# WHAT IS THE RELATIONSHIP BETWEEN SOCIOECONOMIC STATUS AND EARLY CHILDHOOD DEVELOPMENT IN KAZAKHSTAN?

By

Aiym Smadil

Submitted to

Central European University PU

Department of Economics and Business

In partial fulfillment of the requirements for the degree of the Master of Arts in Economic Policy in Global Markets

Supervisor: Tímea Laura Molnár

Vienna, Austria

2025

# COPYRIGHT NOTICE



 [1]





[1] Icon by Creative Commons

# AUTHOR'S DECLARATION

I, the undersigned, **Aiym Smadil**, candidate for the MA degree in Economic Policy in Global Markets declare herewith that the present thesis titled "What is the relationship between socioeconomic status and early childhood development in Kazakhstan?" is exclusively my own work, based on my research and only such external information as properly credited in notes and bibliography.

I declare that no unidentified and illegitimate use was made of the work of others, and no part of the thesis infringes on any person's or institution's copyright. I also declare that no part of the thesis has been submitted in this form to any other institution of higher education for an academic degree.

Vienna, 10 June 2025

Aiym Smadil

## Abstract

In this thesis, I examine the relationship between socioeconomic status and early childhood development, using data on children aged 3 or 4 from the 2015 "Multiple Indicator Cluster Survey in Kazakhstan (MICS)." Specifically, my focus is on the relationship between indicators of socio-economic status (mother's higher education, wealth of a family, the presence of books at home, reading to a child and attendance of childcare) and early childhood development." I use Ordinary Least Squares regression and Linear Probability Model as the dependent variable is binary indicating the development of a child. My results indicate that a mother's education is positively associated with early childhood development, however, it loses its significance once other measures of socioeconomic status are included. Wealth of a family, the presence of books at home, reading to a child, and attendance of childcare facility remain significantly positively associated with early childhood development even after controlling for other factors, such as mother's age, abortion, whether the child was left alone without adults' supervision, and urban or rural area. Lastly, I recommend policies involving investment in the home learning environment, support for parents, quality assurance in early childhood education, and improved data systems.



*Keywords: early childhood development, socioeconomic status*

## Acknowledgements

I am sincerely thankful to my supervisor, Tímea Laura Molnár, for her dedicated mentorship, critical insights, and continuous encouragement throughout my thesis journey. I would like to thank my family for their enduring love and support, and Talant, whose presence in my life over the past year has brought love, comfort, and encouragement during this challenging period.

# Table of Contents

# 1. Introduction

The first five years of a child's life can play a significant role in their development and performance later in school and further in life. Research has noted that there are sensitive periods of skill formation (Cunha et al. 2006) and has also highlighted the importance of early brain development (Knudsen, Heckman, Cameron and Schonkoff 2006) and early childhood environments on later socio-economic outcomes (Almond and Currie 2011; Heckman and Mosso 2014).The association between parents' socio-economic status and child development has been widely reported in the literature. Most of the studies claim that there are substantial differences in the skill set of preschool children from advantaged and disadvantaged families. For example, the study conducted by Waldfogel and Washbrook (2011) showed that test scores on literacy vary significantly between preschool children from different financial backgrounds. Other studies have found that mothers with higher education tend to raise more developed children (Tampubolon et al, 2024)

Early Childhood Development is also important in human capital formation, and Kazakhstan is not an exception. The Prime Minister of the Republic of Kazakhstan calls for the number of preschool organizations to be increased significantly (Prime Minister, 2024), which indicates that the government understands the importance of the early years. However, it is not enough to merely increase the number of preschool facilities to ensure the development of children. Although spending time in a preschool facility will positively affect the child's development, children still spend a significant amount of time outside these facilities, therefore, it is very crucial to focus on the additional factors that may affect child development. According to Kalil et al. (2019), children in Unites States spend only between 15 and 18 percent of their waking hours at school. This suggests that children spend the rest of the time either with parents or in an

environment that was selected by the parents. That is why looking at the socioeconomic status, or more explicitly, education and wealth of the family is very important in recognizing the determinants of early childhood development. A UNICEF report on Kazakhstan (Diesen 2019) found that only 6.6 percent of fathers participate in the lives of their young children in Kazakhstan. Mothers are more likely to bare the most of the responsibility for raising the child (Dietrichson, 2017). And Kazakhstan is more possibly following the same trend. Observing the mother's education and its influence on the early childhood development in Kazakstan is vital, as the child is likely to spend most of the time not in the childcare facilities, but under the supervision and care of the mother.

Although there are studies that look at the relationship between parents' socio-economic status and the educational outcomes of the children in Kazakhstan (Nurdilda 2023), early childhood development has been unexplored to date. This thesis seeks to contribute to the relevant literature by looking at early childhood development and its relationship to socio-economic status.

In this thesis, I rely on the Multiple Indicator Cluster Survey (MICS) developed by UNICEF. It is a standardized survey on the health, education and well-being of children and women. I analyze the survey conducted in 2015 in Kazakhstan, which is openly accessible from the official website of the UNICEF. The dataset is originally available in three languages: Kazakh, Russian and English. The aim of the standardized surveys such as MICS was to collect comparable and sound data on women and children's well-being in developing countries.

