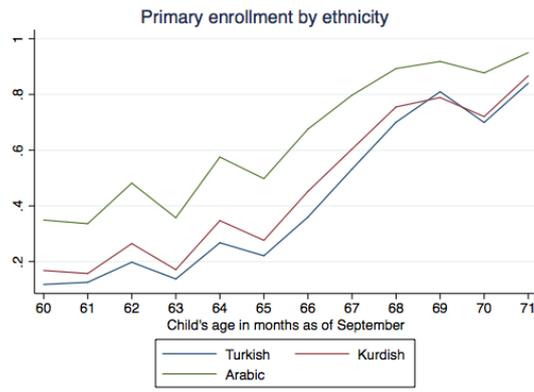
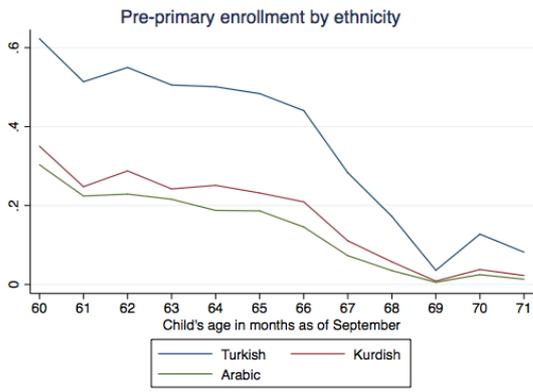
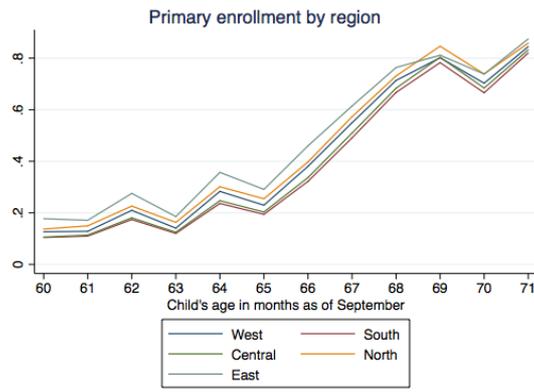
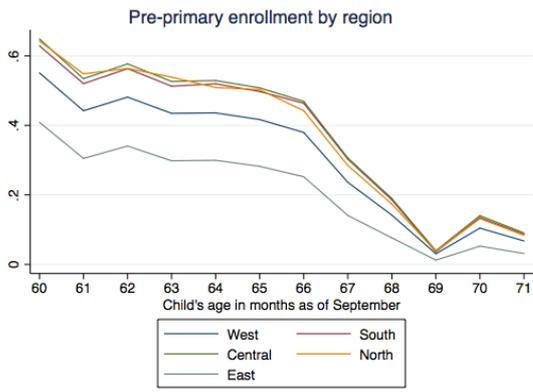


Figure 10. Predicted enrollment for the three- to four-year-old

Much more variation exists, already at a young age, in enrollment disaggregated by wealth and mother's employment status. This is due to the childcare decisions of the riches households and the mothers employed in industry or services. The pre-primary enrollment gap between the top and bottom quintile is a whopping 31% already at 42nd month. It becomes 54% at 54 months. Even the gap between the top and fourth wealth quintile is very large – 20% for 3.5-year-olds, 24% for 4.5-year-olds and 24% for 5.5-year-olds. The differentials are a lot smaller within the middle-class (second to fourth wealth quintiles). The enrollment gap between the children of non-working mothers and those of mothers working in industry or services is 25% at 42nd month and 40% at 54th month. Pre-primary enrollment starts to taper off towards 60th month, and primary enrollment picks up for all children regardless of the socioeconomic background. Pre-primary enrollment gaps still exist, but they close by the time children reach six years of age. In contrast, the gaps in primary school enrollment for children aged 60-71 months are smaller. Across residential status, regions and mother's schooling, primary enrollment does not vary as much as pre-primary enrollment.

By the age of six, most children are enrolled in an educational facility. At 66th month, 78% of urban and 71% of rural children are enrolled; so are 84% of children in the North and 71% in the East; 80% of Turkish and 83 of % Arabic children are enrolled, although only 66% of Kurdish ones are; as many as 76% of children of mothers with only five years of schooling are already at school. Certainly, the gaps in enrollment between the children of the least and most educated mothers and the richest and poorest families still exist at 66th month, but the gaps are not as shocking as at 42nd or 54th month. However, rural children, those in the East, the children of Kurdish and Arabic ethnicity, those born to poorly educated and not employed mothers, or mothers in agriculture, as well as the children from poor households, are more likely to be in primary rather than pre-primary facilities at this age. For example, Arabic children are 32% more likely to be enrolled in primary schools, comparing to Turkish children, but they are also 29% less likely to be in pre-primary facilities, at 66th month of age. The poorest children are 25% more likely than the richest ones to be in primary schools but 48% less likely to be in pre-primary units, also at 66th month of age. As far as wealth is concerned, top quintile families are outliers in terms of both pre-primary and total enrollment. The enrollment gaps between the top and fourth wealth quintiles are much larger than enrollment gaps across lower-middle to upper-middle class quintiles (second, third and fourth quintiles). The children of non-working mothers are 18% more likely to be in primary and 23% less likely in pre-primary facilities, comparing to the children of mothers in industry or services. As employment status was not significant in the regression for five-year-olds, this differential arises because mothers employed in services and industry are more educated and have fewer children than non-working mothers or those in agriculture.





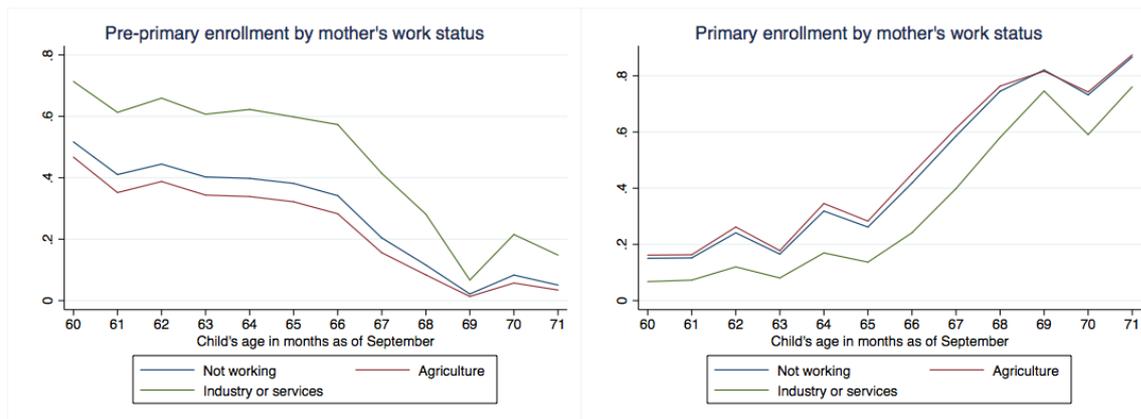


Figure 11. Predicted enrollment for the five-year-old

9. Summary and policy implications

This work finds that enrollment in childcare of children aged zero to two is essentially non-existent in Turkey. In turn, the study of three- to five-year-olds' enrollment in pre-primary and primary facilities lends itself to four main conclusions:

- (i) For three- to five-year-olds, enrollment in Turkey is low across the entire wealth distribution but it is most deficient at the bottom 40%. Even at the top wealth quintile, only 67% of children attend organized facilities – pre-schools or primary schools - comparing to the OECD average of 80%. Enrollment rates drop to 45% and 43% for the fourth and third wealth quintiles, respectively; and to 32% and 30% for the second and bottom wealth quintiles, respectively.
- (ii) Enrollment is strongly depended on household wealth, mother's schooling, and her employment status even after a large battery of household's socioeconomic characteristics is controlled for. The responsiveness of enrollment to these variables is largest at the age of four.
- (iii) Enrollment rates start to diverge around child's 44th month. The differentials are very large when children approach five years of age, and close by the time they reach six years of age as, by then, almost all children enroll in primary schools.
- (iv) Although the majority of five-year-olds are enrolled, children from the highest socioeconomic backgrounds attend pre-primary facilities, while children below the top wealth quintile, those of less educated mothers and those having many siblings are enrolled directly in primary schools.

Pre-primary enrollment deficiency exists across all socioeconomic backgrounds in Turkey, and is stronger the lower child's age and household's wealth. In the top wealth quintile, 92% of children aged five are enrolled. It is the only wealth and age group in Turkey that is close to the OECD average in terms of pre-primary enrollment. Even among the wealthiest, only 71% and 33% of children are enrolled at the age of four and three, respectively. The picture worsens dramatically already at the fourth and third wealth quintiles – only 75-79% enrolled at the age of five, 38-45% enrolled at the age of four and 6-13% enrolled at the age of three. The bottom 40% are largely not enrolled at the age of three (2-3%), marginally enrolled at the age of four (17-19%) and lagging behind at the age of five (69-76%).

Although many other studies have shown that pre-primary enrollment in Turkey is strongly affected by child's socioeconomic background, this work for the first time elaborates formally on how the effect of socioeconomic background on enrollment varies by child's age. This is an important contribution because the understanding of enrollment elasticities is crucial for policy design and targeting. In particular, this research suggests that the demand for education of five-year-olds is to a large extent met in Turkey (comparing to other child age groups, although still lagging behind the OECD). On the other hand, visible demand for services for four-year-olds does already exist in Turkey but it is constrained by the incomes and economic status of children's parents. There also seems to exist nascent demand for services for three-year-olds, although to a lesser extent than for older children.

Also for the first time, this work presents the predicted pre-primary enrollment rates by age in months, allowing to gauge the time when and extent to which they start to diverge by socioeconomic background. Being cognizant of the timing of such divergence is again important for policy design, and in particular speaks to the urgency to target policy at relatively young children from low socioeconomic backgrounds in Turkey.

It is also the first time that the distinct patterns of enrollment of five-year-olds in Turkey are investigated formally by socioeconomic class. It emerges that, due to the institutional context in Turkey, the segregation of five-year-olds into pre-primary and primary facilities follows socioeconomic lines, which further cements social inequalities already at such a young age. Enrollment differential is essentially driven by the families in the top wealth quintile, with educated mothers and fewer children.

Finally, this work shows that socioeconomic status as factor determining pre-primary enrollment trumps residential, regional, ethnic and cultural distinctions at all ages. It also shows that child's sex is irrelevant for enrollment in education up to the age of five.

These findings are novel, yet consistent with prior research for Turkey. They are in line with the social norm hypothesis (Paker and Uysal (2015), IBRD (2015)), as well as the shortage of affordable facilities of acceptable quality in Turkey (Hentschel et al. (2010), World Bank (2013a), IBRD (2015), İlkkaracan et al. (2015), Aran et al. (2016)). At the age of three, comparing to the age of four, the persistent social norm about the non-appropriateness of organized care for very young children, as well as the low provision of acceptable facilities, means that mother's schooling, her work status and household wealth are relatively less important for enrollment. Parents accept external care more willingly when child turns four. They also then face a better supply of pre-primary facilities, although quality kindergartens are still mostly private and costly. Therefore, family's socioeconomic status plays the largest role at this age. The age of four is also when the enrollment rates of children from different socioeconomic strata enlarge substantially.

At the age of five, both mothers and fathers almost universally accept that children should attend an educational facility. There is also a relatively high supply of affordable publicly provided nurseries that cater to children of this age in Turkey. Children may also already enroll in primary schools starting at the 60th month of age. For this reason, family's socioeconomic status is again a lesser determinant of enrollment, comparing to the age of four. However, socioeconomic status does matter for the type of facility a child attends. Rural children, children in Turkey's East, Kurdish and Arabic children, those with many siblings, less educated mothers, mothers not employed in industry or services, and from lower wealth quintiles are enrolled in primary schools rather than in pre-primary units.

This research sheds light on a number of policy measures that have been proposed in view of raising enrollment rates in early childhood education in Turkey. The conclusions complement prior research on childcare in Turkey (e.g. World Bank (2013a), Aran et al. (2014, 2016), IBRD (2015), Paker and Uysal (2015)), as well as on the reconciliation of work and family in Turkish households (İlkkaracan (2010), İlkkaracan (2012a, 2012b), İlkkaracan et al. (2015)), and strengthen the case for an urgent policy

action geared towards raising pre-primary enrollment across all wealth quintiles in Turkey, with special attention required at the bottom 40%.

Vouchers

While there is an important urgency to improve the equity of early childhood education enrollment in Turkey, this paper finds that it is the middle-, upper-middle- and top-wealth families who can afford childcare for three- to five-year-olds at current prices in Turkey. There is no gain in enrollment between the bottom and second wealth quintile at any age. Vouchers allocated to the poorest families would likely not be effective, as care and education at current prices would even then remain unaffordable. The narrow targeting of the second quintile families could potentially work but the effect would be restricted to a relatively small number of families. Progressive policies that target the bottom wealth quintiles are needed in Turkey, but so are policies that would achieve a more comprehensive rise in enrollment, also among the middle- and upper-middle class, because pre-primary enrollment rates are extremely low in Turkey overall. Broad-based voucher allocation would, however, not be desirable as it would be regressive in nature - it would largely benefit families who already enroll their children in organized care. To help the poorest household, a higher supply of much more affordable, and ideally free-of-charge facilities, would be required. Vouchers could be used at a later stage, once the supply of affordable centers is higher, in order to incentivize the families that still cannot afford it. Alternatively, vouchers should be carefully means-tested and targeted only to the bottom 40%. They should be of the amount sufficient to cover the actual costs of pre-school attendance. And they should be unconditional. In particular, linking childcare vouchers to women's employment – which has been proposed in Turkey – would be a regressive measure because woman's employment opportunities are strongly dependent on her socioeconomic background.

Supply-side measures

Increasing the supply of early childhood education facilities, which are both affordable and of acceptable quality, is of paramount importance in Turkey. Supply-side measures can be two-fold: (i) expanding the supply of facilities (e.g. by the construction of additional public schools and classrooms by the state; the establishment of alternative modes of childcare); (ii) making the supply of facilities more elastic (e.g. by easing regulations for private providers).²⁷

The first intervention works well when the demand for the service is quite elastic already. In Turkey this was observed in the case of five-year-olds – whom parents are quite universally willing to enroll. The expansion of public nurseries attached to primary schools, which took place in Turkey after 2009, met that latent demand and worked well in practice. The majority of five-year-olds in Turkey are now enrolled in some sort of educational facility. As the acceptance of organized care for four-year-olds is rising in Turkey – and this paper shows that enrollment is most responsive to wealth at this age - the expansion of capacity is strongly desired. When the demand is more rigid overall, like in the case of three-year-olds or younger children, having an elastic supply due to reasonable regulation or incentives for private providers, for example, helps because the facilities can be built more easily to meet the demand extant in some specific pockets of the society, e.g. middle- to top-wealth families.

Both interventions induce lower prices. The first one immediately lowers the prices for everybody and makes the service accessible also by the poor. It would be a particularly powerful measure for improving the pre-primary enrollment of the bottom 40%. State-funded - rather than alternative or community initiatives - would have an added value of universality, helping prevent further deepening of inequalities. They would also help address the problem of feminization of care, which arises due to the natural streaming of women into childcare, especially at the local level in poorer socioeconomic communities.

²⁷ Some policies can serve both objectives, for example investment and operational grants to private providers.

The second intervention at first lowers the prices for those who can afford the service already – in the Turkish case for those in third to top wealth quintiles. This is potentially regressive to start with, with the added possibility that the quality of care could be compromised by lower regulation. However, in the long run, elastic supply is important. When supply is elastic, it can quickly satisfy new demand, for example when a rise in demand occurs due to a changing social norm. What seems important in Turkey is to ensure the level-playing field in terms of regulatory environment for both public and private providers so that, on one hand, regulatory double standards are mitigated and, on the other, the quality of service does not suffer.

Both interventions are needed in Turkey because the analysis of enrollment rates in this paper indicates that there is room for gains in enrollment at every wealth quintile. Turkey needs a universal access to affordable and quality childcare and pre-school for all families, and very urgently for children aged three to five. It could be provided by different modalities; hence, giving parents options to choose from. The expansion of public facilities for three- to four-year-olds would help the two bottom wealth quintiles the most. Lower regulation and better incentives for private providers would improve the access to and the affordability of childcare also for the middle- and upper-middle income families.

Quality control

Although this paper does not explore the quality of early childhood education, the issue of quality is important. First, ensuring a consistent quality of education at the age of five should become a priority policy consideration. While the majority of five-year-olds are already enrolled, a substantial fraction that draws from lower socioeconomic strata attends primary schools rather than the designated pre-primary facilities. The quality of care that they receive may thus be fundamentally different. As mentioned earlier, the distribution of five-year-old children between pre-primary and primary schools has certainly improved since 2013, the year of TDHS, because pre-primary enrollment has recovered since “4+4+4” reform was implemented. Nevertheless, children from different socioeconomic backgrounds are still likely to attend different institutions: pre-primary or primary schools. Children from different socioeconomic backgrounds are also likely to attend different types of pre-primary facilities – e.g. public nurseries or private kindergartens. It is reassuring that the number of kindergartens, both public and private, has grown in Turkey since 2013, while the number of public nursery classes attached to primary schools is declining.²⁸ Still, the regulatory level-playing field is needed to ensure that the quality of service delivered by both the public and private centers is high and uniform.

Second, expanding the provision of more affordable facilities of acceptable quality for children aged four and below is also crucial. It would help not only improve access, but also transform the negative parental perception about daycare for small children and, ultimately, create a positive change in the demand for childcare and pre-school.

Compulsory pre-primary schooling

The choice of the compulsory pre-primary age could hinge on a number of criteria, for example: (i) child’s developmental needs; (ii) urgency to improve female labor force participation and gender equity; or (iii) urgency to address child equity. This work can only speak to the latter two considerations. This study finds that the correlation between child’s pre-primary enrollment and mother’s work status is significant at the ages of 3, and highest at the age of four. Although this relationship cannot be interpreted as causal, other studies of FLFP in Turkey point to the causal nature of this relationship. What this paper suggests is that the largest gains to FLFP would most likely accrue to the mothers of

²⁸ The number of facilities accredited by MONE (public and private) grew between 2013 and 2016. The number of public kindergartens grew from 2,087 to 2,326; the number of private kindergartens grew from 1,642 to 2,328. Meantime, the number of public nursery classes fell from 20,575 to 20,061. The number of private nursery classes grew from 693 to 944.

children aged four. As far as child equity is concerned, as enrollment rates start to diverge already at the age of three (more precisely around child's 44th month), the envisaged reform making pre-primary schooling compulsory for children aged 4.5 (54 months) and above goes in the right direction towards reducing such differentials in the future. From the viewpoint of social acceptability, enrolling children as young as 48 months could be suggested. Prior research shows that most parents, at least most mothers, see the age of four as an acceptable one for child to enroll in daycare. They are, however, hindered by the lack of affordable facilities of sufficient quality. It is, therefore, necessary that the new enrollment requirement be accompanied by the expansion of affordable pre-primary units.

Advocacy

Campaigns aimed at convincing parents about the benefits of organized childcare could have potentially two effects: (i) increasing the demand for childcare at current prices; (ii) changing the social norm and thus making the demand for childcare more elastic in the future.

The first objective is a more realistic one in the short- to medium-run. To be successful, advocacy would need to focus on middle-income families and above, e.g. third wealth quintile and higher, who already have the ability to pay but do not enroll children in pre-school. One particularly target group could be the one identified earlier in section 6.2. – non-working mothers who are nevertheless willing to work. In my sample, such 244 mothers (21.7%) out of all 1,125 mothers of children aged three to five did not enroll their youngest children in pre-school.²⁹ 136 of these mothers were also in the third wealth quintile or higher, constituting 12% of all mothers with children aged three to five. They had on average 7+ years of schooling and were living in urban areas. Some of them had more than one non-attending child aged three to five. All non-attending children aged three to five belonging to this target group constituted 14.5% of all non-attending three- to five-year-olds (8.74% of all three- to five-year-olds) in 2013.³⁰

Advocacy could also focus on similar mothers but with younger children, aged zero to two, in view of encouraging enrollment once children reach the age of three or higher. On one hand, this could be a less efficient strategy because a share of these children will enroll at an early childhood education facility at the age of three to five even in the absence of any campaign. On the other, advocacy might contribute to some of these children enrolling at younger ages, provided the capacity exists.

