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Child Participation in Labor Market, Individual and Environmental Determinants

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Abstract

The phenomenon of child labor and street children is one of the pressing issues in most contemporary large cities around the world. The prevalence of this phenomenon has become so significant that it engages both developed and developing societies equally. Child labor refers to any form of employing children in activities that are mentally, physically, socially, or ethically hazardous and deprive them of their childhood and continuous participation in education. In this study, an attempt was made to present an overview of the situation of these children in Iran using available data related to child labor (microdata from the labor force survey conducted between the years 2016 to 2020 has been used). Subsequently, by applying logistic regression, the individual and household factors influencing child labor were examined. In the overall model, migration (both international and domestic), lack of education among household heads, and rural living were identified as the most significant environmental factors contributing to child labor participation. In urban areas, the most influential environmental factors affecting child participation, in order of importance, were migration (both international and domestic) and household head unemployment. In rural areas, the key environmental variables increasing child participation included the education level of the household head, migration, and household head unemployment. Analyzing urban and rural patterns separately, while avoiding aggregation errors from the overall model, underscores the high impact of economic factors on child labor.

Highlights

- Notable gender differences exist in children's participation in the labor market.
- Different contributing factors influence child labor in urban and rural areas.
- Economic factors have a high impact on child labor rates in Iran.

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1. Introduction

The phenomenon of child labor and street children is a pervasive issue affecting most major cities globally. Both developed and developing societies are grappling with its extent (Hosseini, 2005). Child labor involves employing children in activities that are dangerous and harmful from mental, physical, social, or moral standpoints, depriving them of their childhood and education (ILO, 2012). Child labor can be categorized into three main types: work outside the home, family work, and household chores and responsibilities. Among these, work outside the home, which includes employment in agriculture, services, or industry, has garnered the most attention in theoretical studies. Family work typically involves agricultural tasks and contributions to businesses owned by other households. Household chores, such as childcare, cleaning, and cooking, while part of daily routines and socialization, can be considered hidden forms of child labor if they exceed 28 hours per week, as they can interfere with education and are unpaid (Lancy, 2012; Gibbons et al., 2005).

To address the issue of child labor, it is essential to examine its underlying causes and the factors contributing to its prevalence. Significant contributors include financial challenges faced by families due to poverty, sudden illness, or unemployment of the household head (Bhalotra, 2007). This social problem stems from both individual and household factors, with similar negative impacts on children, including physical and psychological harm, deprivation of education, healthcare, and basic rights, ultimately threatening their future. Given these profound negative impacts, studying child labor is of utmost importance.While individual and family factors are critical, economic, social, and cultural factors also play a significant role in the emergence of child labor. To limit its scope, this study focuses on the individual and household levels. Economic theories regard child labor as a supply of labor, where parents maximize their utility by balancing current consumption, children's education, and leisure, constrained by income (Edmonds, 2008).

In this context, various factors influence the allocation of a child's time. Families with credit constraints may not invest optimally in children's education, relying on child labor to meet livelihood needs (Baland & Robinson, 2000; Basu & Van, 1998; Beegle et al., 2009; Ranjan, 2001). Additionally, poor households often resort to child labor as a buffer against negative shocks such as parental unemployment or reduced agricultural income (Edmonds, 2005; Beegle et al., 2006; Duryea et al., 2007; Guarcello et al., 2010).Another factor to consider is , the availability and quality of schools and labor market opportunities affect child labor. Households are more likely to rely on child labor if they perceive low returns to schooling, lack access to nearby schools, face high education costs, or find it easy to return to low-skill work.

Furthermore, This theoretical framework elucidates how social support programs and labor markets influence child labor. Positive income effects from support programs can increase school participation rates if they raise income above subsistence thresholds (Basu & Van, 1988). Some programs include

schooling requirements, reducing the opportunity cost of education and increasing school enrollment. Conversely, support programs can indirectly impact child labor by increasing adult labor market participation, leading children to take on economic activities or household chores previously done by adults.

To address the issue of child labor, it is crucial to analyze the underlying causes and contributing factors, particularly those linked to economic hardship, such as poverty and unemployment (Bhalotra, 2007). This social issue arises from both individual and household dynamics, leading to detrimental effects on children's health and education, ultimately jeopardizing their future prospects. Given these profound implications, this research seeks to investigate the phenomenon of child labor in Iran, focusing on the individual and household factors that contribute to its prevalence using official data available in the field of child labor (microdata from labor force surveys).