To measure the relationship between the mother's socio-economic status and early childhood development, I chose multivariate regression analysis, using the Multiple Indicator Cluster Survey (MICS) in Kazakhstan for year 2015.

I find that when only the mothers' education is included as the explanatory variable in the regression model, high-educated mothers' children are found to be more developed. In other words, simply looking at the relationship between mothers' education and early childhood development, it can be observed that more educated mothers have more developed preschool children, on average. However, adding variables for wealth significantly changes the results by making the coefficient estimate on mothers' education insignificant. The regression results without the variable indicating the wealth of a family also makes the coefficient estimate on mother's education insignificant.

The thesis is structured as follows. Chapter 2 looks at the relevant literature on the association between early childhood development and socioeconomic status. Chapter 3 describes the data and measurement of the variables. Chapter 4 describes the econometric model and estimation method. Chapter 5 describes the estimation results and includes the discussion. The thesis concludes with the summary of the work and policy recommendations.

## 2. Literature Review

This section provides a brief overview of the relevant strand of literature that explores the relationship between socioeconomic status and early childhood development focusing on the significance of long-term educational impact, family income, maternal education, and resources.

Early childhood development is significantly positively correlated with later educational outcomes of an individual. Research conducted by Feinstein (2003) provides empirical evidence supporting this relationship using the 1970 Birth Cohort Study (BCS) tracking the development progress of British children born in 1970, with assessments conducted at 22 months, 42 months, 5 years and 10 years of age. At each age, a comprehensive range of tests was administered to evaluate the children's intellectual, personal, and emotional development. The study results underscore the importance of early childhood development in the later development of a child by showing it positively affects long-term educational outcomes.

After establishing that early childhood development can serve as the basis for later development of a child, it is important to note that children's cognitive development is strongly influenced by socioeconomic status, with significant skill disparities emerging even before formal schooling begins. The study conducted by Waldfogel and Washbrook (2011) suggests that children from economically advantaged families tend to score better than children from disadvantaged backgrounds. They used nationally representative birth cohort studies to see the difference in school readiness in the UK and the USA. Their results for the income-related-achievement gaps within the cohort of 4-year-old children in the USA clearly indicate that disadvantaged children perform worse than their more advantaged counterparts: children in the poorest income quintile score on average at the 32$^{nd}$ percentile in a test of mathematics compared to children in the richest quintile who score at the 69$^{th}$ percentile. It emphasizes that differences in the cognitive

development between children from different socioeconomic status emerge before schooling begins.

Socioeconomic status is defined differently across research studies; however, family income is widely recognized as a central component. Numerous studies show a strong positive causal relationship between family income and child development. For example, Dahl and Lochner (2012) find that a $1000 increase in family income is associated with the math and reading test score increase by 6% of standard deviation, in the short run. The study looked at the increase in income because of changes in the Earned Income Tax Credit (EITC) between 1993 and 1997. They used an IV approach to find the causal link between the increase in income and children's math and reading scores. Similarly, Duncan et al. (2011) also found a positive causal relationship between family income and children's achievement by using the IV method. These findings collectively underscore the significant role family income has in promoting child development.

Maternal education is also considered a key component in the socioeconomic status of a family, although research on the effect of mother's education on children's outcomes yields mixed results. For example, the empirical study which investigates the causal relationship between mother's education and a range of child's outcomes in China after the 1986 Compulsory Education Law shows that mother's education increases math test scores, school enrollment and mental health of children (Cui et al., 2019). Holmlund et al. (2011) finds that intergenerational effects of schooling in Sweden are small but still significant. The study by Black et al. (2005) in Norway shows that mother's education positively affects the education of a son, however, the results are not significant for the daughter. And Lindeboom et al. (2009) finds that mother's education does not affect the health of infants and children aged 7, 11 and 16 in the United Kingdom.

A mother's level of education may influence a child's development indirectly, through time spent with a child, as children presumably spend a significant amount of time in their childhood with their parents. Mayer et al. (2015) found that children in the United States spend only 15 to 18 percents of waking hours at school from birth to 18 years old. Guryan et al. (2008) suggest that mothers with college education or higher spend approximately 4.5 hours more caring for their children compared to mothers with high school degrees or less. Moreover, the research conducted by Kalil et al. (2012) comes to the similar conclusion that more educated mothers spend more time with their children and adds that educated mothers change the composition of their spent time with their children in accordance with the developmental needs of a child. For example, if during the infant stage of their child they spend more time covering their basic needs, such as feeding and bathing, mothers pay more attention to the learning activities, such as reading books and problem solving when their children are at preschool age of three to five.

Families with higher socioeconomic status tend to provide their children with more resources, and access to resources positively affects the development of their child. According to Bradley and Corwyn (2002), economically advantaged parents are more likely to provide their children with materials, such as books, puzzles and games that cognitively stimulate them. Early access to diverse and developmentally suitable learning resources has been shown to positively influence preschool children's language development and literacy abilities. (Bryant and Bradley, 1987, Elliott and Hewison, 1994, Neumann and Roskos, 1993, Purcell-Gates, 1996, Senechal et al., 1998, Tabors et al., 2001).