One message from this research was that even middle- to top-wealth income families enroll few children in pre-school overall. The richest families are also less likely to enroll children of middle birth orders, and even boys who have a large share of brothers. Yet, middle- to top-wealth households are the ones that are likely to afford organized services at current prices. Unlike at the age of four, enrollment at the age of three was found relatively less responsive to wealth overall. This is where advocacy directed at relatively prosperous families could be productive and offer an opportunity to raise enrollment at the middle-to-top wealth distribution. An alternative strategy to the one outlined above would therefore be to target all families in the third wealth quintile and higher, whose children are not enrolled at age three to five. These children constitute 37.9% of all non-enrolled three- to five-year-olds (22.9% of all three- to five-year-olds) in the TDHS 2013 (Table 9E).³¹ Given its larger scale, this strategy might be the

²⁹ Another target group could be working mothers who rely on private baby-sitting for childcare (Table 4, 6.77% of all working mothers). These women, however, constitute only 1.15% of mothers with children aged three to five.

³⁰ In 2013-14, at the time of TDHS, the population of three- to five-year-olds was close to 3.82 million in Turkey. Such advocacy would therefore be targeting approximately 333,869 children aged three to five. Prior advocacy experience, the knowledge of the efficacy of campaigns and the availability of facilities should be used to assess to what extent children's enrollment status could be affected.

³¹ Given 2013-14 population of three- to five-year-olds in Turkey, approximately 874,780 children would be targeted. See footnote above.

preferred one. The families identified for the narrower targeting earlier would in all likelihood be the first ones to respond.

Apart from being bound by persistent social norms, the target families in such campaigns might be anxious about the quality of childcare, especially when very small children are concerned. IBRD (2015) showed that vacancies in private facilities exist in Turkey. These facilities are also more likely to cater to younger children and be of high quality. Parents should, therefore, acquire awareness that organized education and care opportunities exist and that they could benefit their children in terms of cognitive, linguistic and socio-emotional development. Changing the prevailing social norm, in this case about the acceptability and benefits of early childhood education, is a lengthy process. Learning usually follows an S-shaped curve, whereby learning is slow at first but accelerates once a significant mass of users is established and others follow them. For this reason, it is crucial to establish such a critical mass of users in Turkey, and this process should start in the segments of the society that can afford early childhood education and care at current prices. Targeting advocacy on the poorest would be ineffective in this regard because they would not be able to afford the available services.³² With time, as the new social norm about early childhood education and care is established, the demand for them would become more elastic. This means that any positive improvements to the supply of kindergartens and pre-school facilities would also have a larger effect on enrollment, as families would be more willing to make use of them.

10. Conclusions

This study uses the data gathered by the Turkish Demographic and Health Survey 2013 to explore the enrollment of zero- to five-year-olds in early childhood education in Turkey. A minuscule fraction of zero- to two-year-olds are enrolled in childcare. This fact is consistent with the social norm held in Turkey that small children should be cared for at home by their mothers. It is also consistent with the fact that the supply of facilities catering to very small children is short in Turkey. Children in Turkey start attending daycare at the age of three. Approximately 9% of three-year-olds attend daycare and 34% of four-year-olds are enrolled, predominantly, in kindergartens. 75% of five-year-olds were enrolled in early childhood education in 2013 but a substantial fraction of them – 44% of all five-year-olds – were already in primary schools. Enrollment deficiency deepens the younger the child and the lower household wealth.

The major determinants of pre-primary enrollment are family's socioeconomic characteristics such as mother's schooling, household wealth, as well as mother's employment status even after a large battery of household's socioeconomic characteristics is controlled for. The responsiveness of enrollment to these variables is largest at the age of four, which is consistent both with the social norms hypothesis and the supply-side constraints in Turkey. Enrollment gaps start to arise around children's 44th month of age and widen substantially across socioeconomic backgrounds by the age of five. Most five-year-olds are enrolled in an educational facility but children from more disadvantaged families are more likely to be enrolled directly in primary schools.

This work supports the conclusions from prior research that supply side interventions making early childhood education more widespread and cheaper are necessary in Turkey. Vouchers handed to families directly are less likely to be effective, unless carefully designed and targeted. Ensuring a uniform quality of service for five-year-olds, enrolled either in kindergartens, nurseries or primary

³² A more reliable way to induce the poor to use childcare is to make it affordable by the supply-side interventions, as discussed earlier. Targeting advocacy at the bottom wealth distribution will be important when free-of-charge or extremely affordable facilities are available and if the demand for them still remains low. In view of helping the poor in the short-to-medium run, advocacy should be directed at the government in order to accelerate the supply-side interventions.

schools, is important because children enrolled at the age of five are segmented in facilities along the socioeconomic lines. Improving the provision of facilities of acceptable quality for children of all ages would also go a long way in changing the perception of parents with respect to the acceptability of organized care, especially for young children – four and below. The proposed reform for the compulsory pre-primary education starting at 54th month, or earlier, would help prevent the enrollment gaps that are very large by the time children reach the age of five. This paper also suggests that advocacy and campaigns aimed at changing parental perception of organized childcare and pre-school should start with middle-class families, rather than those at the bottom of the wealth distribution.

BIBLIOGRAPHY

- Abiry, R., Reuss, K., & Stichnoth, H. (2014). Completed Fertility Effects of Family Policy Measures : Evidence from a Life-Cycle Model. *ZEW Discussion Paper No. 14–068*. Mannheim.
- Ağırdağ, O., Yazıcı, Z., & Sierens, S. (2015). Trends in pre-school enrolment in Turkey: Unequal access and differential consequences. *Comparative Education*, 68, 1–18.
- Aran, M. A., Immervoll, H., & Ridao-Cano, C. (2014). Can child care vouchers get Turkish mothers back to work? Estimating the employment and redistributionary impact of a demand side childcare subsidy in Turkey. *Development Analytics Research Papers*, No. 1401. Istanbul.
- Aran, M., Muñoz-Boudet, A. M., & Aktakke, N. (forthcoming). Building an ex-Ante simulation model for estimating capacity impact, benefit incidence and cost effectiveness of child care subsidies: An application using provider-level data from Turkey. *World Bank Policy Research Working Papers*. Washington DC.
- Aran, M., Uraz, A., Hüsamoğlu, M., Okkalı Şanalmiş, D., & Çapar, S. (2010). Recent trends in female labor force participation in Turkey. *Welfare and Social Policy Working Papers, No.2*. Ankara: State Planning Organization and The World Bank.
- Bakış, O., Börkan, B., Levent, H., Pelek, S., & Onur Dereli. (2012). Temel belirleyici açısından ilköğretimde okula devam ve devamsızlık. *UNICEF e-Okul Sistem Analizi Arka Plan Raporu*. İstanbul.
- Baydar, N., & Akçınar, B. (2015). Ramifications of socioeconomic differences for three-year-old children and their families in Turkey. *Early Childhood Research Quarterly*, 33, 33–48.
- Baydar, N., Küntay, A. C., Gökşen, F., Yağmurlu, B., & Cemalcılar, Z. (2010). *The study of early childhood developmental ecologies in Turkey*. TÜBİTAK Grant No. 106K347. Ankara.
- Baydar, N., Küntay, A. C., Yağmurlu, B., Aydemir, N., Çankaya, D., Gökşen, F., & Cemalcılar, Z. (2014). “It takes a village” to support the vocabulary development of children with multiple risk factors. *Developmental Psychology*, 50(4), 1014–25.
- Berlinski, S., Gertler, P., & Galian, S. (2009). The effect of pre-primary education on primary school performance. *Journal of Public Economics*, 93(1–2), 219–34.
- Berlinski, S., & Schady, N. (2015). *The Early Years: Child Well-being and the Role of Public Policy*. New York: MacMillan.
- Britto, P. R., Lye, S. J., Proulx, K., Yousafzai, A.K., Matthews, S.G., Vaivada, T., Perez-Escamilla, R., et al. (2016). Nurturing care: Promoting early childhood development. *The Lancet*, 6736(16), 1–13.
- Çivik, S. P., Ünüvar, P., & Soylu, B. (2015). Pre-school education teacher’s opinion about the implementation of 2013 pre-school education program. *Procedia - Social and Behavioral Sciences*, 174, 693–698.
- Cunha, F., & Heckman, J. J. (2007). The technology of skill formation. *American Economic Review*, 97(2), 31–47.
- Dağlı, Ü. Y., & Dağlı, A. (2012). Early Childhood Education in Turkish Laws and Strategic Plans from the 1950s to Today. *Journal of Theoretical Educational Science*, 5(4), 454–467.
- Dayıoğlu, M., Kırdar, M. G., & Tansel, A. (2009). Impact of sibship size, birth order and sex composition on school enrolment in urban Turkey. *Oxford Bulletin of Economics and Statistics*, 71(3), 399–426.
- Dayıoğlu, M., Kırdar, M. G., & Tunalı, İ. (2015). Female labor force participation in Turkey: A synthetic cohort analysis, 1988-2013. *Mimeo*.

- Dinçer, A. M. (2015). *Achieving Universal Education in Turkey: Post-2015 Challenges*. Istanbul: Education Reform Initiative.
- Engle, P. L., Black, M. M., Behrman, J., Cabral de Mello, M., Gertler, P.J., Kapiriri, L., ... the International Child Development Steering Group. (2007). Strategies to avoid the loss of developmental potential in more than 200 million children in the developing world. *The Lancet*, 369, 229–42.
- Engle, P. L., Fernald, L. C. H., Alderman, H., Behrman, J., O'Gara, C., Yousafzai, A.K., ... the Global Child Development Steering Group. (2011). Strategies for reducing inequalities and improving developmental outcomes for young children in low-income and middle-income countries. *The Lancet*, 378, 1339–53.
- ERG. (2016). *Eğitim İzleme Raporu 2015-16*. İstanbul: Eğitim Reformu Girişimi.
- ERG. (2015). *Eğitim İzleme Raporu 2014-15*. İstanbul: Eğitim Reformu Girişimi.
- Esping-Andersen, G., & Billari, F. C. (2015). Re-theorizing family demographics. *Population and Development Review*, 41(1), 1–31.
- European Commission. (2014). *Key Data on Early Childhood Education*. Luxembourg: Publications Office of the European Union.
- Eurostat. (2016). *Education and Training Database*. Luxembourg.
- Fernald, L. C. H., Kariger, P., Engle, P., & Raikes, A. (2009). *Examining Early Child Development in Low-Income Countries: A Toolkit for the Assessment of Children in the First Five Years of Life*. Washington DC: The World Bank.
- Gökçe, F., & Oğuz, N. (2010). Minority and foreign schools in the Ottoman education system. *E-International Journal of Educational Research*, 1(1), 42–57.
- Grantham-McGregor, S. M., Fernald, L. C. H., Kagawa, R. M. C., & Walker, S. (2014). Effects of integrated child development and nutrition interventions on child development and nutritional status. *Annals of the New York Academy of Sciences*, 1308, 11–32.
- Hacettepe University Institute of Population Studies. (2014). *Turkey Demographic and Health Survey: Official Report*. Ankara.
- Hair, E., Halle, T., Terry-Humen, E., Lavelle, B., & Calkins, J. (2006). Children's school readiness in ECLS-K: Predictions to academic, health, and social outcomes in first grade. *Early Childhood Research Quarterly*, 21(4), 431–54.
- Halle, T., Forry, N., Hair, E., Perper, K., Wandner, L., Wassel, J., & Vick, J. (2009). *Disparities in Early Learning and Development: Lessons from the Early Childhood Longitudinal Study*. Washington DC.
- Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged Children. *Science*, 312(5782), 1900–1902.
- Heckman, J. J. (2008). The case for investing in disadvantaged young children, in First Focus (Ed.) *Big Ideas for Children: Investing in Our Nation's Future*. Washington DC: First Focus.
- Heckman, J. J., & Masterov, D. V. (2007). The productivity argument for investing in young children. *Applied Economic Perspectives and Policy*, 29(3), 446–493.
- Heckman, J. J., Pinto, R., & Savelyev, P. A. (2013). Understanding the mechanisms through which an influential early childhood program boosted adult outcomes. *American Economic Review*, 103(6), 2052–2086.
- Hentschel, J., Aran, M., Can, R., Ferreira, F. H. G., & Uraz, A. (2010). *Life Chances in Turkey: Expanding Opportunities for the Next Generation*. Washington DC: The World Bank.
- İlkkaracan, İ. (Ed.) (2010). *Work-Family Life Reconciliation Policies: Towards Gender Equality in the Labor Market*. İstanbul: Women for Women's Human Rights – New Ways and ITU WSC-SET.
- İlkkaracan, İ. (2012a). Why so few women in the labor market in Turkey? *Feminist Economics*, 18(1), 1–37.
- İlkkaracan, İ. (2012b). Work–family balance and public policy: A cross-country perspective. *Development*, 55(3), 325–332.
- İlkkaracan, İ., Kim, K. and T. Kaya (2015) *The Impact of Public Investment in Social Care Services on Employment, Gender Equality and Poverty: The Turkish case. Research Report*. İstanbul and New York: İstanbul Technical University Women's Studies Center and the Levy Economics Institute at Bard College.
- IBRD. (2015). *Supply and Demand for Child Care Services in Turkey*. Washington DC: The International Bank for Reconstruction and Development and The World Bank.

- Kağıtçıbaşı, C., Sunar, D., Bekman, S., Baydar, N., & Cemalcılar, Z. (2009). Continuing effects of early enrichment in adult life: The Turkish Early Enrichment Project 22 years later. *Journal of Applied Developmental Psychology, 30*(6), 764–779.
- Kağıtçıbaşı, C., Sunar, D., & Bekman, S. (2001). Long-term effects of early intervention: Turkish low-income mothers and children. *Journal of Applied Development Psychology, 22*, 333–361.
- Kandiyoti, D. (1988). Bargaining with patriarchy. *Gender and Society, 2*(3), 274–290.
- Kapçı, E. G., & Güler, D. (1999). Pre-school education in Turkey: Policies and practices in their historical context. *Early Child Development and Care, 156*(1), 53–62.
- Kaytaş, M. (2004). *A Cost Benefit Analysis of Preschool Education in Turkey*. Istanbul: AÇEV.
- Karaoğlu, D., & Ökten, Ç. (2012). Labor force participation of married women in Turkey: Is there an added or a discouraged worker effect? *IZA Discussion Papers*, No. 6616. Bonn.
- Kemnitz, A., & Thum, M. (2015). Gender power, fertility and family policy. *Scandinavian Journal of Economics, 117*(1), 220–247.
- Kırdar, M. G. (2009). Explaining ethnic disparities in school enrollment in Turkey. *Economic Development and Cultural Change, 57*(2), 297–333.
- Leroy, J. L., Gadsden, P., & Guijarro, M. (2012). The impact of daycare programmes on child health, nutrition and development in developing countries: A systematic review. *Journal of Development Effectiveness, 4*(3), 472–496.
- MONE. (2016). *National Education Statistics: Formal Education 2015-16*. Ankara.
- MONE. (2015). *National Education Statistics: Formal Education 2014-15*. Ankara.
- MONE. (2014). *National Education Statistics: Formal Education 2013-14*. Ankara.
- Mundy, K., Proulx, K., Janigan, K., Geva, E., & Fraser, C. (2008). Evaluation of the child-to-child school readiness programme in Ethiopia. *Science and Public Policy*, (May), 1–8.
- Myrskylä, M., Goldstein, J. R., & Cheng, Y-H. A. (2012). New cohort fertility forecasts for the developed world: Rises, falls, and reversals. Max Planck Institute Working Paper No. 2012-014.
- Naudeau, S., Kataoka, N., Valerio, A., Neuman, M. J., & Elder, L. K. (2011). *Investing in Young Children: An Early Childhood Development Guide for Dialogue and Project Preparation*. Washington DC: The World Bank.
- Nores, M., & Barnett, W. S. (2010). Benefits of early childhood interventions across the world: (Under) investing in the very young. *Economics of Education Review, 29*(2), 271–82.
- OECD. (2015). *Starting Strong IV: Monitoring Quality in Early Childhood Education and Care*. Paris.
- OECD. (2014). *OECD Family Database*. Paris.
- OECD. (2013). *PISA 2012 Results, Volume II: Excellence Through Equity. Giving Every Student the Chance to Succeed*. Paris.
- OECD. (2012). *Starting Strong III: A Quality Toolbox for Early Childhood Education and Care*. Paris.
- OECD. (2011). Does participation in pre-primary education translate into better learning outcomes at school? *Pisa in Focus, 1*. Paris.
- OECD. (2010). *PISA 2009 Results, Volume II: Overcoming Social Background – Equity in Learning Opportunities and Outcomes*. Paris.
- OECD. (2006). *Starting Strong II: Early Childhood Education and Care*. Paris.
- OECD. (2001). *Starting Strong: Early Childhood Education and Care*. Paris.
- Oral, I., & McGivney, E. J. (2011). *Türkiye eğitim sisteminde eşitlik ve akademik başarı, araştırma raporu ve analiz*. İstanbul: Eğitim Reformu Girişimi.
- Paker, H., & Uysal, G. (2015). Labor force participation decisions of educated women in Turkey: A multi-disciplinary Approach. *Mimeo*.
- Rao, N., Sun, J., Pearson, V., Pearson, E. Liu, H., Conostas, M.A., Engle, P.L. (2012). Is something better than nothing? An evaluation of early childhood programs in Cambodia. *Child Development, 83*(3), 864–76.
- Rao, N., Sun, J., Wong, J. M. S., Weekes, B., Ip, P., Shaeffer, S., ... Lee, D. (2014). *Early childhood development and cognitive development in developing countries: A rigorous literature review*. London: Department for International Development.
- Soytaş, M. A., & Şengül, G. (2016). Public Preschool Provision and Female Labor Supply : Case of Turkey. *Mimeo*.
- Tansel, A. (2015). Inequality of opportunities of educational achievement in Turkey over time. *METU Economic Research Centre Working Papers in Economics*, No. 15–3. Ankara.
- Tuğrul, B., & Yılmaz, H. H. (2012). *A Guide to Early Childhood Services for Local Governments, NGOs, and Employer Associations*. Ankara: UNICEF.

- Tunali, İ. (1997). To Work or Not to Work: An Examination of Female Labor Force Participation Rates in Urban Turkey. In *The Proceedings of the Economic Research Forum's Fourth Annual Conference on Regional Trade, Finance and Labor Markets* (pp. 163–178). Beirut.
- Tunali, İ., & Başlevent, C. (2006). Female labor supply in Turkey. In Sumru Altuğ & A. Filiztekin (Eds.), *The Turkish Economy: The Real Economy, Corporate Governance and Reform and Stabilization Policy* (pp. 92–127). London and New York: Routledge.
- TURKSTAT. (2015). *Labor Force Statistics*. Ankara.
- UN. (2015). *Transforming Our World: the 2030 Agenda for Sustainable Development*. Geneva.
- UNESCO. (2015). *Education for All Global Monitoring Report 2000–2015: Achievements and Challenges*. Paris.
- UNESCO. (2006). *Education for All Global Monitoring Report 2007: Strong Foundations*. Paris.
- UNICEF. (2008). *The Childcare Transition: A League Table of Early Childhood Education and Care in Economically Advanced Countries*. Florence.
- UNICEF/WHO. (2012). *Care for Child Development. Improving the Care for Young Children*. Geneva.
- World Bank. (1999). *Early Childhood Counts: Ways in Which ECD Programs can Address Inequalities*. Washington DC.
- World Bank. (2013a). *Expanding and Improving Early Childhood Education in Turkey*. Washington DC.
- World Bank. (2013b). *Promoting Excellence in Turkish Schools*. Washington DC.