2. A Review of the Related Literature

In the existing literature, studies on child labor examines various factors influencing its prevalence in different countries. Determinants include household income, family structure, household size, and parents' education levels (Cockburn & Dostie, 2004; Getinet & Beliyou, 2007; Webbink et al., 2008; Ahmed, 2013; Fan et al., 2014). Moreover, some studies highlight individual-level factors such as the child's age and gender (Webbink et al., 2008; Terefe & Surajit, 2018), while others focus on macroeconomic, social, or cultural factors (Rickey, 2009; Mudzongo & Whitsel, 2013; Latif et al., 2016; Fan, 2004; Levy, 1985; Kis-Katos & Schulz, 2006).

Historical context and early studies also provide valuable insights. Early studies by Marshall (1920), Manser & Brown (1980), and Haddad and Hoddinott (1994, 1995) underscored the relationship between parents' educational attainment and child labor, showing that empowering mothers reduces the likelihood of child labor. Levison (1988) found that increasing household income reduces the likelihood of girls working. Binder & Scrogin (1999) identified a positive relationship between children's labor market participation and expected income in urban Mexico. Robles & Albert (2000) presented a gender-specific model based on socio-economic data, considering factors like household income and expenditures.

Recent studies have continued to explore these relationships. Emerson & Souza (2002) examined child labor determinants in Brazil, finding that larger family sizes increase the likelihood of child labor, and mothers' ages negatively correlate with boys' labor. Edmonds & Turk (2002) highlighted the significant impact of improved living standards on reducing child labor in Vietnam. Becchetti & Trovato (2005) suggested that agricultural employment correlates positively with child labor. Francavilla & Giannelli (2007) found that mothers' presence in households enhances child welfare, emphasizing the impact of maternal characteristics.

In the context of Bangladesh, Shafiq (2007) linked low parental education levels with high child labor rateswhile Khanam (2008) noted that increased parental education boosts children's schooling in rural areas. Kruger et al. (2010) observed that if household work is included in child labor definitions, girls are more likely to work and less likely to pursue higher education. Ahmed (2013) identified household income, parental education, family structure, and socioeconomic conditions as key determinants of child labor in Lahore. Fan et al. (2014) highlighted economic necessity and limited education access as significant factors among agricultural worker families in the U.S.

Further emphasizing regional studies, Terefe & Surajit (2018) emphasized economic hardship and low parental education as contributors to child labor in Ethiopia, underscoring the need for policies to alleviate poverty and enhance educational access. Vameghi (2003), Hosseini (2005), Zargham Shah Abadi et al. (2008), Imani & Nersisian (2012), Afshani et al. (2012) focused on Iran, highlighting factors such as economic poverty, family violence, parental illiteracy, and lack of parental guidance as critical in the emergence and persistence of child labor.

This research aims to examine the phenomenon of child labor and the factors influencing it in Iran, highlighting a critical research gap in the existing literature, especially in the context of Iranian society.

3. Data

To examine the impact of demographic factors on the likelihood of children entering the labor market, microdata from the labor force survey conducted between the years 2016 to 2020 has been used. Since the microdata for children under 10 years of age were not collected in the survey, children between the ages of 10 and 18 have been considered. Variables such as the child's age, gender, urbanization, and household inter-provincial migration have been directly extracted from the survey. Variables including the household head's nationality, gender, age, household size, the number of children under 8 in the household, employment status of the head, and educational level of the head have been indirectly extracted from the same survey. In other words, these variables are not explicitly present in the survey data and have been generated and extracted by researchers.

In this research, a child's activity (not employment) is defined as either employed or unemployed. Variables for the household head, household head's education, nationality, and gender are defined as dummy variables based on the table below.

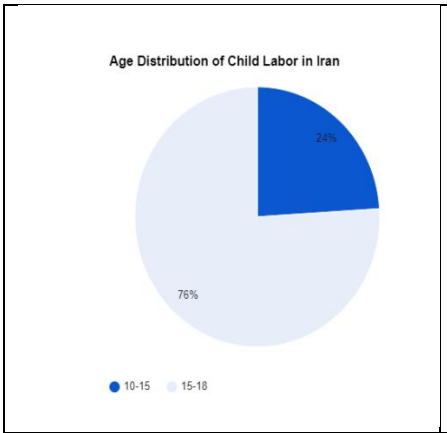
Table 1. Model's Dummy Variables

Variable	Zero	One
Gender	Female	Male
Nationality	Iranian	Foreign Immigrant
Head's Employment	Unemployed	Employed
Literacy	Illiterate	Literate
University Education	Without University Education	With University Education
Migration (Domestic)	Native of Province	Non-native of Province
Urbanization	Rural	Urban