Several research studies in other countries used Early Childhood Development Index from MICS dataset to capture the development of a child and find its relation to other factors. According to Sanchez Vincitore and Castro (2022) Dominican children from lower socioeconomic status have

lower ECDI compared to their more advantaged counterparts. Their findings suggest that age, sex at birth, socioeconomic position and mother's education predict early childhood development. The increase of mother's education by one degree increases the likelihood of the child's development by 13.9 percentage points. The study conducted by Jahan Khanam et al. (2023) find that non-attendance of childcare program in Bangladesh is associated with lower likelihood of being developed on track. The research conducted by Dadras et al. (2024) also find a positive correlation between ECDI and higher education of parents along with family wealth in Afghanistan. Their study points also out the negative correlation between ECDI and living in rural areas, being underweight and stunted growth. Topothai et al. (2024) also found that being developed on track is positively associated with higher maternal education and more books at home in Thailand. Ujah et al. (2025) found no significant association between food insecurity and ECDI in Nigeria.

Despite the global evidence, research on early childhood development and its relation to socioeconomic status in Kazakhstan remains limited. Although Nurdilda (2023), Mariya Zdorovets (2017) and Alyona Kaus (2018) have looked at socioeconomic status and its effect on children's educational outcomes at school, empirical studies that look at early childhood development of preschool aged children are scarce. This thesis is a significant contribution to the literature on early childhood development and its association with parents' socioeconomic status in Kazakhstan. Moreover, I look at several measures of socioeconomic status simultaneously, which were not included in the previous literature. Although there are studies on the separate relations between child development and mother's education or child development and family wealth, previous research has not looked at these measures of socioeconomic status jointly.

## 3. Data and Measurement

I use data from MICS 2015 Kazakhstan in this thesis. The Multiple Indicator Cluster Survey (MICS) is an international program that provides data for developing countries on child health and development including data on mothers. The MICS survey program was launched by UNICEF in 1995, and since then has provided nationally representative data for approximately 90 developing countries, assisting them to perform evidence-based policymaking. National government institutions actively participate in carrying out the survey in the selected countries with the technical and financial assistance from UNICEF.

MICS 2015 in Kazakhstan is the third survey conducted in the country since the launch of the program. The first survey data is available for the year 2006, the second for 2011. A fourth survey was conducted in the 2024, however, the data is still being processed and currently not available for analysis. The Statistics Committee of the Ministry of National Economy was the government body responsible for all four surveys, with financial and technical support from UNICEF.

The survey was conducted on a nationwide level. A total of 16,791 households were taken as a sample size. Four SPSS files were produced at the end of the survey, corresponding to different units of analysis. Households, household members, women in reproductive age and mothers or primary caretakers of children under age five were the four units of analysis. To ease the analysis of this thesis, I imported four SPSS files to the STATA software and merged them into one dataset, where the individual observations corresponded to a child of the age 3 or 4. This merged dataset includes 2,328 observations, for which the analysis was conducted.

The dependent variable in this thesis is the early childhood development index (ECDI) defined in the final report of the Statistics Committee of MICS 2015 Kazakhstan survey data. The milestones needed to be achieved by the ages of 3 and 4 serve as the basis for the early childhood development index. The survey assessed children in four domains of development. Literacy-numeracy, physical, social-emotional and learning are different domains in which the child was assessed in a 10-question module in the questionnaire for children under age 5 (data for only children aged 3 or 4 were used to calculate ECDI). Each domain had several questions related to the specific area of development of a child.

Literacy-numeracy domain included whether the child could name/identify at least ten letters in an alphabet, read at least four popular words and recognize the numbers from 1 to 10. If at least 2 of these questions were answered as yes, the child was considered developmentally on track in the literacy-numeracy domain. The second domain is physical, and the questionnaire asked if the child could pick up an object like a stick from the ground using two fingers or whether the child was seldom reported to be unable to play due to illness. If at least one of these questions was answered yes, the child was developmentally on track in physical domain. The next domain is social-emotional, and the mothers were asked if their child is getting along well with other children, if the child does not kick, bite or hit other children, they were also asked about child not being distracted easily. Similarly, if two of the above-mentioned questions were true, the child was developmentally on track in social-emotional domain. The final domain was called learning and included two questions asking if the child can follow the simple directions of doing something correctly and perform a given task independently. If at least one answer was true, then the child is developmentally on track in learning domain. And most importantly, overall development of a child was noted as on track if at least 3 out of 4 domains were on track.

The survey dataset included this 10-question model mentioned in the review, with respective answers to the questions, however, the final variable indicating the development of a child was not included in the initial dataset. I calculated the development of a child in each of the four domains, using the instructions provided above from the mentioned review of the survey in the STATA software. For example, if at least two questions were answered yes in the literacy-numeracy domain, the new variable indicated that the child is on track. The same procedure was repeated for the physical, social-emotional and learning domains. Finally, to identify if the child is developmentally on track overall, a new binary variable was generated, indicating 1 if the child was developmentally on track in at least 3 out of 4 domains. This newly generated variable was used as the main dependent variable in the regressions.