TABLES

Table 1
Who spends time with the child

	At home		Outside		Help with homework	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Woman herself	2330	72.41	1464	45.48	1126	35.02
Husband	98	3.05	306	9.51	208	6.47
Together	633	19.67	990	30.75	351	10.92
Others	121	3.76	152	4.72	213	6.63
No-one	36	1.12	307	9.54	1317	40.96
Total	3218	100	3219	100	3215	100

Table 2
Mother's employment status

	Frequency	Percent
Not working	2470	76.71
In agriculture	276	8.57
In industry or services	474	14.72
Total	3220	100

Table 3
Non-working mothers: Reason for not working

	Frequency	Percent
Caring for children	1044	42.44
Housewife	573	23.29
Partner/family does not allow	446	18.13
Other	194	7.89
Does not need or want	135	5.49
Looking for a job/unemployed	68	2.76
Total	2460	100

Table 4
Working mothers: Who cares for the youngest child

	Frequency	Percent
Mother or mother-in-law	244	34.41
Woman herself	197	27.79
Other children, relatives, people	113	15.94
Kindergarten	89	12.55
Baby sitter	48	6.77
Husband	18	2.54
Total	709	100

Table 5

*Inner conflict**A. Woman should not work if she has small children*

	Frequency	Percent
Agree	1781	55.4
Disagree	1379	42.89
Don't know	55	1.71
Total	3215	100

B. Woman should not work if she has small children, by working status

	Disagree	Agree/Don't know	Total
Not working	994	1472	2466
%	40.31	59.69	100.00
Agriculture	94	181	275
%	34.18	65.82	100.00
Industry or services	291	183	474
%	61.39	38.61	100.00
Total	1379	1836	3215
	42.89	57.11	100

TABLE 6

*Target group**A. Age of the youngest child in the target group*

	Frequency	Percent	Cumulative
0-11	237	23.84	23.84
12-23	227	22.84	46.68
24-35	165	16.60	63.28
36-47	138	13.88	77.16
48-59	137	13.78	90.95
60-71	90	9.05	100
Total	994	100	

B. Wealth quintile, mother's average years of schooling and residence in the target group with non-enrolled youngest children aged zero to five

Wealth quintile	Frequency	Percent	Years of schooling		Urban	
			Mean	SD	Mean	SD
Lowest	192	22.02	4.16	3.27	0.45	0.50
Second	221	25.34	6.15	3.28	0.77	0.42
Third	198	22.71	7.45	3.14	0.89	0.31
Fourth	154	17.66	8.71	3.32	0.94	0.24
Top	107	12.27	10.57	3.10	0.97	0.17
Total	872	100				

C. Wealth quintile, mother's average years of schooling and residence in the target group with non-enrolled youngest children aged three to five

Wealth quintile	Frequency	Percent	Years of schooling		Urban	
			Mean	SD	Mean	SD
Lowest	47	19.26	3.62	2.89	0.49	0.51
Second	61	25.00	6.03	2.76	0.74	0.44
Third	63	25.82	7.08	2.81	0.87	0.34
Fourth	47	19.26	8.08	3.10	0.94	0.25
Top	26	10.66	9.42	2.82	1	0
Total	244	100				

Note. Target group are mothers who do not work but disagree with the statement that woman should not work when she has small children.

Table 7
Childcare and fertility decisions

	Percent
Family in better economic conditions	36.82
Child allowance given	30.25
Other support given e.g. nutrition	26.48
Financial support for childcare given	23.95
Allowed early retirement	22.62
Husband shares in chores and childcare	20.24
Shorter working hours	18.57
Maternity leave expanded	18.32
Breastfeeding leave expanded	17.49
Paternity leave introduced	17.36
Assured to be able to return to work	17.18
Family member available to care for child	14.36
Observations	1567

TABLE 8
Enrollment in early childhood education and care by age
A. Children aged zero to five

	Age (years)						Total
	0	1	2	3	4	5	
Not enrolled	769	754	657	625	499	186	3490
Early childhood education	1	2	7	64	260	220	554
Daycare center	1	1	5	49	57	0	113
Kindergarten	0	1	2	15	166	0	184
Pre-primary	0	0	0	0	37	220	257
Primary education	0	0	0	0	1	318	319
Total	770	756	664	689	760	724	4363
Enrolled	%	0.13	0.26	1.05	9.29	34.34	74.31
							20.01

Note. Age in years at the start of the school year - September

B. Children aged three to five (Final sample)

	Age (months)			Total
	36-47	48-59	60-71	
Not enrolled	625	499	186	1310
	%	90.71	65.74	25.69
Pre-primary	64	260	220	544
	%	9.29	34.26	30.39
Primary	0	0	318	318
	%	0	0	43.92
Total	689	759	724	2172
	%	100	100	100

Note. Age in months as of the start of the school year - September

Table 9

Key differentials in enrollment in early childhood education: Children 36-71 months old at the start of the school year

A. By residence

	Urban	Rural	Total
Not enrolled	877	433	1310
%	57.62	66.62	60.31
Pre-primary	427	117	544
%	28.06	18.00	25.05
Primary	218	100	318
%	14.32	15.38	14.64
Total	1522	650	2172
%	100	100	100

B. By region

	West	South	Central	North	East	Total
Not enrolled	235	186	219	145	525	1310
%	55.16	62.00	57.33	53.11	66.37	60.31
Pre-primary	139	79	101	81	144	544
%	32.63	26.33	26.44	29.67	18.20	25.05
Primary	52	35	62	47	122	318
%	12.21	11.67	16.23	17.22	15.42	14.64
Total	426	300	382	273	791	2172
%	100	100	100	100	100	100

C. By residence and region

	West		South		Central		North		East		Total
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	
Not enrolled	202	33	129	57	162	57	91	54	293	232	1310
%	54.89	56.90	58.64	71.25	56.45	60.00	46.91	68.35	64.68	68.64	60.31
Pre-primary	124	15	67	12	80	21	68	13	88	56	544
%	33.70	25.86	30.45	15.00	27.87	22.11	35.05	16.46	19.43	16.57	25.05
Primary	42	10	24	11	45	17	35	12	72	50	318
%	11.41	17.24	10.91	13.75	15.68	17.89	18.04	15.19	15.89	14.79	14.64
Total	368	58	220	80	287	95	194	79	453	338	2172
%	100	100	100	100	100	100	100	100	100	100	100

D. By ethnicity

	Turkish	Kurdish	Arabic	Total
Not enrolled	813	428	55	1296
%	55.57	70.74	67.07	60.28
Pre-primary	438	90	12	540
%	29.94	14.88	14.63	25.12
Primary	212	87	15	314
%	14.49	14.38	18.29	14.60
Total	1463	605	82	2150
%	100	100	100	100

E. By wealth quintile

	Lowest	Second	Third	Fourth	Top	Total
Not enrolled	468	345	225	176	96	1310
%	70.27	68.05	57.40	55.35	33.22	60.31
Pre-primary	89	90	97	106	162	544
%	13.36	17.75	24.74	33.33	56.06	25.05
Primary	109	72	70	36	31	318
%	16.37	14.20	17.86	11.32	10.73	14.64

Total		666	507	392	318	289	2172
	%	100	100	100	100	100	100

F. By sex

		Male	Female	Total
Not enrolled		709	601	1310
	%	60.65	59.92	60.31
Pre-primary		298	246	544
	%	25.49	24.53	25.05
Primary		162	156	318
	%	13.86	15.55	14.64
Total		1169	1003	2172
	%	100	100	100

Table 10

Descriptive statistics: Children 36-71 months old at the start of the school year

VARIABLES	Not enrolled		Pre-primary		Primary	
	Mean	SD	Mean	SD	Mean	SD
Child						
Age (months)	49.91	8.94	57.85	7.52	68.64	3.22
Male	0.54	0.50	0.55	0.50	0.51	0.50
Mother						
Age (years)	30.77	5.67	31.73	5.29	31.47	5.26
Schooling (years)	5.27	3.83	8.66	4.60	5.68	3.77
Illiterate	0.18	0.38	0.05	0.22	0.12	0.33
Ethnicity						
Turkish	0.62	0.49	0.81	0.40	0.67	0.47
Kurdish	0.33	0.47	0.17	0.37	0.27	0.45
Arab	0.04	0.20	0.02	0.15	0.05	0.21
Does not speak Turkish	0.05	0.22	0.02	0.13	0.03	0.16
Working	0.20	0.40	0.36	0.48	0.25	0.43
In agriculture	0.11	0.31	0.07	0.25	0.13	0.34
In industry or services	0.10	0.30	0.29	0.46	0.11	0.32
Father or step-father						
Schooling (years)	7.16	3.65	9.77	4.24	7.29	3.67
In agriculture	0.13	0.34	0.05	0.23	0.11	0.31
Wealth						
Index	-40.46	97.33	34.88	101.75	-29.48	98.03
Quintile						
Lowest	0.36	0.48	0.16	0.37	0.34	0.48
Second	0.26	0.44	0.17	0.37	0.23	0.42
Third	0.17	0.38	0.18	0.38	0.22	0.41
Fourth	0.13	0.34	0.19	0.40	0.11	0.32
Top	0.07	0.26	0.30	0.46	0.10	0.30
Residence						
Urban	0.67	0.47	0.78	0.41	0.69	0.47
Region						
West	0.18	0.38	0.26	0.44	0.16	0.37
South	0.14	0.35	0.15	0.35	0.11	0.31
Central	0.17	0.37	0.19	0.39	0.19	0.40
North	0.11	0.31	0.15	0.36	0.15	0.36
East	0.40	0.49	0.26	0.44	0.38	0.49
Marital structure						
Age at first marriage	20.05	4.05	21.41	4.13	19.67	3.71
Not married	0.02	0.13	0.02	0.15	0.03	0.18
Married more than once	0.02	0.15	0.02	0.13	0.03	0.16
Father not in the household	0.05	0.22	0.05	0.22	0.06	0.23
Extended family						
Members age 15 and above	2.15	1.82	1.69	1.38	2.01	1.47
Female members age 15 and above	0.63	1.01	0.39	0.80	0.54	0.79
Grandmother present	0.25	0.43	0.17	0.37	0.24	0.43
Siblings						
Sibship	1.96	1.77	1.34	1.28	2.03	1.73
Sibship age five and below	0.61	0.72	0.47	0.62	0.75	0.75
Multiple birth	0.02	0.15	0.04	0.19	0.01	0.08
Parity	0.59	0.44	0.45	0.46	0.50	0.43
Sex composition	0.52	0.33	0.53	0.37	0.52	0.32
Conservatism						
Woman should not work if small c.	0.60	0.49	0.54	0.50	0.61	0.49
Beliefs about gender roles	0.37	0.22	0.30	0.21	0.35	0.23
Acceptance of domestic violence	0.21	0.41	0.12	0.33	0.19	0.39
Husband's controlling behavior	0.12	0.18	0.10	0.17	0.13	0.19
H.'s not involved in dom. chores	0.92	0.12	0.86	0.17	0.91	0.13
Family background	0.33	0.22	0.21	0.21	0.32	0.22
Index	0.47	0.12	0.40	0.13	0.47	0.12
Migration from province						
Never moved	0.62	0.49	0.56	0.50	0.64	0.48

Moved but returned	0.10	0.30	0.13	0.34	0.11	0.31
Moved	0.28	0.45	0.31	0.46	0.26	0.44
Number of observations	1310		544		318	

Table 11

Model specifications

Model	Variables included
Model A	Child's sex, mother's age and age squared, mother's schooling, if mother illiterate, ethnicity, if mother proficient in Turkish, wealth, wealth interacted with child's sex
Model B	Model A + residence (urban/rural), region (west, south, central, north, east), residence interacted with child's sex, residence interacted with region
Model C	Model B + father's schooling
Model D	Model C + marital structure (mother's age at first marriage, if not married now, if married more than once, if father not in the household)
Model E	Model D + extended family (members aged 15 and above)
Model F	Model D + extended family (female members aged 15 and above)
Model G	Model D + extended family (at least one grandmother present)
Model H	Model G + siblings (if child from a multiple, sibship size excluding child, sibship size aged five and below excluding child, parity, parity squared, sex composition, parity and parity squared interacted with wealth, sex composition interacted with wealth, sex composition interacted with child's sex, sex composition interacted with child's sex and wealth)
Model I	Model H + conservatism (belief if woman should not work when she has small child)
Model J	Model H + conservatism (beliefs about gender roles)
Model K	Model H + conservatism (partner's non-involvement in domestic chores)
Model L	Model H + conservatism (composite index)
Model M	Model H + migration (if mother changed province from one where she was in childhood (at age 12))
Model N	Model H + conservatism index, migration
Model O	Model N + mother's employment status (not working or in agriculture or in industry/services)
Model P	Model N + mother's employment status, father's occupation (in agriculture or not)

Model Q	Model O + teachers (three-to-five-year-old population to public teachers, three-to-five-year-old population to private teachers)
Model R	Model O + classrooms (three-to-five-year-old population to public classrooms, three- to-five-year-old population to private classrooms)

Note. All specifications control for child's age in months and the month of the survey.

Table 12. Probability of attending pre-primary education (36-47 months old): Average marginal effects

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Child is female	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)
Mother																
Mother's age	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005* (< 0.005)	< 0.005* (< 0.005)	< 0.005* (< 0.005)	< 0.005* (< 0.005)	< .005** (< 0.005)	< 0.005* (< 0.005)	< .005** (< 0.005)	< 0.005* (< 0.005)	< 0.005 (< 0.005)
Mother's schooling (years)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)	0.01*** (< 0.005)
Mother illiterate	-0.00 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.02 (0.02)	-0.01 (0.03)
Ethnicity																
Kurdish	0.03* (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03* (0.02)	0.03* (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.04* (0.02)	0.03 (0.02)	0.03* (0.02)	0.03 (0.02)	0.02 (0.02)
Arabic	0.01 (0.04)	0.01 (0.04)	0.01 (0.04)	0.02 (0.04)	0.01 (0.04)	0.01 (0.04)	0.02 (0.04)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)
Mother not proficient in Turkish	0.04 (0.05)	0.04 (0.05)	0.04 (0.05)	0.04 (0.05)	0.05 (0.05)	0.05 (0.05)	0.04 (0.05)	0.04 (0.04)	0.04 (0.05)	0.04 (0.05)	0.04 (0.05)	0.02 (0.04)	0.04 (0.04)	0.02 (0.04)	0.02 (0.04)	0.01 (0.04)
Wealth quintile																
Second	-0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.02 (0.01)	0.01 (0.02)
Third	0.03* (0.02)	0.05** (0.02)	0.04** (0.02)	0.04** (0.02)	0.04** (0.02)	0.04** (0.02)	0.04** (0.02)	0.04** (0.02)	0.04** (0.02)	0.04** (0.02)	0.04** (0.02)	0.04** (0.02)	0.05** (0.02)	0.04** (0.02)	0.05** (0.02)	0.05** (0.03)
Fourth	0.04** (0.02)	0.06*** (0.02)	0.05** (0.02)	0.06*** (0.02)	0.06*** (0.02)	0.06*** (0.02)	0.06** (0.02)	0.06*** (0.02)	0.06*** (0.02)	0.06*** (0.02)	0.06*** (0.02)	0.07*** (0.02)	0.06*** (0.02)	0.07*** (0.02)	0.07*** (0.02)	0.08*** (0.03)
Top	0.10*** (0.03)	0.12*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.11*** (0.03)	0.10*** (0.03)
Rural																
		0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.02 (0.02)
Region																
South		< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	< 0.005 (0.02)	0.01 (0.02)	0.01 (0.02)
Central		-0.02 (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)	-0.02 (0.02)
North		0.05** (0.02)	0.04* (0.02)	0.05** (0.02)	0.05** (0.02)	0.05** (0.02)	0.05** (0.02)	0.04** (0.02)	0.04* (0.02)	0.04** (0.02)	0.04** (0.02)	0.05** (0.02)	0.04* (0.02)	0.05** (0.02)	0.04* (0.02)	0.04* (0.02)
East		0.01 (0.02)	0.01 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.01 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
Father's schooling (years)																
			< .005** (< 0.005)	< .005** (< 0.005)	< .005** (< 0.005)	< .005** (< 0.005)	< .005** (< 0.005)	< .005** (< 0.005)	< .005** (< 0.005)	< .005** (< 0.005)	< .005** (< 0.005)	< .005** (< 0.005)	< .005** (< 0.005)	< .005** (< 0.005)	< 0.005* (< 0.005)	< 0.005 (< 0.005)
Marital structure																
Age at first marriage				< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)
Mother not married now				0.10	0.09	0.09	0.10	0.06	0.06	0.06	0.06	0.03	0.07	0.04	0.02	

				(0.06)	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	
				0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.05
Continued	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Mother married 2+ times				(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Father not in the household				-0.03	-0.03	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03*	-0.03	-0.02	-0.03
				(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Extended family																
Members aged 15+					< 0.005											
					(0.00)											
Female members aged 15+						-0.01										
						(0.01)										
Grandmother present							< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	-0.01
							(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Siblings																
Child is from a multiple								0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03
								(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)
Sibship size								-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.00	-0.01
								(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sibship size aged ≤5								-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01	-0.00
								(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Parity								-0.12***	-0.12***	-0.12***	-0.12***	-0.13***	-0.12***	-0.12***	-0.12***	-0.12***
								(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Sex composition								< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
								(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Conservatism																
Woman should not work if small children									0.02							
									(0.01)							
Beliefs about gender roles										0.01						
										(0.03)						
Husband not involved in domestic chores											-0.05					
											(0.04)					
Index												-0.02		-0.02	-0.02	-0.01
												(0.06)		(0.04)	(0.04)	(0.04)
Migration (province)																
Moved but returned													0.01	0.01	0.01	0.01
													(0.02)	(0.02)	(0.02)	(0.02)
Moved													-0.01	-0.01	-0.01	-0.01
													(0.01)	(0.01)	(0.01)	(0.01)
Parental occupation																
Mother works - Agriculture															0.01	0.01
															(0.02)	(0.02)
Mother works – Ind./Serv.															0.07***	0.06***
															(0.02)	(0.02)
Father in agriculture																-0.04
																(0.02)

Observations	1.448	1.448	1.437	1.437	1.437	1.437	1.437	1.437	1.435	1.430	1.430	1.394	1.437	1.389	1.389	1.277
Subsample	689	689	687	687	687	687	687	687	685	681	681	663	687	661	661	603

Note. Standard errors in parentheses

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 13. Probability of attending pre-primary education (48-59 months old): Average marginal effects