As the main aim of this thesis is to discover the relationship between early childhood development and the mother's socioeconomic status, I define the socioeconomic status used in thesis as follows. The socioeconomic status of a mother includes the variable indicating the *educational attainment* of the woman, or more specifically, whether the mother has completed higher education or not, and *family wealth*, represented by the binary variable whether a family is rich or not, based on the wealth index quintiles given in the survey dataset. I also add three more variables as that of main interest, namely the *presence of books dedicated to children in the home*, binary variable indicating whether a *mother reads books to the child* and the *attendance of childcare programs.* Socioeconomic status is a complex term and the related literature has employed various variables. I have chosen to include these five variables along with controls for the purpose of my thesis, as they are more likely to represent the families with different socioeconomic status. Families where mothers have higher education are more likely to be wealthier, which gives them the opportunity to purchase more books for children. More

advantaged families are more likely to read to their children and those children are more likely to attend childcare programs.

## 4. Methodology

I use a multivariate linear regression model relating the early childhood development to the mother's education, to see the relationship between the development and one of the variables of interest, indicating the socioeconomic status of a mother. Generally, this regression model will show the biased coefficient estimate on the mother's education variable (the variable of interest), and it is not enough to represent the causality. However, the aim of this paper is to discover the correlation between the two. I add the variable indicating the wealth of the family to see how it will affect the results of the regression. Then I include other variables of interest one by one to see how the results will be altered. The presence of books at home for the child, whether the mother of the child spent time reading in the past 3 days, and the attendance of the childcare program are included respectively in the regression analysis.

Estimation equation:

$$developed_i = \alpha + \beta_1 \cdot mom\_high\_edu_i + \beta_2 \cdot rich_i + \beta_3 \cdot manybooks_i + \beta_4 \cdot momreads_i + \beta_5 \cdot childcare_i + X_i \cdot \gamma + \varepsilon_i$$

Where, $developed_i$ - is a binary variable equal to 1 if child i is developed on track, 0 if otherwise.

$Mom\_high\_edu_i$ -is a binary variable equal to 1 if mother has higher education, 0 if otherwise.

$Rich_i$ – is a binary variable equal to 1 if the household wealth is in fourth or fifth quintile, 0 if otherwise.

$Manybooks_i$ –is a binary variable equal to 1 if number of books at home is larger than the median (4), 0 otherwise.

$Momreads_i$ – is a binary variable equal to 1 if mother reads to a child, 0 otherwise.

$Childcare_i$ – is a binary variable equal to 1 if a child attends a childcare program.

Xi: vector of additional control variables (e.g., mother's age, whether she had an abortion, child was left alone, urban/rural region.)

## 5. Results and Discussion

In this section, I will present the results of multiple linear regression based on the earlier estimation equation. There are four tables in this section. Table 1 shows the results of the regression without controls, only the final column including the controls. While Table 2 represents the results of the regressions with controls.

Table 3 and 4 show the estimation equation without considering the variable indicating the wealth of a family, *rich*. Table 3 includes control variables only in the final column, while Table 4 includes controls in every regression.

The results for the OLS regressions are presented in Table 1 below.

**Table 1**. The association between early childhood development and socioeconomic status.

| VARIABLES | (1) developed | (2) developed | (3) developed | (4) developed | (5) developed | (6) developed |
|---|---|---|---|---|---|---|
| mom_high_edu | 0.0431** | 0.00732 | 0.00196 | 0.00214 | -0.00212 | -0.0127 |
| | (0.0188) | (0.0195) | (0.0195) | (0.0193) | (0.0195) | (0.0201) |
| rich | | 0.128*** | 0.114*** | 0.0876*** | 0.0600*** | 0.0635*** |
| | | (0.0198) | (0.0203) | (0.0203) | (0.0203) | (0.0245) |
| manybooks | | | 0.0597*** | 0.0294 | 0.0791*** | 0.0817*** |
| | | | (0.0191) | (0.0192) | (0.0196) | (0.0200) |
| momreads | | | | 0.152*** | 0.0809*** | 0.0778*** |
| | | | | (0.0193) | (0.0194) | (0.0200) |
| childcare | | | | | 0.0431** | 0.0448** |
| | | | | | (0.0192) | (0.0196) |

Note: The dependent variable is early childhood development. Each coefficient is from a separate regression. The column (6) includes the controls for mother's age, abortion, whether the child was left alone and rural or urban area. The number of observations is 2328. R-squared is 0.056. ***p < 0.01, **p < 0.05, *p < 0.1.

Mother's higher education is positively correlated with early childhood development; however, the coefficient estimate becomes insignificant after adding the other measures of socioeconomic status. Children whose mothers have higher education are 4.31 percentage points more likely to develop on track on average. The result is statistically significant at the 5% significance level. The

second column shows that holding family wealth constant, children of mothers with higher education are 0.73 percentage points more likely to develop on track. However, this coefficient is not statistically significant at conventional levels of significance. When holding maternal education constant, children from rich households are 12.8 percentage points more likely to develop on track compared to children from non-rich households. In addition, this coefficient is statistically significant at the 1% significance level.