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Child is female	< 0.005 (0.03)	< 0.005 (0.03)	-0.01 (0.03)	-0.01 (0.03)	-0.01 (0.03)	-0.01 (0.03)	-0.01 (0.03)	< 0.005 (0.04)	0.01 (0.04)	0.01 (0.04)	0.01 (0.04)	0.01 (0.04)	0.01 (0.04)	< 0.005 (0.04)	< 0.005 (0.04)	0.01 (0.04)
Mother																
Mother's age	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	0.01* (< 0.005)	0.01* (< 0.005)	0.01* (< 0.005)	0.01* (< 0.005)	0.01** (< 0.005)	0.01* (< 0.005)	0.01** (< 0.005)	0.01* (< 0.005)	0.01* (< 0.005)
Mother's schooling (years)	0.03*** (0.00)	0.03*** (0.00)	0.03*** (0.00)	0.03*** (0.00)	0.03*** (0.00)	0.03*** (0.00)	0.03*** (0.00)	0.03*** (0.00)	0.03*** (0.00)	0.03*** (0.00)	0.03*** (0.00)	0.03*** (0.01)	0.03*** (0.00)	0.03*** (0.01)	0.02*** (0.01)	0.03*** (0.01)
Mother illiterate	-0.01 (0.06)	-0.04 (0.06)	-0.03 (0.06)	-0.04 (0.06)	-0.04 (0.06)	-0.04 (0.06)	-0.04 (0.06)	-0.03 (0.06)	-0.03 (0.06)	-0.03 (0.06)	-0.03 (0.06)	-0.04 (0.06)	-0.04 (0.06)	-0.03 (0.06)	-0.05 (0.06)	-0.02 (0.07)
Ethnicity																
Kurdish	0.08** (0.04)	0.07 (0.04)	0.07 (0.04)	0.07* (0.04)	0.08* (0.04)	0.08* (0.04)	0.07* (0.04)	0.07* (0.04)	0.08* (0.04)	0.07* (0.04)	0.07* (0.04)	0.08* (0.04)	0.07* (0.04)	0.08* (0.04)	0.07* (0.04)	0.04 (0.05)
Arabic	0.03 (0.09)	0.04 (0.09)	0.04 (0.09)	0.04 (0.09)	0.04 (0.09)	0.03 (0.09)	0.04 (0.09)	0.02 (0.08)	0.02 (0.08)	0.02 (0.08)	0.02 (0.08)	0.03 (0.08)	0.02 (0.08)	0.03 (0.08)	0.02 (0.08)	0.04 (0.08)
Mother not proficient in Turkish	0.09 (0.10)	0.09 (0.09)	0.09 (0.10)	0.09 (0.10)	0.10 (0.10)	0.10 (0.10)	0.10 (0.10)	0.10 (0.10)	0.09 (0.10)	0.10 (0.10)	0.10 (0.10)	0.06 (0.10)	0.10 (0.10)	0.06 (0.10)	0.06 (0.10)	0.03 (0.10)
Wealth quintile																
Second	-0.02 (0.04)	0.04 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.04 (0.05)	0.04 (0.05)	0.04 (0.05)	0.04 (0.05)	0.05 (0.05)	0.04 (0.05)	0.05 (0.05)	0.06 (0.05)	0.01 (0.06)
Third	0.09* (0.05)	0.16** (0.06)	0.13** (0.06)	0.14** (0.06)	0.14** (0.06)	0.14** (0.06)	0.14** (0.06)	0.15*** (0.06)	0.15*** (0.06)	0.15*** (0.06)	0.15*** (0.06)	0.16*** (0.06)	0.15*** (0.06)	0.16*** (0.06)	0.16*** (0.06)	0.12** (0.06)
Fourth	0.12** (0.05)	0.19*** (0.06)	0.16** (0.06)	0.17*** (0.06)	0.17*** (0.06)	0.17*** (0.06)	0.17*** (0.06)	0.16*** (0.06)	0.16*** (0.06)	0.16*** (0.06)	0.16*** (0.06)	0.17*** (0.06)	0.16*** (0.06)	0.18*** (0.06)	0.18*** (0.06)	0.14** (0.06)
Top	0.24*** (0.06)	0.31*** (0.07)	0.28*** (0.07)	0.29*** (0.07)	0.29*** (0.07)	0.29*** (0.07)	0.29*** (0.07)	0.25*** (0.06)	0.25*** (0.06)	0.25*** (0.06)	0.25*** (0.06)	0.26*** (0.07)	0.25*** (0.06)	0.26*** (0.07)	0.26*** (0.07)	0.19*** (0.07)
Rural		0.06 (0.04)	0.06 (0.04)	0.06 (0.04)	0.07* (0.04)	0.07* (0.04)	0.06 (0.04)	0.08** (0.04)	0.08** (0.04)	0.08** (0.04)	0.08** (0.04)	0.08** (0.04)	0.08** (0.04)	0.08** (0.04)	0.08* (0.04)	0.07 (0.04)
Region																
South		-0.02 (0.05)	-0.02 (0.05)	-0.01 (0.05)	-0.02 (0.05)	-0.02 (0.05)	-0.01 (0.05)	-0.00 (0.05)	-0.00 (0.05)	-0.00 (0.05)	-0.00 (0.05)	-0.00 (0.04)	-0.00 (0.05)	0.00 (0.05)	0.02 (0.05)	0.02 (0.05)
Central		-0.03 (0.04)	-0.03 (0.04)	-0.03 (0.04)	-0.03 (0.04)	-0.03 (0.04)	-0.03 (0.04)	-0.02 (0.04)	-0.03 (0.04)	-0.02 (0.04)	-0.02 (0.04)	-0.03 (0.04)	-0.02 (0.04)	-0.03 (0.04)	-0.03 (0.04)	-0.03 (0.05)
North		0.10** (0.05)	0.09* (0.05)	0.09* (0.05)	0.10* (0.05)	0.09* (0.05)	0.09* (0.05)	0.10* (0.05)	0.09* (0.05)	0.09* (0.05)	0.09* (0.05)	0.10** (0.05)	0.09* (0.05)	0.10* (0.05)	0.09* (0.05)	0.09 (0.06)
East		0.05 (0.05)	0.04 (0.05)	0.05 (0.05)	0.05 (0.05)	0.05 (0.05)	0.05 (0.05)	0.06 (0.05)	0.05 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.07 (0.05)	0.06 (0.05)
Father's schooling (years)			0.01** (0.00)	0.01* (0.00)	0.01* (0.00)	0.01** (0.00)	0.01* (0.00)	0.01** (0.00)	0.01** (0.00)	0.01** (0.00)	0.01** (0.00)	0.01** (0.00)	0.01** (0.00)	0.01** (0.00)	0.01** (0.00)	0.01 (0.01)
Marital structure																
Age at first marriage				0.01 (0.00)	0.01 (0.00)	0.01 (0.00)	0.01 (0.00)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)

Mother not married now				0.20*	0.19*	0.19*	0.20*	0.15	0.14	0.15	0.15	0.08	0.16	0.09	0.05		
				(0.11)	(0.11)	(0.11)	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)	(0.12)	(0.11)	(0.12)	(0.12)		
Mother married 2+ times				0.11	0.11	0.11	0.11	0.09	0.09	0.09	0.09	0.07	0.09	0.06	0.07	0.12	
				(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)	(0.09)	(0.10)	(0.10)	(0.10)	
Continued	A	B	C	D	E	F	G	H	I	J	K	L	N	O	P	Q	
Father not in the household				-0.09	-0.07	-0.06	-0.08	-0.09	-0.08	-0.09	-0.09	-0.07	-0.09	-0.08	-0.06	-0.07	
				(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)	
Extended family																	
Members aged 15+					-0.01												
					(0.01)												
Female members aged 15+						-0.02											
						(0.02)											
Grandmother present							-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	
							(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	
Siblings																	
Child is from a multiple								0.07	0.08	0.08	0.07	0.08	0.07	0.08	0.06	0.07	
								(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	
Sibship size								-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.02
								(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Sibship size aged ≤5								-0.03	-0.03	-0.03	-0.03	-0.04	-0.03	-0.04	-0.03	-0.01	
								(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	
Parity								-0.12**	-0.12**	-0.12**	-0.12**	-0.13**	-0.12**	-0.14**	-0.14**	-0.11*	
								(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	
Sex composition								0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	
								(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	
Conservatism																	
Woman should not work if small children									0.04								
									(0.03)								
Beliefs about gender roles										0.02							
										(0.07)							
Husband not involved in domestic chores											-0.14						
											(0.09)						
Index												-0.05		-0.05	-0.04	-0.03	
												(0.15)		(0.10)	(0.10)	(0.10)	
Migration (province)																	
Moved but returned													0.02	0.03	0.01	0.02	
													(0.05)	(0.05)	(0.05)	(0.05)	
Moved													-0.01	-0.01	-0.01	-0.00	
													(0.03)	(0.03)	(0.03)	(0.03)	
Parental occupation																	
Mother works - Agriculture															0.02	0.03	
															(0.06)	(0.05)	
Mother works – Ind./Serv.															0.16***	0.15***	
															(0.04)	(0.04)	
Father in agriculture																-0.10	

																(0.06)
Observations	1.448	1.448	1.437	1.437	1.437	1.437	1.437	1.437	1.435	1.430	1.430	1.394	1.437	1.389	1.389	1.277
Subsample	759	759	750	750	750	750	750	750	750	749	749	731	750	728	728	674

Note. Standard errors in parentheses

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 14. Probability of attending pre-primary education (60-71 months old): Average marginal effects

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Child is female	< 0.005 (0.03)	< 0.005 (0.03)	< 0.005 (0.03)	< 0.005 (0.03)	< 0.005 (0.03)	< 0.005 (0.03)	< 0.005 (0.03)	-0.01 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.12* (0.07)
Mother																
Mother's age	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)
Mother's schooling (years)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)
Mother illiterate	0.05 (0.06)	0.04 (0.06)	0.04 (0.07)	0.04 (0.06)	0.03 (0.06)	0.02 (0.06)	0.03 (0.06)	0.06 (0.07)	0.06 (0.07)	0.06 (0.07)	0.06 (0.07)	0.06 (0.07)	0.07 (0.07)	0.06 (0.07)	0.06 (0.07)	0.10 (0.07)
Ethnicity																
Kurdish	-0.03 (0.04)	-0.02 (0.04)	-0.02 (0.04)	-0.03 (0.04)	-0.02 (0.04)	-0.02 (0.04)	-0.02 (0.04)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	-0.00 (0.05)	0.02 (0.05)	0.00 (0.05)	-0.00 (0.05)	-0.02 (0.05)
Arabic	-0.10 (0.08)	-0.12 (0.07)	-0.12* (0.07)	-0.13* (0.07)	-0.13* (0.07)	-0.12* (0.07)	-0.12* (0.07)	-0.12* (0.07)	-0.12* (0.07)	-0.12* (0.07)	-0.12* (0.07)	-0.12* (0.07)	-0.12 (0.07)	-0.12 (0.08)	-0.12 (0.08)	-0.12 (0.11)
Mother not proficient in Turkish	-0.11 (0.10)	-0.12 (0.10)	-0.10 (0.10)	-0.11 (0.10)	-0.10 (0.11)	-0.10 (0.10)	-0.10 (0.10)	-0.09 (0.10)	-0.09 (0.10)	-0.09 (0.10)	-0.09 (0.10)	-0.08 (0.11)	-0.10 (0.10)	-0.09 (0.10)	-0.09 (0.10)	-0.12 (0.16)
Wealth quintile																
Second	0.04 (0.04)	0.04 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.04 (0.05)	0.04 (0.05)	0.04 (0.05)	0.04 (0.05)	0.04 (0.05)	0.04 (0.05)	0.05 (0.05)	0.05 (0.05)	0.05 (0.05)
Third	0.01 (0.05)	0.01 (0.05)	-0.00 (0.05)	-0.00 (0.05)	-0.00 (0.05)	-0.00 (0.05)	-0.00 (0.05)	-0.01 (0.05)	-0.01 (0.05)	-0.01 (0.05)	-0.01 (0.05)	-0.00 (0.05)	-0.00 (0.05)	0.01 (0.05)	0.01 (0.06)	0.00 (0.06)
Fourth	0.02 (0.05)	0.03 (0.06)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.00 (0.06)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.02 (0.07)
Top	0.16** (0.06)	0.18** (0.07)	0.14* (0.08)	0.14* (0.08)	0.14* (0.07)	0.14* (0.08)	0.14* (0.08)	0.14* (0.07)	0.14* (0.07)	0.15* (0.07)	0.15* (0.08)	0.14** (0.07)	0.16** (0.07)	0.14* (0.07)	0.13* (0.07)	0.42*** (0.10)
Rural		-0.01 (0.04)	-0.02 (0.04)	-0.02 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.01 (0.04)	0.02 (0.04)	0.01 (0.04)	0.02 (0.04)	0.02 (0.04)	0.01 (0.04)	0.02 (0.04)	0.00 (0.04)	0.00 (0.04)	0.01 (0.05)
Region																
South		0.10** (0.05)	0.10* (0.05)	0.09* (0.05)	0.09* (0.05)	0.09* (0.05)	0.09* (0.05)	0.10** (0.05)	0.10* (0.05)	0.10* (0.05)	0.10* (0.05)	0.10* (0.05)	0.08* (0.05)	0.08 (0.05)	0.07 (0.05)	0.09* (0.05)
Central		0.07 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.07 (0.05)	0.07 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.07 (0.05)	0.06 (0.05)	0.08 (0.05)
North		0.04 (0.05)	0.03 (0.06)	0.03 (0.06)	0.03 (0.06)	0.04 (0.05)	0.03 (0.06)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.02 (0.05)	0.03 (0.05)	0.03 (0.05)	0.04 (0.06)
East		0.03 (0.05)	0.02 (0.05)	0.01 (0.05)	0.02 (0.05)	0.02 (0.05)	0.02 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.02 (0.05)	0.01 (0.05)	0.02 (0.05)	0.03 (0.06)
Father's schooling (years)			0.01 (< 0.005)	0.01 (< 0.005)	0.01 (< 0.005)	0.01 (< 0.005)	0.01 (< 0.005)	0.01 (< 0.005)	0.01 (< 0.005)	0.01* (< 0.005)	0.01* (< 0.005)	0.01* (< 0.005)	0.01 (< 0.005)	0.01 (< 0.005)	0.01 (< 0.005)	0.01 (0.01)
Marital structure																
Age at first marriage				< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)

Mother not married now				-0.01 (0.15)	-0.01 (0.15)	-0.02 (0.14)	-0.01 (0.14)	-0.05 (0.14)	-0.05 (0.14)	-0.05 (0.14)	-0.05 (0.14)	-0.05 (0.13)	-0.02 (0.14)	-0.02 (0.13)	-0.03 (0.13)	
Mother married 2+ times				-0.17* (0.09)	-0.17* (0.09)	-0.18** (0.09)	-0.17* (0.09)	-0.16* (0.09)	-0.16* (0.09)	-0.16* (0.09)	-0.16* (0.09)	-0.16* (0.09)	-0.14 (0.10)	-0.15 (0.09)	-0.15 (0.09)	-0.10 (0.14)
Continued	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Father not in the household				0.03 (0.12)	0.04 (0.12)	0.07 (0.12)	0.05 (0.12)	0.02 (0.10)	0.02 (0.10)	0.03 (0.10)	0.03 (0.10)	0.02 (0.10)	-0.01 (0.10)	-0.03 (0.09)	-0.02 (0.10)	-0.02 (0.09)
Extended family																
Members aged 15+					-0.02 (0.01)											
Female members aged 15+						-0.04 (0.03)										
Grandmother present							-0.07* (0.04)	-0.06* (0.04)	-0.06* (0.04)	-0.07* (0.04)	-0.07* (0.04)	-0.06* (0.04)	-0.07* (0.04)	-0.07* (0.04)	-0.07* (0.04)	-0.09** (0.04)
Siblings																
Child is from a multiple								0.12 (0.13)	0.11 (0.13)	0.12 (0.13)	0.12 (0.13)	0.12 (0.13)	0.14 (0.13)	0.14 (0.13)	0.15 (0.13)	0.15 (0.11)
Sibship size								-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.02 (0.02)
Sibship size aged ≤5								-0.08* (0.04)	-0.08* (0.04)	-0.08* (0.04)	-0.08* (0.04)	-0.08* (0.04)	-0.08* (0.04)	-0.08* (0.04)	-0.08* (0.04)	-0.08* (0.05)
Parity								-0.02 (0.06)	-0.02 (0.06)	-0.03 (0.06)	-0.03 (0.06)	-0.04 (0.06)	-0.03 (0.06)	-0.04 (0.06)	-0.04 (0.06)	-0.04 (0.06)
Sex composition								-0.11 (0.07)	-0.11 (0.07)	-0.11 (0.07)	-0.11 (0.07)	-0.11 (0.07)	-0.11 (0.07)	-0.09 (0.07)	-0.09 (0.07)	-0.12 (0.08)
Conservatism																
Woman should not work if small children										< 0.005 (0.03)						
Beliefs about gender roles											0.05 (0.08)					
Husband not involved in domestic chores												0.13 (0.12)				
Index												0.04 (0.17)		-0.01 (0.11)	-0.02 (0.11)	-0.00 (0.12)
Migration (province)																
Moved but returned													0.05 (0.05)	0.04 (0.05)	0.04 (0.05)	-0.01 (0.05)
Moved													-0.06* (0.03)	-0.06* (0.03)	-0.06* (0.03)	-0.07* (0.04)
Parental occupation																
Mother works - Agriculture															-0.01 (0.06)	-0.01 (0.06)
Mother works – Ind./Serv.															-0.01 (0.04)	-0.03 (0.05)
Father in agriculture																0.04

																(0.06)
Observations	724	724	717	717	717	717	717	717	716	716	716	708	717	704	704	640

Note. Standard errors in parentheses

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 15. Probability of attending primary education (60-71 months old): Average marginal effects