There is a significant positive correlation between early childhood development and family wealth, but the size of the coefficient estimates decreases after adding other measures of socioeconomic status. In column (3), if we compare two children of mothers who both have higher education, and they have the same number of books at home, a child from a wealthier family is 11.4 percentage points more likely to develop on track. While, according to column (4), comparing two children whose mothers have higher education and read to them, possessing the same number of books, a child from a wealthier family is 8.76 percentage points more likely to develop on track. In column (5), the coefficients estimate of wealth decreases further, when we control for the attendance of childcare.

The number of books at home is positively correlated with early childhood development and the coefficient estimate remains statistically significant even after adding the other measures of socioeconomic status, with the only exception of mother reading to the child in column (4). Holding maternal education and wealth constant, the child in the household with one or more books is 5.97 percentage points more likely to develop on track compared to the household without a book. This coefficient estimate is statistically significant at the 1% significance level. When comparing two children whose mothers have higher education, read to them, and who live in families with the same wealth, a child who has access to more books is 2.94 percentage points

more likely to develop on track. However, this coefficient estimate is not statistically significant. After controlling additionally for the childcare attendance, this coefficient estimate increases. Holding maternal education, wealth, mother reading and attendance of childcare program, the child in the household with more books is 7.91 percentage points more likely to develop on track. This coefficient estimate is statistically significant at the 1% significance level.

Mother reading to a child is significantly positively associated with early childhood development, and the coefficient decreases after controlling for attendance of childcare. Holding mother's education, wealth and number of books at home constant, children whose mothers read to them are 15.2 percentage points more likely to develop on track. This coefficient decreases by almost half when controlling additionally for the childcare attendance. If we compare two children whose mothers have higher education, with the same number of books at home, from families with the same level of wealth, and who attend childcare, a child whose mother reads to him/her is 8.09 percentage points more likely to develop on track.

In column (5), the coefficient estimate of childcare attendance is half of the coefficient estimates of number of books and reading to a child.

In column (6) of Table 1, I am controlling for mother's age, whether she had an abortion, whether the child was left alone without adults' supervision, and if the family lives in rural or urban area. We can observe that after controlling for these variables, the coefficients of variables of interest did not change significantly.

Table 2 below shows the results of the regression when the control variables were included starting from the first column, in comparison to Table 1, where the control variables were included only in the final column

**Table 2.** The association between early childhood development and socioeconomic status with controls.

| VARIABLES | (1) developed | (2) developed | (3) developed | (4) developed | (5) developed |
|---|---|---|---|---|---|
| mom_high_edu | 0.0235 | 0.00651 | -0.00260 | -0.00131 | -0.0127 |
| | (0.0198) | (0.0201) | (0.0200) | (0.0199) | (0.0201) |
| rich | | 0.104*** | 0.0773*** | 0.0684*** | 0.0635*** |
| | | (0.0241) | (0.0245) | (0.0244) | (0.0245) |
| manybooks | | | 0.102*** | 0.0754*** | 0.0817*** |
| | | | (0.0194) | (0.0198) | (0.0200) |
| momreads | | | | 0.112*** | 0.0778*** |
| | | | | (0.0199) | (0.0200) |
| childcare | | | | | 0.0448** |
| | | | | | (0.0196) |

Note: The dependent variable is early childhood development. Each coefficient is from a separate regression. All columns from (1) to (5) include the controls for mother's age, abortion, whether the child was left alone and rural or urban area. The number of observations is 2218 for columns (1)-(4). The column (5) includes 2166 observations. R-squared is between 0.025-0.056. ***p < 0.01, **p < 0.05, *p < 0.1.

After considering all the control variables in each regression the results are different compared to Table 1. In the first column it can be noticed that the coefficient of mother's higher education is no longer significant at conventional levels of significance after including control variables. However, there is still a positive relationship between a mother's higher education and early childhood development. Children whose mothers have higher education are 2.35 percentage points more likely to be developed on track compared to the children of the mothers who do not have higher education. Without controls, this coefficient was higher and equal to 4.31 percentage points likelihood of being developed on track.

The coefficient estimate of wealth is still significant and decreases with adding other measures of socioeconomic status, however, the size of the coefficient estimates is smaller, varying between 6-10 percentage points compared to 6-12 percentage points in the previous table.

The presence of books at home is significantly positively correlated with early childhood development and the coefficient estimate decreases after adding other measures of socioeconomic status.

**Table 3.** The association between early childhood development and other measures of socioeconomic status, not including family wealth.

| VARIABLES | (1) developed | (2) developed | (3) developed | (4) developed | (5) developed |
|---|---|---|---|---|---|
| mom_high_edu | 0.0431** | 0.0300 | 0.0231 | 0.0115 | -0.00436 |
| | (0.0188) | (0.0190) | (0.0187) | (0.0190) | (0.0199) |
| manybooks | | 0.0838*** | 0.0446** | 0.0900*** | 0.0907*** |
| | | (0.0187) | (0.0190) | (0.0193) | (0.0197) |
| momreads | | | 0.165*** | 0.0888*** | 0.0810*** |
| | | | (0.0191) | (0.0193) | (0.0199) |
| childcare | | | | 0.0491** | 0.0493** |
| | | | | (0.0191) | (0.0195) |

Note: The dependent variable is early childhood development. Each coefficient is from a separate regression. The column (5) includes the controls for mother's age, abortion, whether the child was left alone and rural or urban area. The number of observations is 2328 for columns (1)-(3), 2228 for column (4), and 2166 for column (5). R-squared is between 0.002-0.053. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 3 above shows the regression output without including the variable indicating the wealth of a family and including the controls in the final column.

The coefficient estimate on the mother's education becomes insignificant even if the wealth variable is not included in the regression. If we compare two children who have the same number of books at home, a child whose mother has higher education is 3 percentage points more likely to develop on track. However, this coefficient estimate is not statistically significant. It remains statistically insignificant after adding other measures of socioeconomic status.

The presence of books at home is positively associated with early childhood development and the coefficient estimate of this variable remains significant after adding the other measures of socioeconomic status. In column (2), comparing two children whose mothers have higher education, a child in a family with more books at home is 8.38 percentage points more likely to develop on track. This coefficient estimate is statistically significant at the 1% significance level. This coefficient estimate decreases by half when adding the mother reading to a child. Holding constant the mother's education and whether a mother reads, a child whose family possesses more books is 4.46 percentage points more likely to develop on track. This coefficient estimate is also significant at the 1% significance level. After controlling childcare attendance, the coefficient estimate doubles. Holding constant mother's education, reading and childcare, a child whose family has more books is 9 percentage points more likely to develop on track.

Mother reading to a child is significantly positively related to the early childhood development and the coefficient estimate decreases after adding the attendance of childcare. If we compare two children, whose mothers have higher education and have same number of books at home, a child whose mother reads to him is 16.5 percentage points more likely to develop on track. However, holding constant mother's education, the presence of books and childcare attendance, a child whose mother reads is 8.88 percentage points more likely to develop on track.



**Table 4.** The association between early childhood development and other measures of socioeconomic status, not including family wealth, with controls.

| VARIABLES | (1) developed | (2) developed | (3) developed | (4) developed |
|---|---|---|---|---|
| mom_high_edu | 0.0235 | 0.00838 | 0.00840 | -0.00436 |
| | (0.0198) | (0.0198) | (0.0196) | (0.0199) |
| manybooks | | 0.114*** | 0.0857*** | 0.0907*** |
| | | (0.0190) | (0.0195) | (0.0197) |
| momreads | | | 0.115*** | 0.0810*** |
| | | | (0.0199) | (0.0199) |
| childcare | | | | 0.0493** |
| | | | | (0.0195) |

Note: The dependent variable is early childhood development. Each coefficient is from a separate regression. All columns from (1) to (5) include the controls for mother's age, abortion, whether the child was left alone and rural or urban area. The number of observations is 2218 for columns (1)-(3). The column (4) includes 2166 observations. R-squared is between 0.025-0.053. ***p < 0.01, **p < 0.05, *p < 0.1.

After considering all the control variables in each regression in Table 4, the results are different compared to Table 3. In the first column, it can be noticed that the coefficient of mother's higher education is no longer significant at conventional levels of significance after including control variables. However, there is still a positive relationship between a mother's higher education and early childhood development.

## 6. Conclusion

I examined the relationship between mother's socioeconomic status and early childhood development (ECD) in Kazakhstan using data from the 2015 Multiple Indicator Cluster Survey (MICS). Grounded in the human capital framework and supported by the literature on sensitive periods in development, the thesis highlights the crucial role of early childhood experiences in shaping long-term outcomes.

The analysis reveals that mother's education alone is not a statistically significant predictor of early childhood development in the regression models—even before controlling for family wealth. Instead, other factors within the home environment—such as the number of books at home, whether the mother reads to the child, and attendance at a childcare center—are consistently and significantly associated with higher levels of child development.

These findings suggest that it is not formal education per se, but rather the specific behaviors and resources associated with educated or engaged parenting that matter most in the early years. Mothers with higher education may still be more likely to read to their children or provide stimulating learning materials, but it is these direct developmental inputs—rather than education as a standalone variable—that have the greatest impact.

Additionally, the inclusion of household wealth in the regression also did not restore significance to the mother's education variable, reinforcing the idea that material resources and parental engagement work through different mechanisms. Wealthier families may provide more books or pay for quality childcare, but everyday interactions such as reading or talking with a child are also crucial and not entirely dependent on income.

These insights are important for policy. While expanding access to preschool remains a key step, it is not sufficient on its own. Policies aimed at improving the home learning environment—such as parenting support programs, public campaigns to promote reading and early stimulation, and increasing access to books and educational materials—could be more effective in supporting early childhood development. Moreover, efforts to engage fathers and reduce gendered caregiving burdens may also help improve child outcomes.