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
Child is female	0.04 (0.03)	0.04 (0.03)	0.04 (0.03)	0.04 (0.03)	0.04 (0.03)	0.04 (0.03)	0.04 (0.03)	0.04 (0.03)	0.07 (0.04)	0.06 (0.04)	0.06 (0.04)	0.06 (0.04)	0.06 (0.04)	0.07 (0.04)	0.07 (0.04)	0.07 (0.04)	-0.01 (0.05)
Mother																	
Mother's age	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (< 0.005)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)
Mother's schooling (years)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)
Mother illiterate	-0.04 (0.06)	-0.04 (0.06)	-0.03 (0.06)	-0.03 (0.06)	-0.02 (0.06)	-0.02 (0.06)	-0.02 (0.06)	-0.06 (0.06)	-0.06 (0.06)	-0.06 (0.06)	-0.06 (0.06)	-0.06 (0.06)	-0.06 (0.06)	-0.06 (0.06)	-0.05 (0.06)	-0.04 (0.06)	-0.10 (0.07)
Ethnicity																	
Kurdish	0.01 (0.04)	0.02 (0.05)	0.02 (0.05)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	-0.02 (0.05)	-0.01 (0.05)	-0.02 (0.05)	-0.02 (0.05)	0.00 (0.05)	-0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	0.00 (0.06)
Arabic	0.19** (0.09)	0.22** (0.09)	0.22** (0.09)	0.22** (0.09)	0.23** (0.09)	0.22** (0.09)	0.22** (0.09)	0.23*** (0.08)	0.22*** (0.08)	0.22*** (0.08)	0.22*** (0.08)	0.23*** (0.08)	0.23*** (0.08)	0.23*** (0.08)	0.23*** (0.09)	0.23** (0.09)	0.23** (0.10)
Mother not proficient in Turkish	-0.05 (0.09)	-0.05 (0.09)	-0.06 (0.09)	-0.05 (0.09)	-0.06 (0.09)	-0.06 (0.09)	-0.06 (0.09)	-0.07 (0.08)	-0.08 (0.08)	-0.09 (0.08)	-0.09 (0.08)	-0.12 (0.08)	-0.07 (0.09)	-0.12 (0.08)	-0.12 (0.08)	-0.12 (0.08)	-0.16 (0.11)
Wealth quintile																	
Second	-0.01 (0.04)	-0.04 (0.05)	-0.04 (0.05)	-0.04 (0.05)	-0.03 (0.05)	-0.03 (0.05)	-0.04 (0.05)	-0.05 (0.05)	-0.05 (0.05)	-0.06 (0.05)	-0.06 (0.05)	-0.06 (0.05)	-0.05 (0.05)	-0.06 (0.05)	-0.06 (0.05)	-0.06 (0.05)	-0.10* (0.05)
Third	0.02 (0.05)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.01 (0.06)	0.00 (0.06)	-0.00 (0.06)	-0.01 (0.06)	-0.01 (0.06)	-0.01 (0.06)	-0.00 (0.06)	-0.02 (0.06)	-0.02 (0.06)	-0.02 (0.06)	-0.04 (0.06)
Fourth	-0.07 (0.06)	-0.09 (0.07)	-0.09 (0.07)	-0.09 (0.07)	-0.09 (0.07)	-0.10 (0.07)	-0.10 (0.07)	-0.12* (0.07)	-0.13* (0.07)	-0.13** (0.07)	-0.13** (0.07)	-0.13* (0.07)	-0.13* (0.07)	-0.14** (0.07)	-0.15** (0.07)	-0.15** (0.07)	-0.16** (0.07)
Top	-0.04 (0.06)	-0.07 (0.07)	-0.06 (0.07)	-0.06 (0.07)	-0.06 (0.07)	-0.06 (0.07)	-0.06 (0.07)	-0.04 (0.07)	-0.05 (0.07)	-0.06 (0.07)	-0.06 (0.08)	-0.05 (0.07)	-0.05 (0.07)	-0.05 (0.07)	-0.04 (0.07)	-0.04 (0.07)	0.42*** (0.10)
Rural																	
		-0.01 (0.04)	-0.02 (0.04)	-0.02 (0.04)	-0.03 (0.04)	-0.03 (0.04)	-0.03 (0.04)	-0.05 (0.04)	-0.06 (0.04)	-0.05 (0.04)	-0.05 (0.04)	-0.05 (0.04)	-0.06 (0.04)	-0.05 (0.04)	-0.05 (0.04)	-0.05 (0.04)	-0.04 (0.05)
Region																	
South		-0.10* (0.06)	-0.10* (0.06)	-0.10* (0.06)	-0.09 (0.06)	-0.09 (0.06)	-0.09 (0.06)	-0.11* (0.06)	-0.11* (0.06)	-0.11* (0.06)	-0.11* (0.06)	-0.10* (0.06)	-0.10* (0.06)	-0.09 (0.06)	-0.09 (0.06)	-0.09 (0.06)	-0.10 (0.06)
Central		-0.02 (0.05)	-0.02 (0.05)	-0.02 (0.05)	-0.03 (0.05)	-0.03 (0.05)	-0.03 (0.05)	-0.04 (0.05)	-0.04 (0.05)	-0.05 (0.05)	-0.05 (0.05)	-0.04 (0.05)	-0.04 (0.05)	-0.06 (0.05)	-0.06 (0.05)	-0.06 (0.05)	-0.09 (0.06)
North		0.02 (0.06)	0.02 (0.06)	0.03 (0.06)	0.02 (0.06)	0.02 (0.06)	0.02 (0.06)	0.01 (0.07)	0.01 (0.07)	0.01 (0.07)	0.01 (0.07)	0.01 (0.07)	0.01 (0.07)	-0.01 (0.07)	-0.00 (0.07)	-0.00 (0.07)	-0.01 (0.07)
East		-0.02 (0.06)	-0.01 (0.06)	-0.01 (0.06)	-0.02 (0.06)	-0.02 (0.06)	-0.02 (0.06)	-0.03 (0.06)	-0.03 (0.06)	-0.04 (0.06)	-0.04 (0.06)	-0.02 (0.06)	-0.03 (0.06)	-0.05 (0.06)	-0.05 (0.06)	-0.05 (0.06)	-0.07 (0.06)
Father's schooling (years)																	
			< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)	< 0.005 (0.01)
Marital structure																	
Age at first marriage				-0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)

																(0.06)
Observations	724	724	717	717	717	717	717	717	716	716	716	708	717	704	704	640

Note. Standard errors in parentheses

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$.

TABLE 16

Average marginal effects of child's sex by wealth quintile and age

	36-47	48-59	60-71	60-71
	Pre-primary	Pre-primary	Pre-primary	Primary
Lowest	< 0.005 (0.01)	0.02 (0.05)	-0.07 (0.06)	0.12* (0.07)
Second	-0.00 (0.03)	-0.01 (0.10)	0.05 (0.08)	-0.01 (0.09)
Third	< 0.005 (0.05)	-0.01 (0.11)	-0.00 (0.11)	0.05 (0.11)
Fourth	0.02 (0.06)	0.03 (0.10)	0.18* (0.11)	0.05 (0.12)
Top	-0.01 (0.08)	-0.02 (0.06)	-0.14 (0.11)	0.10 (0.10)
Observations	1391	1391	704	704
Subsample	663	728		

Note. Age in months as of the start of the school year – September.

Standard errors in parentheses.

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

TABLE 17

Average marginal effects of child's sex by residence and age

	36-47	48-59	60-71	60-71
	Pre-primary	Pre-primary	Pre-primary	Primary
Urban	< 0.005 (0.02)	< 0.005 (0.04)	< 0.005 (0.05)	0.04 (0.05)
Rural	0.01 (0.02)	0.01 (0.06)	0.01 (0.06)	0.12* (0.06)
Observations	1391	1391	704	704
Subsample	663	728		

Note. Age in months as of the start of the school year – September.

Standard errors in parentheses.

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

TABLE 18

Average marginal effects of residence by region and age

	36-47	48-59	60-71	60-71
	Pre-primary	Pre-primary	Pre-primary	Primary
West	0.01 (0.05)	0.03 (0.09)	-0.03 (0.09)	0.04 (0.08)
South	-0.01 (0.03)	-0.02 (0.09)	-0.02 (0.09)	-0.11 (0.08)
Central	0.05 (0.04)	0.12 (0.08)	< 0.005 (0.10)	0.06 (0.10)
North	-0.02	-0.04	-0.08	-0.14

	(0.05)	(0.10)	(0.10)	(0.12)
East	0.06***	0.18***	0.06	-0.11*
	(0.02)	(0.05)	(0.06)	(0.06)
Observations	1391	1391	704	704
Subsample	663	728		

Note. Age in months as of the start of the school year – September.

Standard errors in parentheses.

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 19

Average marginal effects of parity by wealth quintile and age

	36-47		48-59		60-71		60-71	
	Pre-primary		Pre-primary		Pre-primary		Primary	
Lowest	-0.03*	(0.02)	-0.17	(0.10)	-0.13	(0.09)	-0.07	(0.13)
Second	-0.04**	(0.02)	-0.10	(0.10)	0.07	(0.10)	-0.07	(0.10)
Third	-0.04*	(0.02)	-0.15*	(0.09)	-0.07	(0.09)	0.11	(0.09)
Fourth	-0.15	(0.09)	-0.12	(0.11)	-0.10	(0.15)	0.01	(0.15)
Top	-0.59***	(0.14)	-0.14	(0.09)	0.04	(0.13)	-0.07	(0.13)
Observations	1391		1391		704		704	
Subsample	663		728					

Note. Age in months as of the start of the school year – September.

Standard errors in parentheses.

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 20

Average marginal effects of sex composition by wealth quintile, age and sex

	36-47		48-59		60-71		60-71	
	Pre-primary		Pre-primary		Pre-primary		Primary	
	Male	Female	Male	Female	Male	Female	Male	Female
Lowest	0.03	0.02	0.13	0.10	-0.16	-0.18	0.16	-0.07
	(0.03)	(0.03)	(0.14)	(0.15)	(0.14)	(0.15)	(0.17)	(0.18)
Second	-0.03	-0.00	-0.16	-0.02	0.21	-0.05	-0.36**	0.19
	(0.04)	(0.04)	(0.17)	(0.21)	(0.17)	(0.18)	(0.18)	(0.17)
Third	-0.04	0.10	-0.16	0.35*	0.05	-0.07	0.06	0.25
	(0.06)	(0.06)	(0.23)	(0.20)	(0.20)	(0.22)	(0.21)	(0.23)
Fourth	0.05	0.09	0.10	0.17	0.44*	-0.11	-0.08	0.06
	(0.09)	(0.12)	(0.17)	(0.25)	(0.27)	(0.25)	(0.23)	(0.27)
Top	-0.35**	0.08	-0.28**	0.08	-0.73*	-0.07	-0.70*	0.29
	(0.15)	(0.17)	(0.12)	(0.17)	(0.59)	(0.25)	(0.40)	(0.22)
Observations	755	636	755	636	375	329	375	329
Subsample	351	312	404	324				

Note. Age in months as of the start of the school year – September.

Standard errors in parentheses.

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 21

Average marginal effects of parity by wealth quintile and age, excluding single children

	36-47		48-59		60-71		60-71	
	Pre-primary		Pre-primary		Pre-primary		Primary	
Lowest	-0.04	(0.02)	-0.21	(0.14)	-0.15	(0.12)	-0.14	(0.15)
Second	-0.05**	(0.02)	-0.14**	(0.07)	0.03	(0.14)	-0.08	(0.12)
Third	-0.08*	(0.05)	-0.26*	(0.15)	0.00	(0.12)	0.02	(0.13)
Fourth	0.18	(0.16)	0.31	(0.25)	-0.18	(0.15)	0.10	(0.17)
Top	-0.14	(0.12)	0.05	(0.20)	-0.17	(0.24)	0.25	(0.23)
Observations	1173		1173		618		618	
Subsample	551		622					

Note. Age in months as of the start of the school year – September.

Standard errors in parentheses.

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 22

Average marginal effects of sex composition by wealth quintile, age and sex, excluding single children

	36-47		48-59		60-71		60-71	
	Pre-primary		Pre-primary		Pre-primary		Primary	
	Male	Female	Male	Female	Male	Female	Male	Female
Lowest	0.01	0.02	0.08	0.08	-0.16*	-0.15	0.14	-0.06
	(0.02)	(0.02)	(0.10)	(0.10)	(0.09)	(0.09)	(0.10)	(0.12)
Second	-0.02	-0.01	-0.11	-0.06	0.18*	-0.02	-0.20**	0.09
	(0.02)	(0.02)	(0.09)	(0.11)	(0.10)	(0.10)	(0.10)	(0.11)
Third	-0.03	0.03	-0.14	0.13	-0.02	-0.08	0.00	0.12
	(0.03)	(0.04)	(0.14)	(0.13)	(0.12)	(0.12)	(0.14)	(0.14)
Fourth	0.07	0.08	0.14	0.21	0.13	-0.18	0.01	0.01
	(0.05)	(0.06)	(0.10)	(0.16)	(0.14)	(0.16)	(0.17)	(0.15)
Top	-0.13*	0.10	-0.13*	0.16	-0.60*	-0.18	-0.61**	0.21
	(0.08)	(0.08)	(0.07)	(0.13)	(0.35)	(0.16)	(0.29)	(0.15)
Observations	628		628		326		326	
Subsample	288		340		292		292	

Note. Age in months as of the start of the school year – September.

Standard errors in parentheses.

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

TABLE 23

*Supply side summary statistics by province**A. Teacher and classroom numbers*

	Mean	SD	Min	Max
Teachers (public)	682.24	884.72	66	5949
Teachers (private)	99.56	419.68	2	3619
Classrooms (public)	520.61	606.63	60	4277
Classrooms (private)	102.41	379.20	2	3202

B. Teacher and classroom numbers relative to three- to five-year-old population

	Mean	SD	Min	Max
Teacher ratio (public)	.0173	.0045	.0088	.0301
Teacher ratio (private)	.0011	.0011	.0001	.0054
Classroom ratio (public)	.0141	.0037	.0064	.0241
Classroom ratio (private)	.0014	.0011	.0001	.0056

C. Three- to five-year-old population relative to teacher and classroom numbers

	Mean	SD	Min	Max
Pop./Teacher ratio (public)	62.04	18.28	33.17	113.35
Pop./Teacher ratio (private)	2241.47	2768.83	185.74	14294.25
Pop./Classroom ratio (public)	76.53	22.83	41.47	157.16
Pop./Classroom ratio (private)	1575.04	1690.52	179.42	10626.88

TABLE 24

Average marginal effects of three- to five-year-old population relative to teacher and classroom numbers by age

	36-47		48-59		60-71		60-71	
	Pre-primary		Pre-primary		Pre-primary		Primary	
	Q	R	Q	R	Q	R	Q	R
Supply side								
Pop./teacher ratio (public), 10 ⁻⁴	0.51 (3.10)		1.33 (8.10)		-3.95 (9.60)		-4.63 (10.95)	
Pop./teacher ratio (private), 10 ⁻⁴	0.03 (0.02)		0.07 (0.06)		0.07 (0.06)		0.00 (0.06)	
Pop./classroom ratio (public), 10 ⁻⁴		2.20 (2.21)		5.73 (5.70)		-0.15 (6.88)		-5.83 (8.22)
Pop./classroom ratio (private), 10 ⁻⁴		0.01 (0.03)		0.03 (0.09)		0.14 (0.09)		-0.06 (0.10)
Observations	1391	1391	1391	1391	704	704	704	704
Subsample	691	691	769	769				

Note. Age in months as of the start of the school year – September.

Standard errors in parentheses

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 25
Predicted enrollment probabilities by age
A. For whole age groups

	36-47	48-59	60-71	60-71	60-71
	Pre-primary	Pre-primary	Pre-primary	Primary	Total
All	0.09***	0.34***	0.30***	0.44***	0.74***

Note. Age in months as of the start of the school year – September.

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

B. For mid-points

	42	54	66	66	66
	Pre-primary	Pre-primary	Pre-primary	Primary	Total
All	0.09**	0.32***	0.37***	0.39***	0.76***
Residence					
Urban	0.11***	0.36***	0.41***	0.37***	0.78***
Rural	0.037*	0.23***	0.27***	0.44***	0.71***
Region					
West	0.14***	0.43***	0.38***	0.38***	0.76***
South	0.07**	0.30***	0.46***	0.32***	0.78***
Central	0.07**	0.29***	0.47***	0.34***	0.81***
North	0.14***	0.42***	0.44***	0.40***	0.84***
East	0.049**	0.25***	0.25***	0.46***	0.71***
Ethnicity					
Turkish	0.11***	0.38***	0.44***	0.36***	0.80***
Kurdish	0.03*	0.19***	0.21***	0.45***	0.66***
Arabic	0.03	0.21**	0.15*	0.68***	0.83***
Mother's years of schooling					
0	0.02	0.17***	0.23***	0.45***	0.68***
5	0.05*	0.28***	0.34***	0.42***	0.76***
8	0.08**	0.37***	0.41***	0.39***	0.80***
11	0.11**	0.46***	0.49***	0.35***	0.84***
15	0.18**	0.59***	0.59***	0.30***	0.89***
Wealth quintile					
Lowest	0.02	0.17***	0.21***	0.48***	0.69***
Second	0.03	0.19***	0.34***	0.42***	0.76***
Third	0.06*	0.35***	0.38***	0.41***	0.79***
Fourth	0.13**	0.47***	0.45***	0.30***	0.75***
Top	0.33***	0.71***	0.69***	0.23***	0.92***
Mother's work					
Not working	0.05*	0.27***	0.34***	0.42***	0.76***
In agriculture	0.03*	0.22***	0.28***	0.45***	0.73***
In industry or services	0.30***	0.67***	0.57***	0.24***	0.81***

Note. Age in months as of the start of the school year – September.

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

APPENDIX

TABLE A1

Variables in the indices of conservatism, and their averages

	Not attending	Pre-primary	Primary	P-value (Pre-primary)	P-value (Primary)
1. Conservatism	0.47	0.40	0.47	0.00***	0.36
1.1. Opinions about gender roles	0.37	0.30	0.35	0.00***	0.17
Women should not work if there are small children	0.60	0.54	0.61	0.01***	0.74
Important decisions should be taken by men only	0.19	0.09	0.15	0.00***	0.15
Husband should (not) help with house chores	0.37	0.25	0.33	0.00***	0.15
It is better to educate boys than girls	0.12	0.07	0.11	0.00***	0.45
Women should (not) be more involved in the politics	0.27	0.24	0.23	0.19	0.12
Women should be virgins on the marriage night	0.79	0.73	0.81	0.00***	0.53
1.2. Acceptance of domestic violence / Beating justified if	0.21	0.12	0.19	0.00***	0.36
Woman goes out without permission	0.08	0.05	0.07	0.01***	0.38
Woman neglects children	0.14	0.06	0.12	0.00***	0.39
Woman argues with her husband	0.11	0.06	0.08	0.00***	0.22
Woman refuses sex	0.05	0.02	0.03	0.03**	0.38
Woman burns food	0.03	0.01	0.02	0.12	0.42
1.3. Husband's controlling behavior	0.12	0.10	0.13	0.10*	0.44
Prevents woman from seeing friends	0.09	0.08	0.09	0.28	0.77
Prevents woman from seeing family	0.06	0.06	0.07	0.74	0.60
Insists on knowing where woman is at all times	0.38	0.33	0.41	0.04**	0.33
Distrusts with money	0.05	0.05	0.07	0.89	0.32
Accuses woman of infidelity	0.05	0.04	0.05	0.40	0.79
1.4. Husband's (non) involvement in chores	0.92	0.86	0.91	0.00***	0.23
Cooking	0.99	0.98	0.98	0.01**	0.30
Setting the table	0.94	0.88	0.95	0.00***	0.48
Cleaning	0.98	0.96	0.98	0.01**	0.81
Doing dishes	0.99	0.95	0.98	0.00***	0.62
Washing clothes	0.99	0.98	0.99	0.00***	0.52
Ironing	0.97	0.94	0.97	0.00***	0.96
Spending time with children at home	0.81	0.68	0.81	0.00***	0.75
Spending time with children outside	0.66	0.49	0.63	0.00***	0.36
1.5. Family background	0.33	0.21	0.32	0.00***	0.83
Woman's parents were related by blood	0.29	0.25	0.27	0.07*	0.41
Woman related by blood to her (last) husband	0.29	0.20	0.33	0.00***	0.13
Woman's (last) marriage was arranged	0.57	0.40	0.56	0.00***	0.90
Woman didn't give consent for (last) marriage	0.07	0.04	0.09	0.01**	0.22
Brideswealth was exchanged at (last) marriage	0.25	0.11	0.21	0.00***	0.17
Woman's mother was illiterate	0.63	0.40	0.61	0.00***	0.43
Woman's father was illiterate	0.18	0.10	0.19	0.00***	0.53

Note. Conservatism variables are coded 0-1: 1 stands for the conservative answer. All indices constructed using principal component analysis, except violence which takes value 1 if woman agrees with at least one case when violence is justified. Significance concerns the difference with not attending. *** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table A2. Probability of attending pre-primary education relative to not attending (36-59 months old): Odds ratios