In conclusion, this thesis contributes to the limited research on early childhood development in Kazakhstan by showing that specific measures of socioeconomic status as aspects of parenting and home environment are critical determinants of child development. Addressing these factors early on can help reduce developmental disparities and promote a more equitable foundation for all children in Kazakhstan.

## 7. Policy Recommendations

Children are an important part of the human capital and promoting their development by developing effective policies will benefit the economy and their well-being. Policymakers are recommended to find a way to promote early childhood development. In what follows, I summarize the key policy recommendations of this thesis.

*Collecting more data on the development of preschool aged children*. More extensive data allowing the causal analysis of the early childhood development is needed. Tracking the development of children before they enter school and looking at their school achievements and further will enable researchers to analyze the determinants of development more closely.

*Introducing training programs for parents.* Supporting young families to gain knowledge about parenting and the effects of different parenting styles will encourage parents to participate actively in the early stages of their children's lives.

In addition to training, a*ccess to stimulating materials such as books and educational toys* should be expanded, especially in low-income and rural areas. The government, in collaboration with non-governmental organizations and the private sector, can facilitate the distribution of these materials through libraries, preschools, or public campaigns. Encouraging reading and early stimulation at home can have a profound effect on cognitive and socio-emotional development, independent of formal preschool attendance.

Moreover, while increasing the availability of preschool facilities is an important step, as already acknowledged by government initiatives, *ensuring the quality and inclusivity of these centers is equally vital*. Investments should be made not only in infrastructure but also in teacher

training and curriculum development, with an emphasis on child-centered, play-based learning approaches that foster holistic development.

Finally, greater attention must be paid to the role of fathers and the gendered nature of caregiving. In Kazakhstan, mothers continue to bear the primary responsibility for child-rearing. Policies that promote the *active involvement of fathers*—through awareness campaigns, paternal leave policies, or community-based initiatives—can help balance caregiving duties and enhance the overall developmental environment for children.

In summary, promoting early childhood development requires a multi-dimensional approach that goes beyond increasing preschool access. It demands investment in the home learning environment, support for parents, quality assurance in early childhood education, and improved data systems. By addressing these areas, Kazakhstan can build a stronger foundation for its future generations and reduce developmental disparities from the very beginning of life.

## References


Almond, D. and Currie, J. (2011). 'Human capital development before age five', in (O.C. Ashenfelter and D. Card, eds.), Handbook of Labor Economics, vol. 4B, ch. 15, pp. 1315–486. Amsterdam: Elsevier.

Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual review of psychology*, *53*(2002), 371-399.

Black, S. E., Devereux, P. J., & Salvanes, K. G. (2005). Why the apple doesn't fall far: Understanding intergenerational transmission of human capital. *American economic review*, *95*(1), 437-449.

Cunha, F., Heckman, J.J., Lochner, L.J. and Masterov, D.V. (2006). 'Interpreting the evidence on life cycle skill formation', in (E.A. Hanushek and F. Welch, eds.), Handbook of the Economics of Education, ch. 12, pp. 697–812. Amsterdam: North-Holland.

Cui, Y., Liu, H., & Zhao, L. (2019). Mother's education and child development: Evidence from the compulsory school reform in China. *Journal of Comparative Economics*, *47*(3), 669-692.

Dadras, O., Stanikzai, M. H., Jafari, M., & Tawfiq, E. (2024). Early childhood development and its associated factors among children aged 36–59 months in Afghanistan: evidence from the national survey 2022–2023. *BMC pediatrics*, *24*(1), 734.

Dahl, G. B., & Lochner, L. (2012). The impact of family income on child achievement: Evidence from the earned income tax credit. *American Economic Review*, *102*(5), 1927-1956.

Dietrichson, S. (2017). "Mum takes more responsibility for the children, even in gender equal couples". Retrieved from https://kjonnsforskning.no/en/2017/10/mum-takes-more-responsibility-children-even-gender-equal-couples

Duncan, G. J., Morris, P. A., & Rodrigues, C. (2011). Does money really matter? Estimating impacts of family income on young children's achievement with data from random-assignment experiments. *Developmental psychology*, *47*(5), 1263.

Diesen, Arthur van (2019, June 17). *Celebrating fatherhood: parenting is a journey.* UNICEF.HTTPS://WWW.UNICEF.ORG/KAZAKHSTAN/EN/STORIES/CELEBRATING-FATHERHOOD-PARENTING-JOURNEY

Elliott, J. A., & Hewison, J. (1994). Comprehension and interest in home reading. *British Journal of Educational Psychology*, *64*(2), 203-220.

Feinstein, L. (2003). Inequality in the early cognitive development of British children in the 1970 cohort. *Economica*, *70*(277), 73-97.

Guryan, J., Hurst, E., & Kearney, M. (2008). Parental education and parental time with children. *Journal of Economic perspectives*, *22*(3), 23-46.

Heckman, J.J. and Mosso, S. (2014). 'The economics of human development and social mobility', Annual Review of Economics, vol. 6(1), pp. 689–733.

Holmlund, H., Lindahl, M., & Plug, E. (2011). The causal effect of parents' schooling on children's schooling: A comparison of estimation methods. *Journal of economic literature*, *49*(3), 615-651.

Khanam, S. J., Alam, M. B., & Khan, M. N. (2023). Effects of early childhood education on early childhood development in Bangladesh. *medRxiv*, 2023-12.

Kalil, A., Ryan, R., & Corey, M. (2012). Diverging destinies: Maternal education and the developmental gradient in time with children. *Demography*, *49*, 1361-1383.

Kalil, A., S. Mayer, P. Oreopoulos, and S. Gallegos, "Using Behavioral Insights To Increase Parental Engagement: The Parents and Children Together (PACT) Intervention," Journal of Human Resources (2019), 54)(4): 900-925

Kaus, Alyona. Parental Involvement in Elementary Education in Kazakhstan: Nature, Factors, and Implications for Academic Achievement. 2018, HTTPS://NUR.NU.EDU.KZ/BITSTREAM/HANDLE/123456789/3675/MSC_2018%20ALYONA%20KAUS.PDF?SEQUENCE=1&ISALLOWED=Y

Knudsen, E. I., Heckman, J. J., Cameron, J. L., & Shonkoff, J. P. (2006). Economic, neurobiological, and behavioral perspectives on building America's future workforce. *Proceedings of the national Academy of Sciences*, *103*(27), 10155-10162.

Lindeboom, M., Llena-Nozal, A., & van Der Klaauw, B. (2009). Parental education and child health: Evidence from a schooling reform. *Journal of health Economics*, *28*(1), 109-131.

Maclean, M., Bryant, P., & Bradley, L. (1987). Rhymes, nursery rhymes, and reading in early childhood. *Merrill-Palmer Quarterly (1982-)*, 255-281.

Mayer, S. E., Kalil, A., Oreopoulos, P., & Gallegos, S. (2015). Using behavioral insights to increase parental engagement. *THE JOURNAL OF HUMAN RESOURCES*, *5*(4), 4.

Neuman, S. B., & Roskos, K. (1993). Access to print for children of poverty: Differential effects of adult mediation and literacy-enriched play settings on environmental and functional print tasks. *American Educational Research Journal*, *30*(1), 95-122.

Nurdilda, U. (2023). The Influence of Parental Socioeconomic Status Characteristics on Children's Educational Outcomes in Kazakhstan. *Journal of Student Research*, *12*(4). HTTPS://DOI.ORG/10.47611/JSRHS.V12I4.5368.

Official Information Source of the Prime Minister of the Republic of Kazakhstan. (2024, June 1). *Children's day: How Presidential Instructions to improve standards of living are being fulfilled*. HTTPS://PRIMEMINISTER.KZ/EN/NEWS/REVIEWS/CHILDRENS-DAY-HOW-PRESIDENTIAL-INSTRUCTIONS-TO-IMPROVE-STANDARDS-OF-LIVING-ARE-BEING-FULFILLED-28561

Purcell-Gates, V. (1996). Stories, coupons, and the TV Guide: Relationships between home literacy experiences and emergent literacy knowledge. *Reading research quarterly*, *31*(4), 406-428.

Sánchez-Vincitore, L. V., & Castro, A. (2022). The role of sociodemographic and psychosocial variables in early childhood development: A secondary data analysis of the 2014 and 2019 Multiple Indicator Cluster Surveys in the Dominican Republic. *PLOS Global Public Health*, *2*(7), e0000465.

Sénéchal, M., Lefevre, J. A., Thomas, E. M., & Daley, K. E. (1998). Differential effects of home literacy experiences on the development of oral and written language. *Reading research quarterly*, *33*(1), 96-116.

Tabors, P. O., Roach, K. A., & Snow, C. E. (2001). Home language and literacy environment: Final results.

Tampubolon, A. N., Ingtyas, F. T., & Ginting, L. (2024). The Influence of Mother's Education Level on Child Development: A Meta-Analysis Study. *Journal Corner of Education, Linguistics, and Literature*, *4*(001), 130-136.

Topothai, T., Phisanbut, N., Topothai, C., Suphanchaimat, R., Müller-Riemenschneider, F., Cetthakrikul, N., & Tangcharoensathien, V. (2024). What factors are associated with early childhood development in Thailand? A cross-sectional analysis using the 2022 Multiple Indicator Cluster Survey. *BMJ Paediatrics Open*, *8*(1), e002985.

Ujah, O. I., Adaji, O. C., Ujah, I. A., & Kirby, R. S. (2025). Food insecurity and early childhood development among children 24–59 months in Nigeria: A multilevel mixed effects modelling of the social determinants of health inequities. *PloS one*, *20*(1), e0316381.

Waldfogel, J., & Washbrook, E. (2011). Early years policy. *Child development research*, *2011*(1), 343016.

Zdorovets, Mariya. The Effect of Demographic, Family and School-Related Variables on Academic Performance and Educational Expectations of High School Students in Kazakhstan . 2017, HTTPS://NUR.NU.EDU.KZ/BITSTREAM/HANDLE/123456789/2563/MARIYA_ZDOROVETS.PDF?sequence=1&isAllowed=y.