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Child is female	0.94 (0.32)	0.95 (0.48)	0.98 (0.49)	1.01 (0.50)	0.99 (0.49)	0.99 (0.49)	1.00 (0.50)	1.25 (1.21)	1.30 (1.27)	1.25 (1.21)	1.25 (1.21)	1.49 (1.48)	1.26 (1.21)	1.37 (1.38)	1.32 (1.32)	0.82 (0.89)
Mother																
Mother's age	1.14 (0.16)	1.12 (0.16)	1.12 (0.16)	1.05 (0.16)	1.03 (0.16)	1.02 (0.15)	1.04 (0.16)	1.20 (0.22)	1.20 (0.22)	1.20 (0.22)	1.20 (0.22)	1.22 (0.23)	1.20 (0.22)	1.23 (0.23)	1.15 (0.21)	1.07 (0.22)
Mother's schooling (yr)	1.23*** (0.03)	1.23*** (0.03)	1.21*** (0.03)	1.20*** (0.04)	1.20*** (0.04)	1.20*** (0.04)	1.20*** (0.04)	1.19*** (0.04)	1.20*** (0.04)	1.19*** (0.04)	1.19*** (0.04)	1.19*** (0.04)	1.19*** (0.04)	1.19*** (0.04)	1.18*** (0.04)	1.19*** (0.04)
Mother illiterate	0.94 (0.35)	0.79 (0.31)	0.81 (0.31)	0.79 (0.31)	0.77 (0.31)	0.76 (0.30)	0.78 (0.31)	0.80 (0.32)	0.81 (0.32)	0.80 (0.32)	0.80 (0.32)	0.78 (0.31)	0.80 (0.31)	0.81 (0.32)	0.73 (0.29)	0.90 (0.41)
Ethnicity																
Kurdish	1.59* (0.38)	1.49 (0.39)	1.52 (0.40)	1.56* (0.41)	1.63* (0.42)	1.63* (0.42)	1.57* (0.41)	1.60* (0.44)	1.63* (0.45)	1.60* (0.44)	1.60* (0.44)	1.71* (0.48)	1.60* (0.43)	1.67* (0.47)	1.60* (0.46)	1.34 (0.42)
Arabic	1.20 (0.65)	1.25 (0.69)	1.25 (0.70)	1.28 (0.70)	1.25 (0.68)	1.24 (0.67)	1.27 (0.69)	1.16 (0.59)	1.15 (0.60)	1.15 (0.58)	1.15 (0.58)	1.25 (0.63)	1.17 (0.59)	1.24 (0.63)	1.17 (0.60)	1.26 (0.68)
M. not proficient in T.	1.63 (0.89)	1.65 (0.88)	1.73 (0.95)	1.74 (0.95)	1.84 (1.01)	1.83 (1.00)	1.77 (0.97)	1.79 (1.03)	1.77 (1.04)	1.79 (1.04)	1.79 (1.04)	1.42 (0.85)	1.80 (1.04)	1.44 (0.86)	1.45 (0.86)	1.22 (0.82)
Wealth quintile																
Second	0.77 (0.27)	1.04 (0.43)	1.02 (0.41)	1.02 (0.42)	1.00 (0.41)	1.00 (0.41)	1.01 (0.42)	13.54* (18.69)	14.62* (20.43)	13.94* (19.26)	13.93* (19.23)	15.35** (21.22)	13.50* (18.61)	14.57* (20.12)	13.98* (19.42)	6.55 (10.30)
Third	1.69 (0.61)	2.66** (1.20)	2.41** (1.08)	2.48** (1.12)	2.46** (1.11)	2.47** (1.11)	2.48** (1.12)	13.74** (17.85)	13.99** (18.31)	13.73** (17.83)	13.74** (17.84)	16.42** (21.68)	14.44** (18.67)	16.11** (21.17)	17.73** (23.90)	9.50 (13.16)
Fourth	2.03** (0.67)	3.20*** (1.39)	2.75** (1.20)	2.94** (1.30)	2.93** (1.29)	2.93** (1.29)	2.93** (1.29)	12.17** (15.00)	11.86** (14.61)	12.10** (14.88)	12.11** (14.90)	12.04** (14.99)	12.15** (15.04)	11.57* (14.45)	12.12** (15.33)	9.61* (12.67)
Top	3.39*** (1.26)	5.30*** (2.49)	4.56*** (2.15)	4.76*** (2.26)	4.74*** (2.25)	4.74*** (2.25)	4.75*** (2.26)	77.87*** (94.45)	74.43*** (90.57)	77.16*** (93.60)	77.31*** (93.77)	93.61*** (114.43)	78.89*** (95.79)	108.90*** (133.62)	167.77*** (205.57)	105.21*** (137.26)
Female * Second	1.40 (0.69)	1.56 (0.87)	1.45 (0.81)	1.41 (0.78)	1.44 (0.80)	1.45 (0.80)	1.43 (0.79)	0.37 (0.53)	0.34 (0.49)	0.36 (0.52)	0.36 (0.52)	0.32 (0.45)	0.37 (0.53)	0.34 (0.49)	0.40 (0.58)	0.72 (1.20)
Female * Third	0.90 (0.44)	0.83 (0.49)	0.78 (0.45)	0.76 (0.45)	0.78 (0.46)	0.78 (0.46)	0.77 (0.45)	0.22 (0.30)	0.22 (0.30)	0.22 (0.30)	0.22 (0.30)	0.20 (0.28)	0.21 (0.28)	0.21 (0.29)	0.19 (0.28)	0.37 (0.55)
Female * Fourth	0.90 (0.44)	0.84 (0.51)	0.81 (0.49)	0.80 (0.48)	0.80 (0.48)	0.80 (0.48)	0.80 (0.49)	0.69 (0.90)	0.70 (0.92)	0.70 (0.91)	0.70 (0.91)	0.64 (0.85)	0.69 (0.91)	0.69 (0.93)	0.74 (1.01)	1.13 (1.63)
Female * Top	1.07 (0.52)	1.02 (0.62)	0.95 (0.58)	0.96 (0.59)	0.96 (0.59)	0.96 (0.59)	0.96 (0.59)	0.31 (0.39)	0.31 (0.40)	0.31 (0.40)	0.31 (0.40)	0.25 (0.32)	0.30 (0.38)	0.21 (0.27)	0.15 (0.20)	0.24 (0.33)
Rural		0.88 (0.51)	0.90 (0.54)	1.02 (0.60)	1.04 (0.62)	1.07 (0.63)	1.03 (0.60)	1.16 (0.66)	1.12 (0.63)	1.15 (0.66)	1.15 (0.66)	1.21 (0.69)	1.14 (0.65)	1.21 (0.69)	1.19 (0.70)	1.32 (0.78)
Female * Rural		1.07 (0.52)	1.02 (0.48)	1.00 (0.48)	1.00 (0.48)	0.99 (0.47)	1.00 (0.48)	1.08 (0.52)	1.06 (0.51)	1.08 (0.52)	1.08 (0.52)	0.90 (0.45)	1.08 (0.52)	0.89 (0.45)	0.94 (0.47)	0.71 (0.39)
Region																
South		0.93 (0.30)	0.89 (0.29)	0.96 (0.31)	0.96 (0.31)	0.96 (0.31)	0.96 (0.31)	1.07 (0.36)	1.07 (0.36)	1.07 (0.36)	1.07 (0.36)	1.05 (0.36)	1.07 (0.36)	1.09 (0.38)	1.20 (0.42)	1.25 (0.46)
Central		0.65 (0.18)	0.64 (0.18)	0.68 (0.19)	0.69 (0.20)	0.69 (0.20)	0.68 (0.20)	0.71 (0.21)	0.70 (0.20)	0.71 (0.21)	0.71 (0.21)	0.71 (0.21)	0.71 (0.21)	0.71 (0.21)	0.66 (0.20)	0.68 (0.21)
North		2.01** (0.64)	1.93** (0.62)	2.06** (0.67)	2.06** (0.67)	2.06** (0.67)	2.05** (0.67)	2.11** (0.73)	2.02** (0.70)	2.10** (0.72)	2.10** (0.72)	2.20** (0.76)	2.06** (0.72)	2.15** (0.77)	2.04* (0.74)	1.94* (0.73)

East	0.97 (0.29)	0.96 (0.29)	1.05 (0.32)	1.05 (0.32)	1.04 (0.32)	1.04 (0.32)	1.08 (0.34)	1.03 (0.33)	1.07 (0.34)	1.07 (0.34)	1.08 (0.35)	1.07 (0.34)	1.11 (0.37)	1.15 (0.39)	1.17 (0.41)	
Rural * South	0.81 (0.65)	0.86 (0.70)	0.77 (0.62)	0.77 (0.62)	0.75 (0.60)	0.76 (0.61)	0.71 (0.56)	0.75 (0.59)	0.72 (0.57)	0.72 (0.57)	0.74 (0.59)	0.72 (0.57)	0.71 (0.58)	0.73 (0.60)	0.78 (0.68)	
Continued	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Rural * Central	2.50 (1.76)	2.36 (1.66)	2.13 (1.50)	2.14 (1.51)	2.08 (1.47)	2.14 (1.51)	1.92 (1.34)	2.00 (1.40)	1.94 (1.37)	1.94 (1.37)	1.77 (1.27)	1.91 (1.33)	1.77 (1.28)	1.90 (1.40)	1.80 (1.38)	
Rural * North	0.68 (0.50)	0.69 (0.51)	0.58 (0.44)	0.60 (0.45)	0.59 (0.45)	0.59 (0.45)	0.61 (0.45)	0.65 (0.47)	0.61 (0.45)	0.61 (0.45)	0.61 (0.46)	0.62 (0.46)	0.62 (0.47)	0.68 (0.52)	0.76 (0.61)	
Rural * East	3.22* (2.07)	3.02* (1.96)	2.73 (1.74)	2.76 (1.78)	2.77 (1.78)	2.74 (1.76)	2.63 (1.69)	2.74 (1.76)	2.68 (1.73)	2.67 (1.72)	3.22* (2.06)	2.66 (1.70)	2.99* (1.92)	3.04* (1.99)	2.48 (1.70)	
Father's schooling (yr)		1.06** (0.03)	1.06* (0.03)	1.06* (0.03)	1.06** (0.03)	1.06* (0.03)	1.07** (0.03)	1.07** (0.03)	1.07** (0.03)	1.07** (0.03)	1.07** (0.03)	1.07** (0.03)	1.06** (0.03)	1.06* (0.03)	1.04 (0.04)	
Marital structure																
Age at first marriage			1.04 (0.03)	1.04 (0.03)	1.04 (0.03)	1.04 (0.03)	0.99 (0.03)	0.99 (0.03)	0.99 (0.03)	0.99 (0.03)	0.98 (0.03)	0.99 (0.03)	0.98 (0.03)	0.98 (0.03)	0.97 (0.04)	
M. not married now			3.06* (1.81)	2.88* (1.72)	2.94* (1.76)	3.09* (1.84)	2.42 (1.42)	2.32 (1.36)	2.41 (1.42)	2.41 (1.42)	1.59 (1.09)	2.53 (1.52)	1.70 (1.19)	1.37 (1.01)		
M. married 2+ times			1.86 (0.90)	1.87 (0.91)	1.85 (0.91)	1.86 (0.91)	1.70 (0.89)	1.77 (0.95)	1.71 (0.90)	1.71 (0.90)	1.52 (0.87)	1.68 (0.88)	1.48 (0.85)	1.52 (0.91)	2.24 (1.55)	
F. not in the household			0.57 (0.25)	0.62 (0.27)	0.67 (0.30)	0.59 (0.26)	0.55 (0.24)	0.57 (0.25)	0.56 (0.24)	0.56 (0.24)	0.63 (0.26)	0.53 (0.23)	0.58 (0.26)	0.65 (0.28)	0.64 (0.29)	
Extended family																
Members aged 15+				0.95 (0.05)												
Female members 15+					0.88 (0.09)											
Grandmother present						0.93 (0.20)	0.99 (0.21)	1.00 (0.21)	0.99 (0.21)	0.99 (0.21)	0.96 (0.21)	1.00 (0.21)	0.97 (0.21)	0.97 (0.21)	0.91 (0.22)	
Siblings																
Child is from a multiple							1.53 (0.97)	1.62 (1.05)	1.58 (1.02)	1.58 (1.01)	1.60 (1.05)	1.53 (0.97)	1.59 (1.04)	1.47 (1.01)	1.55 (1.11)	
Sibship size							0.89 (0.10)	0.88 (0.10)	0.89 (0.10)	0.89 (0.10)	0.90 (0.10)	0.89 (0.10)	0.92 (0.11)	0.93 (0.10)	0.87 (0.12)	
Sibship size aged ≤5							0.84 (0.19)	0.83 (0.19)	0.84 (0.19)	0.84 (0.19)	0.78 (0.18)	0.85 (0.19)	0.78 (0.18)	0.80 (0.18)	0.96 (0.24)	
Parity							127.30** (267.90)	133.47** (281.77)	125.02** (262.62)	125.02** (262.63)	124.59** (272.21)	122.13** (256.27)	133.81** (290.11)	124.49** (270.09)	195.30** (484.07)	
Parity squared							0.01** (0.02)	0.01** (0.02)	0.01** (0.02)	0.01** (0.02)	0.01** (0.02)	0.01** (0.02)	0.01** (0.02)	0.01** (0.02)	0.01* (0.02)	
Second * Parity							0.02 (0.05)	0.02 (0.05)	0.02 (0.05)	0.02 (0.05)	0.02 (0.05)	0.02 (0.05)	0.01 (0.04)	0.02 (0.06)	0.01 (0.02)	
Third * Parity							0.13 (0.39)	0.11 (0.34)	0.13 (0.38)	0.13 (0.39)	0.13 (0.39)	0.13 (0.39)	0.11 (0.34)	0.09 (0.28)	0.02 (0.06)	
Fourth * Parity							0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	
Top * Parity squared							0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	
Second * Parity sq.							13.93	12.89	13.33	13.41	11.75	15.00	16.14	10.68	27.92	

								(39.68)	(36.67)	(38.11)	(38.33)	(34.32)	(42.83)	(47.31)	(30.82)	(89.95)
Third * Parity sq.								3.39	4.04	3.50	3.49	3.03	3.39	3.87	4.92	19.73
								(9.80)	(11.80)	(10.13)	(10.09)	(8.99)	(9.80)	(11.45)	(14.82)	(65.14)
Fourth * Parity sq.. 10 ³								56.70***	60.80***	54.93***	55.17***	59.77***	53.10***	75.94***	44.18***	61.98***
								(194.33)	(212.62)	(187.93)	(188.72)	(204.7)	(181.31)	(257.6)	(155.49)	(223.88)
Top * Parity sq.. 10 ³								236.71***	221.63***	234.48***	234.71***	249.93***	217.35***	310.62***	227.12***	258.02***
								(742.89)	(688.8)	(736.00)	(736.8)	(800.04)	(686.42)	(1006.49)	(764.39)	(946.43)
Continued	A	B	C	D	E	F	G	H	I	J	K	L	N	O	P	Q
Sex composition								2.56	2.66	2.56	2.56	2.53	2.60	2.53	2.61	1.18
								(2.48)	(2.60)	(2.49)	(2.49)	(2.49)	(2.51)	(2.48)	(2.58)	(1.30)
Female * Sex cop.								0.87	0.76	0.86	0.87	0.72	0.87	0.80	0.86	2.92
								(1.34)	(1.17)	(1.33)	(1.33)	(1.18)	(1.34)	(1.33)	(1.43)	(5.25)
Second * Sex comp.								0.10	0.09	0.10	0.10	0.11	0.10	0.11	0.11	0.33
								(0.16)	(0.15)	(0.15)	(0.15)	(0.17)	(0.16)	(0.17)	(0.18)	(0.60)
Third * Sex comp.								0.19	0.18	0.19	0.19	0.19	0.18	0.18	0.17	0.44
								(0.27)	(0.26)	(0.27)	(0.27)	(0.28)	(0.26)	(0.27)	(0.25)	(0.68)
Fourth * Sex comp.								0.52	0.53	0.53	0.52	0.69	0.52	0.70	0.67	1.26
								(0.70)	(0.71)	(0.70)	(0.70)	(0.93)	(0.70)	(0.94)	(0.91)	(1.85)
Top * Sex comp.								0.10*	0.10*	0.10*	0.10*	0.09*	0.10*	0.07**	0.04**	0.10
								(0.13)	(0.14)	(0.13)	(0.13)	(0.12)	(0.13)	(0.10)	(0.06)	(0.15)
Female* Second * S.c.								3.64	4.72	4.12	4.11	5.19	3.63	4.92	3.63	0.91
								(8.57)	(11.19)	(9.76)	(9.73)	(12.60)	(8.56)	(12.10)	(8.98)	(2.41)
Female * Third * S.c.								14.16	16.58	14.00	14.00	14.40	14.74	13.48	14.55	5.02
								(31.20)	(36.96)	(30.88)	(30.87)	(32.82)	(32.34)	(30.88)	(34.03)	(12.20)
Female * Fourth * S.c.								1.55	1.69	1.53	1.53	1.60	1.56	1.57	1.76	0.49
								(3.51)	(3.83)	(3.47)	(3.47)	(3.76)	(3.55)	(3.71)	(4.21)	(1.24)
Female * Top * S.c.								6.99	7.53	6.86	6.88	11.27	7.24	12.62	17.71	6.00
								(14.65)	(15.80)	(14.39)	(14.43)	(24.72)	(15.16)	(27.84)	(39.04)	(13.98)
Conservatism																
Should not work if s.c.									1.29							
									(0.23)							
Beliefs about g.r.										1.16						
										(0.51)						
H. not involved in chor.											0.40					
											(0.24)					
Index												0.71		0.73	0.75	0.80
												(0.68)		(0.47)	(0.49)	(0.55)
Migration (province)																
Moved but returned													1.14	1.17	1.07	1.14
													(0.32)	(0.34)	(0.32)	(0.37)
Moved													0.98	0.95	0.91	0.99
													(0.19)	(0.19)	(0.18)	(0.21)
Parental occupation																
Mother works – Agri.															1.17	1.20
															(0.42)	(0.43)
Mother works – In./Ser.															2.57***	2.79***
															(0.64)	(0.74)
Father in agriculture																0.53
																(0.21)

Observations	1.448	1.448	1.437	1.437	1.437	1.437	1.437	1.437	1.435	1.430	1.430	1.394	1.437	1.389	1.389	1.277
Pseudo R-squared	0.287	0.303	0.307	0.311	0.311	0.312	0.311	0.344	0.345	0.343	0.343	0.343	0.344	0.346	0.356	0.372
Log likelihood	-548.9	-536.7	-531.5	-528.7	-528.3	-527.9	-528.6	-503.1	-502	-502.8	-502.8	-489.8	-503	-486.3	-479.2	-433.4
Chi-squared	317	314.4	312.3	314.2	315	315.3	315.5	308.8	312.1	306.8	306.8	302.5	310.3	302.2	304	309.2
P-value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note. Standard errors in parentheses

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table A3. Probability of attending pre-primary relative to primary education (60-71 months old): Odds ratios

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Child is female	0.60 (0.26)	0.53 (0.33)	0.52 (0.34)	0.53 (0.34)	0.51 (0.32)	0.51 (0.32)	0.56 (0.36)	0.16 (0.20)	0.19 (0.23)	0.20 (0.24)	0.20 (0.24)	0.24 (0.29)	0.15 (0.18)	0.22 (0.27)	0.22 (0.27)	0.33 (0.46)
Mother																
Mother's age	0.89 (0.20)	0.87 (0.20)	0.91 (0.21)	0.89 (0.21)	0.86 (0.21)	0.85 (0.20)	0.86 (0.21)	0.84 (0.21)	0.82 (0.21)	0.82 (0.21)	0.82 (0.21)	0.91 (0.23)	0.87 (0.22)	0.98 (0.25)	0.97 (0.25)	1.15 (0.33)
Mother's schooling (years)	1.15*** (0.05)	1.14*** (0.05)	1.12*** (0.05)	1.12** (0.05)	1.12*** (0.05)	1.12** (0.05)	1.12** (0.05)	1.13*** (0.05)	1.14*** (0.05)	1.14*** (0.05)	1.14*** (0.05)	1.11** (0.05)	1.13*** (0.05)	1.10** (0.05)	1.10* (0.05)	1.10* (0.06)
Mother illiterate	1.45 (0.67)	1.42 (0.66)	1.33 (0.63)	1.33 (0.63)	1.26 (0.60)	1.22 (0.58)	1.22 (0.59)	1.73 (0.92)	1.76 (0.94)	1.73 (0.93)	1.73 (0.93)	1.75 (0.94)	1.78 (0.97)	1.65 (0.92)	1.65 (0.92)	2.62 (1.54)
Ethnicity																
Kurdish	0.81 (0.25)	0.84 (0.28)	0.84 (0.29)	0.83 (0.28)	0.89 (0.30)	0.89 (0.31)	0.87 (0.29)	1.13 (0.44)	1.12 (0.44)	1.13 (0.44)	1.13 (0.44)	0.98 (0.39)	1.14 (0.45)	0.97 (0.40)	0.96 (0.40)	0.89 (0.40)
Arabic	0.33* (0.21)	0.25** (0.17)	0.25** (0.17)	0.24** (0.16)	0.23** (0.16)	0.24** (0.16)	0.25** (0.17)	0.21** (0.15)	0.22** (0.15)	0.22** (0.15)	0.22** (0.15)	0.22** (0.15)	0.22** (0.16)	0.22** (0.17)	0.22** (0.17)	0.19** (0.16)
Mother not proficient in Tur.	0.68 (0.63)	0.62 (0.58)	0.72 (0.67)	0.68 (0.64)	0.74 (0.68)	0.73 (0.67)	0.73 (0.68)	0.83 (0.75)	0.86 (0.77)	0.89 (0.81)	0.89 (0.81)	1.12 (1.06)	0.76 (0.69)	1.06 (1.02)	1.05 (1.01)	1.18 (1.45)
Wealth quintile																
Second	1.08 (0.48)	1.12 (0.57)	1.06 (0.55)	1.07 (0.56)	1.03 (0.53)	1.03 (0.53)	1.08 (0.57)	0.02** (0.03)	0.02** (0.03)	0.02** (0.03)	0.02** (0.03)	0.03** (0.05)	0.02** (0.03)	0.03** (0.05)	0.03** (0.05)	0.06 (0.10)
Third	0.75 (0.34)	0.76 (0.41)	0.72 (0.39)	0.72 (0.40)	0.72 (0.39)	0.74 (0.40)	0.76 (0.42)	0.19 (0.35)	0.23 (0.43)	0.27 (0.51)	0.28 (0.51)	0.27 (0.49)	0.19 (0.36)	0.31 (0.60)	0.31 (0.60)	0.68 (1.37)
Fourth	1.02 (0.54)	1.12 (0.69)	0.99 (0.62)	0.97 (0.61)	0.97 (0.61)	1.00 (0.64)	1.04 (0.66)	0.04 (0.09)	0.05 (0.11)	0.05 (0.11)	0.05 (0.11)	0.06 (0.14)	0.04 (0.08)	0.07 (0.14)	0.07 (0.15)	0.09 (0.20)
Top	1.73 (0.90)	2.07 (1.30)	1.74 (1.12)	1.80 (1.18)	1.75 (1.14)	1.80 (1.18)	1.85 (1.21)	0.22 (0.38)	0.25 (0.43)	0.24 (0.40)	0.24 (0.40)	0.37 (0.64)	0.22 (0.39)	0.35 (0.60)	0.41 (0.71)	1.19 (2.16)
Female * Second	1.42 (0.90)	1.57 (1.14)	1.56 (1.15)	1.55 (1.14)	1.62 (1.20)	1.63 (1.20)	1.48 (1.09)	53.81** (88.58)	48.00** (78.53)	49.01** (80.71)	49.02** (80.72)	34.59** (58.01)	56.49** (93.47)	34.65** (58.97)	34.77** (59.25)	28.09* (52.87)
Female * Third	1.66 (1.07)	1.90 (1.41)	1.86 (1.40)	1.80 (1.37)	1.88 (1.42)	1.82 (1.38)	1.67 (1.27)	9.41 (17.30)	7.55 (13.95)	6.41 (12.04)	6.40 (12.02)	7.62 (14.06)	10.05 (18.77)	7.45 (14.27)	7.60 (14.61)	2.88 (5.91)
Female * Fourth	2.09 (1.52)	2.31 (1.96)	2.43 (2.07)	2.44 (2.05)	2.50 (2.10)	2.48 (2.08)	2.29 (1.92)	83.86** (186.74)	68.56* (152.59)	66.31* (148.54)	66.46* (148.90)	57.85* (129.16)	89.02** (199.88)	48.06* (107.38)	46.52* (104.54)	42.54 (100.76)
Female * Top	1.55 (1.09)	1.68 (1.38)	1.71 (1.43)	1.60 (1.35)	1.65 (1.39)	1.69 (1.42)	1.55 (1.29)	7.92 (13.66)	7.32 (12.69)	7.89 (13.77)	7.90 (13.77)	4.77 (8.28)	8.15 (14.32)	4.37 (7.73)	3.58 (6.42)	1.29 (2.45)
Rural		0.94 (0.59)	0.96 (0.61)	0.96 (0.63)	0.96 (0.62)	1.01 (0.65)	1.07 (0.69)	0.80 (0.55)	0.80 (0.56)	0.76 (0.54)	0.76 (0.53)	0.79 (0.55)	0.75 (0.53)	0.61 (0.44)	0.61 (0.44)	0.61 (0.49)
Female * Rural		1.30 (0.85)	1.16 (0.77)	1.15 (0.76)	1.21 (0.80)	1.18 (0.78)	1.07 (0.71)	1.22 (0.84)	1.13 (0.78)	1.15 (0.80)	1.15 (0.80)	1.20 (0.83)	1.26 (0.88)	1.31 (0.92)	1.30 (0.91)	1.44 (1.11)
Region																
South		2.33* (1.11)	2.27* (1.07)	2.21* (1.05)	2.16 (1.03)	2.21* (1.06)	2.17 (1.04)	2.04 (1.01)	2.02 (1.01)	2.02 (1.02)	2.02 (1.02)	1.98 (1.00)	1.86 (0.91)	1.68 (0.85)	1.63 (0.83)	1.99 (1.10)
Central		1.89 (0.79)	1.74 (0.74)	1.70 (0.73)	1.82 (0.79)	1.87 (0.81)	1.90 (0.83)	1.79 (0.81)	1.76 (0.80)	1.74 (0.79)	1.74 (0.79)	1.71 (0.79)	1.68 (0.78)	1.84 (0.86)	1.84 (0.86)	2.33* (1.16)
North		1.18 (0.55)	1.09 (0.51)	1.03 (0.48)	1.05 (0.50)	1.10 (0.52)	1.07 (0.51)	0.98 (0.50)	0.96 (0.50)	0.95 (0.49)	0.95 (0.49)	0.94 (0.49)	0.90 (0.46)	1.00 (0.52)	0.95 (0.50)	0.95 (0.52)
East		1.13	1.02	0.99	1.01	1.04	1.05	1.00	0.98	0.98	0.98	0.96	0.88	1.00	1.00	1.11

	(0.52)	(0.47)	(0.46)	(0.47)	(0.48)	(0.49)	(0.49)	(0.48)	(0.48)	(0.48)	(0.49)	(0.44)	(0.51)	(0.51)	(0.59)	
	0.93	0.92	0.90	0.90	0.86	0.92	2.32	2.38	2.45	2.46	2.37	2.36	2.76	2.77	1.71	
	(0.77)	(0.77)	(0.76)	(0.76)	(0.72)	(0.77)	(2.07)	(2.13)	(2.21)	(2.21)	(2.14)	(2.12)	(2.53)	(2.55)	(1.65)	
Continued	A	B	C	D	E	F	G	H	I	J	K	L	N	O	P	Q
Rural * South	0.53	0.53	0.53	0.53	0.52	0.57	0.87	0.90	0.98	0.99	0.95	0.92	1.07	1.10	0.82	
	(0.43)	(0.42)	(0.43)	(0.43)	(0.42)	(0.47)	(0.79)	(0.82)	(0.90)	(0.90)	(0.86)	(0.85)	(1.00)	(1.02)	(0.85)	
Rural * North	0.69	0.83	0.87	0.96	0.87	1.00	1.24	1.33	1.35	1.35	1.35	1.40	1.78	1.81	2.37	
	(0.67)	(0.81)	(0.87)	(0.96)	(0.87)	(1.00)	(1.38)	(1.50)	(1.53)	(1.53)	(1.53)	(1.52)	(2.03)	(2.04)	(2.99)	
Rural * East	1.47	1.54	1.53	1.66	1.61	1.53	3.01	3.20	3.38	3.39	2.65	3.32	3.51	3.49	3.62	
	(1.04)	(1.09)	(1.10)	(1.18)	(1.15)	(1.09)	(2.30)	(2.46)	(2.63)	(2.64)	(2.05)	(2.64)	(2.89)	(2.85)	(3.14)	
Father's schooling (years)		1.04	1.04	1.03	1.03	1.03	1.05	1.05	1.05	1.05	1.05	1.04	1.04	1.05	1.05	
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	
Marital structure																
Age at first marriage			1.02	1.01	1.01	1.02	1.01	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.05	
			(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	
Mother not married now			0.66	0.62	0.59	0.64	0.47	0.44	0.45	0.45	0.47	0.58	0.56	0.51		
			(0.75)	(0.70)	(0.66)	(0.70)	(0.54)	(0.52)	(0.53)	(0.53)	(0.53)	(0.65)	(0.61)	(0.55)		
Mother married 2+ times			0.38	0.32	0.30	0.33	0.42	0.42	0.47	0.47	0.43	0.50	0.46	0.44	0.62	
			(0.37)	(0.32)	(0.31)	(0.34)	(0.42)	(0.42)	(0.46)	(0.47)	(0.44)	(0.49)	(0.44)	(0.42)	(0.70)	
Father not in the household			1.34	1.50	1.73	1.64	1.30	1.39	1.36	1.36	1.29	1.02	0.88	0.91	1.04	
			(1.22)	(1.38)	(1.62)	(1.44)	(1.09)	(1.18)	(1.12)	(1.11)	(1.08)	(0.86)	(0.72)	(0.76)	(0.87)	
Extended family																
Members aged 15+				0.87												
				(0.09)												
Female members aged 15+					0.76											
					(0.15)											
Grandmother present						0.52**	0.53*	0.51**	0.50**	0.50**	0.52*	0.51**	0.51**	0.52**	0.43**	
						(0.16)	(0.17)	(0.17)	(0.16)	(0.16)	(0.17)	(0.17)	(0.17)	(0.17)	(0.16)	
Siblings																
Child is from a multiple							5.25	5.36	5.78	5.78	5.40	6.00	7.92*	8.48*	8.39*	
							(6.18)	(6.31)	(6.79)	(6.79)	(6.27)	(7.29)	(9.05)	(9.78)	(9.94)	
Sibship size							0.87	0.88	0.87	0.87	0.86	0.88	0.89	0.89	0.84	
							(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.14)	(0.14)	(0.14)	
Sibship size aged ≤5							0.54*	0.52*	0.50*	0.50**	0.54*	0.51*	0.51*	0.52*	0.53	
							(0.19)	(0.18)	(0.18)	(0.18)	(0.19)	(0.18)	(0.19)	(0.19)	(0.21)	
Parity							3.31	3.05	3.26	3.24	4.90	3.20	5.15	4.94	71.90	
							(8.16)	(7.45)	(8.01)	(7.99)	(12.28)	(7.88)	(13.01)	(12.62)	(198.72)	
Parity squared							0.27	0.28	0.25	0.26	0.16	0.26	0.15	0.15	0.01*	
							(0.65)	(0.66)	(0.61)	(0.61)	(0.40)	(0.62)	(0.36)	(0.37)	(0.03)	
Second * Parity							6.33	7.62	6.81	6.84	5.40	4.41	3.35	3.93	0.24	
							(21.95)	(26.25)	(23.29)	(23.41)	(18.86)	(15.30)	(11.73)	(13.87)	(0.87)	
Third * Parity							0.02	0.03	0.03	0.03	0.01	0.03	0.02	0.02	0.00	
							(0.09)	(0.11)	(0.12)	(0.12)	(0.05)	(0.10)	(0.07)	(0.08)	(0.01)	
Fourth * Parity							2.93	3.33	2.73	2.75	1.93	3.65	3.99	4.41	0.39	
							(13.29)	(15.10)	(12.36)	(12.45)	(8.81)	(16.58)	(18.68)	(20.60)	(1.85)	
Top * Parity squared							113.80	153.25	185.27	186.16	69.40	263.43	203.96	166.12	4.67	
							(475.08)	(641.97)	(777.16)	(780.92)	(294.02)	(1.101.20)	(888.35)	(717.90)	(21.92)	
Second * Parity squared							0.47	0.40	0.45	0.45	0.58	0.64	0.87	0.73	10.22	
							(1.57)	(1.33)	(1.49)	(1.48)	(1.96)	(2.15)	(2.95)	(2.48)	(36.32)	

Third * Parity squared								25.61	22.24	20.06	19.87	53.90	21.23	37.83	35.08	402.81
								(100.58)	(87.86)	(79.26)	(78.54)	(214.12)	(82.36)	(151.00)	(142.42)	(1.678.24)
Fourth * Parity squared								0.17	0.15	0.19	0.19	0.26	0.14	0.15	0.13	1.61
								(0.73)	(0.67)	(0.83)	(0.83)	(1.18)	(0.62)	(0.67)	(0.61)	(7.57)
Top * Parity squared								0.01	0.01	0.01	0.01	0.03	0.01	0.01	0.01	0.41
								(0.06)	(0.05)	(0.04)	(0.04)	(0.10)	(0.03)	(0.04)	(0.05)	(1.89)

Continued	A	B	C	D	E	F	G	H	I	J	K	L	N	O	P	Q
------------------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------

Sex composition								0.09*	0.11	0.11	0.11	0.14	0.09*	0.16	0.16	0.23
								(0.13)	(0.15)	(0.16)	(0.16)	(0.21)	(0.12)	(0.23)	(0.24)	(0.37)
Female * Sex composition								2.98	2.73	2.49	2.49	2.44	3.04	2.07	2.14	0.56
								(6.33)	(5.79)	(5.33)	(5.34)	(5.29)	(6.51)	(4.55)	(4.75)	(1.35)
Second * Sex composition								152.41**	134.51**	135.46**	135.61**	89.09**	156.23**	88.68**	88.89**	76.13**
								(302.63)	(265.35)	(267.34)	(267.62)	(180.50)	(310.04)	(181.77)	(182.33)	(167.38)
Third * Sex composition								12.60	9.86	8.20	8.19	8.18	13.15	6.70	6.59	3.60
								(26.23)	(20.66)	(17.40)	(17.37)	(17.08)	(27.51)	(14.38)	(14.18)	(8.07)
Fourth * Sex composition								102.09*	81.47*	80.14*	80.43*	63.72*	113.28*	54.38	52.33	58.86
								(249.63)	(200.21)	(197.35)	(198.04)	(157.14)	(280.59)	(135.31)	(130.85)	(152.21)
Top * Sex composition								11.58	10.04	11.22	11.24	6.64	12.41	5.75	4.38	1.31
								(23.84)	(20.76)	(23.19)	(23.21)	(13.78)	(25.95)	(12.09)	(9.35)	(2.94)
Female* Second * Sex comp.								0.01*	0.01*	0.01*	0.01*	0.01*	0.01*	0.01	0.01	0.02
								(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.03)	(0.06)
Female * Third * Sex comp.								0.09	0.11	0.15	0.15	0.08	0.08	0.11	0.10	0.97
								(0.29)	(0.35)	(0.49)	(0.49)	(0.26)	(0.26)	(0.36)	(0.34)	(3.44)
Female * Fourth * Sex comp.								0.01	0.01	0.02	0.02	0.01	0.01	0.03	0.03	0.05
								(0.04)	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.10)	(0.10)	(0.16)
Female * Top * Sex comp.								0.04	0.03	0.03	0.03	0.06	0.04	0.08	0.11	1.25
								(0.13)	(0.12)	(0.12)	(0.12)	(0.19)	(0.15)	(0.26)	(0.37)	(4.62)

Conservatism

Woman should not work if s.c.									1.20							
									(0.30)							
Beliefs about gender roles										2.16						
										(1.33)						
H. not involved in chores											4.63					
											(4.61)					
Index												3.50		1.11	1.13	1.19
												(4.90)		(1.05)	(1.08)	(1.22)

Migration (province)

Moved but returned													1.55	1.54	1.52	1.03
													(0.59)	(0.61)	(0.61)	(0.44)
Moved													0.70	0.75	0.75	0.70
													(0.20)	(0.22)	(0.22)	(0.23)

Parental occupation

Mother works - Agriculture															1.09	0.96
															(0.47)	(0.46)
Mother works – Ind./Serv.															1.30	1.05
															(0.51)	(0.44)
Father in agriculture																1.63
																(0.86)

Observations	724	724	717	717	717	717	717	717	716	716	716	708	717	704	704	640
Pseudo R-squared	0.232	0.244	0.246	0.249	0.251	0.251	0.252	0.289	0.291	0.292	0.292	0.292	0.293	0.301	0.303	0.325

Log likelihood	-596.3	-586.8	-580	-577.2	-575.7	-575.6	-574.8	-546.8	-544	-543.3	-543.3	-537.5	-543.7	-527.4	-525.8	-464.7
Chi-squared	242.9	270.1	274	284.2	287.2	289.1	296.2	1449	1453	1407	1474	1526	1314	1349	1226	
P value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note. Standard errors in parentheses

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table A4

Key characteristics of households by father's occupation in agriculture

VARIABLES	Not in agriculture		In agriculture		Missing	
	Mean	SD	Mean	SD	Mean	SD
Mother						
Schooling (years)	6.64	4.29	3.99	3.18	4.26	3.81
Working	0.23	0.42	0.38	0.49	0.24	0.43
In agriculture	0.07	0.26	0.34	0.48	0.08	0.27
In industry or services	0.16	0.37	0.04	0.19	0.16	0.37
Father or step-father						
Schooling (years)	8.35	3.95	5.20	3.00	6.07	3.35
Urban	0.77	0.42	0.26	0.44	0.54	0.50
Wealth						
Index	-2.47	98.09	-117.34	78.08	-77.91	97.22
Quintile						
Lowest	0.23	0.42	0.73	0.44	0.53	0.50
Second	0.24	0.43	0.20	0.40	0.24	0.43
Third	0.20	0.40	0.04	0.20	0.12	0.32
Fourth	0.17	0.38	0.02	0.14	0.06	0.24
Top	0.16	0.36	0.00	0.07	0.05	0.22
Conservatism	0.44	0.12	0.53	0.10	0.50	0.12
Religiosity	0.79	0.23	0.82	0.19	0.80	0.21
Number of observations	1776		212		195	

Table A5

Ethnicity by the place of birth

	Born in Turkey	Born abroad	Total
Turkish	1450	27	1477
%	98.17	1.83	100.00
Kurdish	612	1	613
%	99.84	0.16	100.00
Arabic	76	8	84
%	90.48	9.52	100.00
Total	2138	36	2174
	98.34	1.66	100.00

Table A6A. *Teacher and classroom numbers (provinces)*

	Teachers:		Classrooms:	
	Public	Private	Public	Private
1	İstanbul	5949	İstanbul	3619
2	Ankara	4350	Ankara	907
3	İzmir	2750	İzmir	803
4	Antalya	2080	Bursa	341
5	Konya	1662	Antalya	265
6	Bursa	1652	Kocaeli	163
7	Şanlıurfa	1635	Adana	127
8	Mersin	1545	Muğla	108
9	Adana	1495	Mersin	97
10	Gaziantep	1367	Samsun	92
11	Diyarbakır	1303	Sakarya	90
12	Kocaeli	1182	Manisa	89
13	Hatay	1119	Konya	80
14	Samsun	1050	Denizli	76
15	Denizli	1004	Aydın	68
16	Kayseri	973	Balıkesir	63
17	Van	923	Eskişehir	58
18	Manisa	905	Kayseri	55
19	Kahramanmaraş	847	Malatya	53
20	Aydın	813	Diyarbakır	51
21	Muğla	788	Gaziantep	48
22	Balıkesir	772	Afyon	47
23	Sakarya	704	Tekirdağ	47
24	Malatya	677	Kütahya	45
25	Trabzon	648	Trabzon	42
26	Mardin	610	Hatay	38
27	Eskişehir	609	Elâzığ	35
28	Tekirdağ	599	Edirne	28
29	Erzurum	575	Erzurum	25
30	Adıyaman	565	Kahramanmaraş	24
31	Afyon	554	Zonguldak	24
32	Ordu	499	Çanakkale	23
33	Batman	479	Düzce	23
34	Osmaniye	464	Tokat	23
35	Tokat	462	Uşak	22
36	Elâzığ	459	Batman	21
37	Sivas	419	Van	16
38	Isparta	404	Adıyaman	15
39	Çorum	401	Amasya	15
40	Çanakkale	382	Sinop	15
41	Kütahya	381	Bolu	14
42	Zonguldak	380	Isparta	12
43	Ağrı	375	Karaman	12
44	Muş	370	Kırıkkale	12
45	Şırnak	363	Osmaniye	11
46	Yozgat	358	Şanlıurfa	11
47	Siirt	347	Bartın	10
48	Amasya	344	Kars	10
49	Aksaray	325	Nevşehir	10
50	Bitlis	316	Tunceli	10
51	Düzce	313	Yozgat	10
52	Niğde	309	Giresun	9
53	Giresun	295	Kastamonu	9
54	Kars	282	Niğde	9
55	Nevşehir	279	Ordu	9
56	Rize	265	Siirt	9
57	Edirne	264	Erzincan	8
58	Uşak	262	Rize	8
59	Kastamonu	241	Aksaray	7
60	Burdur	240	Çorum	7
61	Bolu	238	Sivas	7
62	Karaman	234	Yalova	7
63	Kırşehir	229	Ağrı	6
64	Kırklareli	208	Bilecik	6
65	Bingöl	192	Burdur	6
66	Erzincan	189	İğdır	6
67	Kırıkkale	188	Çankırı	5

68	Sinop	172	Kırklareli	5	Hakkâri	140	Kırıkkale	134
69	Karabük	171	Mardin	5	Karabük	125	Sinop	124
70	Yalova	165	Artvin	4	Sinop	124	Çankırı	117
71	İğdır	162	Hakkâri	4	Yalova	124	Bartın	116
72	Hakkâri	157	Şırnak	4	Bilecik	121	Bilecik	116
73	Bilecik	141	Bingöl	3	Çankırı	121	Karabük	113
74	Bartın	137	Gümüşhane	3	Bartın	119	Yalova	110
75	Çankırı	135	Kilis	3	Artvin	107	Artvin	103
76	Artvin	131	Muş	3	İğdır	107	İğdır	100
77	Kilis	109	Ardahan	2	Ardahan	102	Ardahan	99
78	Gümüşhane	93	Bayburt	2	Gümüşhane	99	Gümüşhane	99
79	Ardahan	87	Bitlis	2	Kilis	90	Kilis	86
80	Tunceli	75	Karabük	2	Bayburt	63	Bayburt	60
81	Bayburt	66	Kırşehir	2	Tunceli	60	Tunceli	53

TABLE A6B. Teachers and classrooms relative to three- to five-year-old population (provinces)

Teacher ratios:		Public	Private	Classroom ratios:		Public	Private	
1	Tunceli	0.0301	İstanbul	0.0054	Tunceli	0.0241	İzmir	0.0056
2	Amasya	0.0270	İzmir	0.0050	Ardahan	0.0220	İstanbul	0.0048
3	Kırşehir	0.0256	Ankara	0.0040	Burdur	0.0214	Edirne	0.0044
4	Burdur	0.0247	Tunceli	0.0040	Isparta	0.0210	Ankara	0.0043
5	Denizli	0.0245	Muğla	0.0031	Amasya	0.0207	Kırıkkale	0.0037
6	Isparta	0.0240	Bursa	0.0027	Erzincan	0.0193	Bursa	0.0032
7	Çanakkale	0.0235	Antalya	0.0026	Muğla	0.0183	Düzce	0.0031
8	Sinop	0.0233	Edirne	0.0023	Artvin	0.0182	Karabük	0.0028
9	Muğla	0.0228	Sakarya	0.0022	Edirne	0.0182	Amasya	0.0027
10	Artvin	0.0223	Kütahya	0.0021	Giresun	0.0179	Muğla	0.0027
11	Bolu	0.0222	Eskişehir	0.0020	Gümüşhane	0.0178	Kütahya	0.0026
12	Nevşehir	0.0216	Sinop	0.0020	Kırşehir	0.0178	Eskişehir	0.0026
13	Karabük	0.0215	Kocaeli	0.0019	Denizli	0.0177	Yalova	0.0025
14	Edirne	0.0215	Denizli	0.0019	Kırklareli	0.0176	Sakarya	0.0023
15	Eskişehir	0.0213	Samsun	0.0017	Bayburt	0.0175	Antalya	0.0023
16	Erzincan	0.0211	Aydın	0.0017	Nevşehir	0.0174	Denizli	0.0022
17	Karaman	0.0209	Balıkesir	0.0016	Bartın	0.0172	Yozgat	0.0021
18	Rize	0.0206	Uşak	0.0016	Trabzon	0.0170	Manisa	0.0020
19	Trabzon	0.0205	Manisa	0.0016	Rize	0.0168	Tunceli	0.0020
20	Aydın	0.0202	Düzce	0.0015	Sinop	0.0168	Aydın	0.0019
21	Antalya	0.0201	Bartın	0.0014	Çanakkale	0.0167	Kocaeli	0.0018
22	Düzce	0.0201	Afyon	0.0014	Çankırı	0.0167	Sinop	0.0018
23	Giresun	0.0199	Çanakkale	0.0014	Yozgat	0.0166	Bartın	0.0017
24	Bartın	0.0198	Malatya	0.0014	Niğde	0.0166	Uşak	0.0017
25	Samsun	0.0196	Trabzon	0.0013	Düzce	0.0162	Trabzon	0.0016
26	Balıkesir	0.0196	Bolu	0.0013	Aydın	0.0159	Çanakkale	0.0016
27	Kırklareli	0.0194	Elâzığ	0.0013	Kütahya	0.0158	Mersin	0.0016
28	Ankara	0.0194	Tekirdağ	0.0012	Karabük	0.0158	Samsun	0.0015
29	Kastamonu	0.0191	Amasya	0.0012	Tokat	0.0157	Afyon	0.0015
30	Uşak	0.0189	Mersin	0.0011	Uşak	0.0152	Karaman	0.0015
31	Yalova	0.0188	Kırıkkale	0.0011	Bilecik	0.0152	Balıkesir	0.0015
32	Ardahan	0.0187	Adana	0.0011	Kastamonu	0.0152	Malatya	0.0014
33	Çankırı	0.0187	Karaman	0.0011	Karaman	0.0151	Kastamonu	0.0013
34	Çorum	0.0183	Zonguldak	0.0010	Kars	0.0150	Gümüşhane	0.0013
35	Bayburt	0.0183	Tokat	0.0009	Samsun	0.0148	Tekirdağ	0.0013
36	Mersin	0.0182	Erzincan	0.0009	Aksaray	0.0148	Kahramanmaraş	0.0012
37	Kütahya	0.0181	Yalova	0.0008	Antalya	0.0148	Elâzığ	0.0012
38	Tokat	0.0181	Kayseri	0.0008	Bolu	0.0148	Bolu	0.0011
39	Malatya	0.0178	Nevşehir	0.0008	Afyon	0.0147	Çankırı	0.0011
40	Yozgat	0.0178	Bilecik	0.0008	Balıkesir	0.0147	Zonguldak	0.0011
41	Bilecik	0.0177	Konya	0.0008	Eskişehir	0.0144	Adana	0.0011
42	Sakarya	0.0173	Isparta	0.0007	Zonguldak	0.0141	Konya	0.0010
43	İzmir	0.0172	Kastamonu	0.0007	Yalova	0.0141	Niğde	0.0009
44	Kırıkkale	0.0172	Çankırı	0.0007	Bingöl	0.0141	Rize	0.0009
45	Niğde	0.0171	Artvin	0.0007	Ordu	0.0138	Kayseri	0.0009
46	Elâzığ	0.0170	Rize	0.0006	Çorum	0.0136	Nevşehir	0.0009
47	Afyon	0.0168	Burdur	0.0006	Mersin	0.0135	Burdur	0.0008
48	Gümüşhane	0.0168	Giresun	0.0006	Sakarya	0.0135	Batman	0.0007
49	Ordu	0.0167	Erzurum	0.0006	Manisa	0.0134	Van	0.0007
50	Manisa	0.0159	Bayburt	0.0006	Kırıkkale	0.0129	Ordu	0.0007
51	Aksaray	0.0157	Gümüşhane	0.0005	Sivas	0.0129	Erzincan	0.0007
52	Zonguldak	0.0157	Kars	0.0005	Malatya	0.0128	Erzurum	0.0006
53	Tekirdağ	0.0157	Batman	0.0005	Elâzığ	0.0128	Adıyaman	0.0006

54	Konya	0.0156	Niğde	0.0005	Erzurum	0.0124	Tokat	0.0006
55	Adıyaman	0.0155	Yozgat	0.0005	Siirt	0.0121	Bayburt	0.0006
56	Osmaniye	0.0155	Iğdır	0.0005	Ankara	0.0121	Kars	0.0005
57	Kars	0.0152	Kırklareli	0.0005	Konya	0.0119	Aksaray	0.0005
58	Sivas	0.0148	Diyarbakır	0.0004	Kilis	0.0118	Şırnak	0.0005
59	Siirt	0.0145	Ardahan	0.0004	Tekirdağ	0.0118	Bilecik	0.0005
60	Kilis	0.0143	Hatay	0.0004	Hatay	0.0116	Bitlis	0.0005
61	Kocaeli	0.0141	Adıyaman	0.0004	Bitlis	0.0115	Sivas	0.0005
62	Kayseri	0.0141	Kilis	0.0004	Adıyaman	0.0114	Iğdır	0.0005
63	Erzurum	0.0137	Siirt	0.0004	Kayseri	0.0113	Isparta	0.0005
64	Iğdır	0.0132	Osmaniye	0.0004	Osmaniye	0.0108	Ardahan	0.0004
65	Bursa	0.0132	Gaziantep	0.0004	Şırnak	0.0107	Çorum	0.0004
			Kahramanmaraş					
66	Bitlis	0.0130	Ş	0.0004	Kocaeli	0.0103	Giresun	0.0004
67	Adana	0.0129	Aksaray	0.0003	Muş	0.0101	Kilis	0.0004
68	Bingöl	0.0128	Çorum	0.0003	İzmir	0.0100	Gaziantep	0.0004
	Kahramanmaraş							
69	Ş	0.0126	Ordu	0.0003	Van	0.0098	Kırklareli	0.0004
70	Hatay	0.0124	Karabük	0.0003	Kahramanmaraş	0.0098	Diyarbakır	0.0004
71	Muş	0.0118	Sivas	0.0002	Bursa	0.0095	Şanlıurfa	0.0004
72	Batman	0.0115	Hakkâri	0.0002	Şanlıurfa	0.0089	Hatay	0.0003
73	Diyarbakır	0.0113	Kırşehir	0.0002	Batman	0.0088	Artvin	0.0003
74	Van	0.0112	Bingöl	0.0002	Iğdır	0.0087	Hakkâri	0.0003
75	Mardin	0.0108	Van	0.0002	Mardin	0.0087	Kırşehir	0.0003
76	Şanlıurfa	0.0104	Ağrı	0.0001	Adana	0.0086	Siirt	0.0003
77	Gaziantep	0.0103	Şırnak	0.0001	Ağrı	0.0083	Osmaniye	0.0002
78	Şırnak	0.0092	Muş	0.0001	Diyarbakır	0.0082	Bingöl	0.0002
79	Hakkâri	0.0089	Mardin	0.0001	Hakkâri	0.0079	Mardin	0.0002
80	İstanbul	0.0089	Bitlis	0.0001	Gaziantep	0.0077	Muş	0.0001
81	Ağrı	0.0088	Şanlıurfa	0.0001	İstanbul	0.0064	Ağrı	0.0001

Table A6C. Three- to five-year-old population to teacher and classroom numbers (provinces)

	Pop/teach rat.:	Public	Private	Pop/class rat.:	Public	Private		
1	Tunceli	33.18	İstanbul	185.74	Tunceli	41.47	İzmir	179.42
2	Amasya	37.02	İzmir	198.64	Ardahan	45.55	İstanbul	209.93
3	Kırşehir	39.05	Ankara	246.93	Burdur	46.70	Edirne	227.49
4	Burdur	40.47	Tunceli	248.85	Isparta	47.61	Ankara	234.77
5	Denizli	40.82	Muğla	319.93	Amasya	48.42	Kırıkkale	272.78
6	Isparta	41.72	Bursa	366.48	Erzincan	51.90	Bursa	308.56
7	Çanakkale	42.52	Antalya	390.54	Muğla	54.76	Düzce	324.76
8	Sinop	42.93	Edirne	438.73	Artvin	54.83	Karabük	360.71
9	Muğla	43.85	Sakarya	453.41	Edirne	54.84	Amasya	374.58
10	Artvin	44.78	Kütahya	467.14	Giresun	56.00	Muğla	375.57
11	Bolu	45.00	Eskişehir	492.22	Gümüşhane	56.05	Kütahya	382.20
12	Nevşehir	46.22	Sinop	492.28	Kırşehir	56.25	Eskişehir	385.80
13	Karabük	46.41	Kocaeli	512.93	Denizli	56.46	Yalova	399.69
14	Edirne	46.53	Denizli	539.30	Kırklareli	56.94	Sakarya	443.55
15	Eskişehir	46.88	Samsun	583.10	Bayburt	57.23	Antalya	444.17
16	Erzincan	47.50	Aydın	592.59	Nevşehir	57.31	Denizli	460.52
17	Karaman	47.89	Balıkesir	626.57	Bartın	58.11	Yozgat	479.44
18	Rize	48.48	Uşak	630.25	Trabzon	58.77	Manisa	491.36
19	Trabzon	48.79	Manisa	640.42	Rize	59.48	Tunceli	497.70
20	Aydın	49.56	Düzce	677.76	Sinop	59.55	Aydın	516.62
21	Antalya	49.76	Bartın	691.46	Çanakkale	59.71	Kocaeli	546.46
22	Düzce	49.80	Afyon	701.14	Çankırı	59.77	Sinop	568.02
23	Giresun	50.31	Çanakkale	706.19	Yozgat	60.29	Bartın	576.22
24	Bartın	50.47	Malatya	717.55	Niğde	60.34	Uşak	602.85
25	Samsun	51.09	Trabzon	752.75	Düzce	61.86	Trabzon	619.92
26	Balıkesir	51.13	Bolu	764.97	Aydın	62.86	Çanakkale	624.70
27	Kırklareli	51.47	Elâzığ	773.16	Kütahya	63.13	Mersin	644.19
28	Ankara	51.49	Tekirdağ	813.89	Karabük	63.48	Samsun	654.21
29	Kastamonu	52.48	Amasya	849.04	Tokat	63.87	Afyon	659.07
30	Uşak	52.92	Mersin	876.63	Uşak	65.71	Karaman	659.22
31	Yalova	53.29	Kırıkkale	909.25	Bilecik	65.82	Balıkesir	669.05
32	Ardahan	53.40	Adana	913.40	Kastamonu	65.87	Malatya	717.55
33	Çankırı	53.57	Karaman	933.90	Karaman	66.31	Kastamonu	743.98
34	Çorum	54.56	Zonguldak	1008.43	Kars	66.55	Gümüşhane	792.71
35	Bayburt	54.63	Tokat	1110.87	Samsun	67.39	Tekirdağ	796.93
36	Mersin	55.04	Erzincan	1122.23	Aksaray	67.54	Kahramanmaraş	830.75
37	Kütahya	55.17	Yalova	1256.16	Antalya	67.78	Elâzığ	845.64

38	Tokat	55.30	Kayseri	1256.75	Bolu	67.78	Bolu	892.46
39	Malatya	56.17	Nevşehir	1289.41	Afyon	67.81	Çankırı	903.99
40	Yozgat	56.25	Bilecik	1327.28	Balıkesir	67.82	Zonguldak	930.86
41	Bilecik	56.48	Konya	1328.02	Eskişehir	69.63	Adana	935.50
42	Sakarya	57.96	Isparta	1404.61	Zonguldak	70.77	Konya	1021.55
43	İzmir	58.00	Kastamonu	1405.30	Yalova	70.91	Niğde	1064.80
44	Kırıkkale	58.04	Çankırı	1446.39	Bingöl	71.16	Rize	1070.67
45	Niğde	58.58	Artvin	1466.58	Ordu	72.66	Kayseri	1114.86
46	Elâzığ	58.96	Rize	1606.00	Çorum	73.42	Nevşehir	1172.19
47	Afyon	59.48	Burdur	1618.92	Mersin	73.81	Burdur	1214.19
48	Gümüşhane	59.67	Giresun	1648.90	Sakarya	74.19	Batman	1438.16
49	Ordu	59.70	Erzurum	1680.89	Manisa	74.70	Van	1467.05
50	Manisa	62.98	Bayburt	1802.77	Kırıkkale	77.38	Ordu	1489.57
51	Aksaray	63.59	Gümüşhane	1849.65	Sivas	77.38	Erzincan	1496.31
52	Zonguldak	63.69	Kars	1856.82	Malatya	77.93	Erzurum	1616.24
53	Tekirdağ	63.86	Batman	1986.04	Elâzığ	78.21	Adıyaman	1657.33
54	Konya	63.92	Niğde	2011.29	Erzurum	80.97	Tokat	1703.33
55	Adıyaman	64.53	Yozgat	2013.64	Siirt	82.50	Bayburt	1802.77
56	Osmaniye	64.68	İğdır	2041.51	Ankara	82.86	Kars	1856.82
57	Kars	65.84	Kırklareli	2141.08	Konya	84.18	Aksaray	1878.77
58	Sivas	67.78	Diyarbakır	2257.49	Kilis	84.58	Şırnak	1969.61
59	Siirt	69.19	Ardahan	2323.03	Tekirdağ	84.63	Bilecik	1990.93
60	Kilis	69.84	Hatay	2372.02	Hatay	86.26	Bitlis	2025.41
61	Kocaeli	70.73	Adıyaman	2430.75	Bitlis	87.11	Sivas	2028.55
62	Kayseri	71.04	Kilis	2537.51	Adıyaman	87.86	İğdır	2041.51
63	Erzurum	73.08	Siirt	2667.61	Kayseri	88.50	Isparta	2106.91
64	İğdır	75.61	Osmaniye	2728.14	Osmaniye	92.62	Ardahan	2323.03
65	Bursa	75.65	Gaziantep	2776.52	Şırnak	93.79	Çorum	2431.01
			Kahramanmaraş					
66	Bitlis	76.91	Ş	2803.78	Kocaeli	96.77	Giresun	2473.35
67	Adana	77.59	Aksaray	2952.35	Muş	99.08	Kilis	2537.51
68	Bingöl	77.83	Çorum	3125.58	İzmir	100.26	Gaziantep	2613.19
	Kahramanmaraş							
69	Ş	79.45	Ordu	3310.15	Van	101.68	Kırklareli	2676.35
70	Hatay	80.55	Karabük	3967.78	Kahramanmaraş	102.42	Diyarbakır	2741.24
71	Muş	84.62	Sivas	4057.11	Bursa	105.02	Şanlıurfa	2807.80
72	Batman	87.07	Hakkâri	4407.25	Şanlıurfa	111.75	Hatay	2907.64
73	Diyarbakır	88.36	Kırşehir	4471.72	Batman	113.03	Artvin	2933.16
74	Van	89.01	Bingöl	4981.12	İğdır	114.48	Hakkâri	2938.17
75	Mardin	92.23	Van	5134.68	Mardin	114.82	Kırşehir	2981.14
76	Şanlıurfa	96.17	Ağrı	7084.58	Adana	115.77	Siirt	3429.78
77	Gaziantep	97.49	Şırnak	9848.06	Ağrı	121.10	Osmaniye	4287.08
78	Şırnak	108.52	Muş	10436.80	Diyarbakır	121.96	Bingöl	4981.12
79	Hakkâri	112.29	Mardin	11252.17	Hakkâri	125.92	Mardin	6251.20
80	İstanbul	112.99	Bitlis	12152.45	Gaziantep	129.90	Muş	7827.60
81	Ağrı	113.35	Şanlıurfa	14294.25	İstanbul	157.17	Ağrı	10626.88