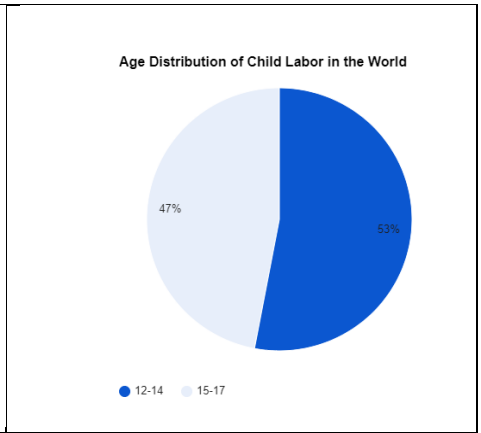
Source: *Research calculations*

The analysis of the data shows that in the Persian year 1396 (equivalent to 2017 AD), 24% of child laborers were aged 10 to 15 years, and 76% of child laborers were between 16 to 18 years old, which presents a different distribution of child labor in Iran compared to the International Labor Organization (ILO) study of 2017. In the ILO study, these two groups have almost a similar percentage of child labor participation, with children aged 10 to 15 years even having a slightly higher share in child employment. (Figure 1)

The observed differences between Iranian data and global data likely stem from cultural differences and data recording quality. Based on the popular culture and domestic laws in Iran, individuals over the age of 15 are not considered children. Therefore, during data collection, there might be a greater tendency to classify younger children into the age group of 15 to 18 years. Additionally, this public culture might also partially prevent the participation of children under 15 years old in the labor market.



Source: *Research calculations*



Source*: ILO (2017)*

Figure1. Age Distribution of Child Labor

The observed gender composition indicates a disproportionately low number of girls involved in child labor in Iran, with only 17 percent of child labor participants being girls. This reflects a boy-to-girl ratio of 4 to 1 among working children (Figure 2-A). Although global studies show a lower representation of girls in child labor, the disparity is not as pronounced, with the participation rate of boys being about 50 percent higher than that of girls (Figure 2-B). Furthermore, only one in every 20 children is engaged in the labor market, a statistic that aligns closely with other Asian countries (Figure 2-A). In contrast to the UNICEF report (2022), the proportion of child laborers among all children in their respective age group in Iran, specifically those aged 10 to 15 years, was less than two percent during the period under review (Figure 3). Globally, this ratio is just over 9 percent, with minor differences across various age groups. However, in Iran, the group up to 15 years old accounts for a trivial portion of child employment, with the majority of child labor participants being over 15 years old. This age group shows a significantly higher percentage of working children withen their own age group, around 72-76%, as illustrated in the figure 3. This discrepancy might stem from inaccuracies in reporting data, as the prevailing cultural perspective does not consider individuals over 15 years of age as children.

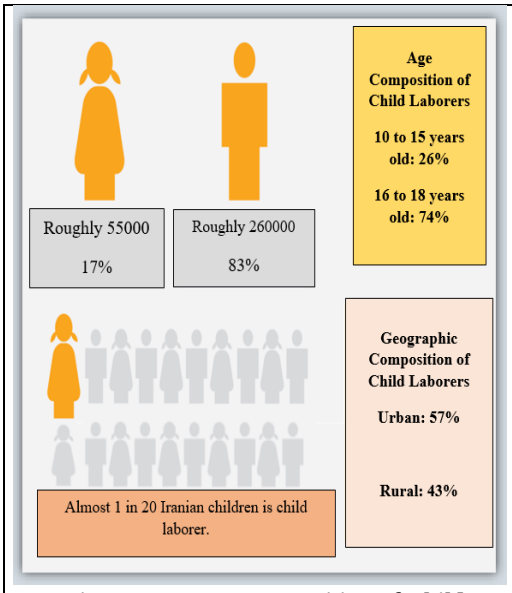


Figure 2-A: Age Composition of Child Laborers in Iran (On Average Between 2016 and 2020)

Source: *Research Calculations*

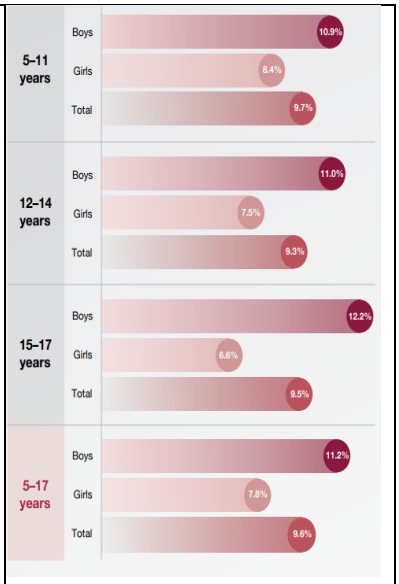


Figure 2-B: Age Composition of Child Laborers in the World

Source: *ILO and Unicef. (2020). Child labor*

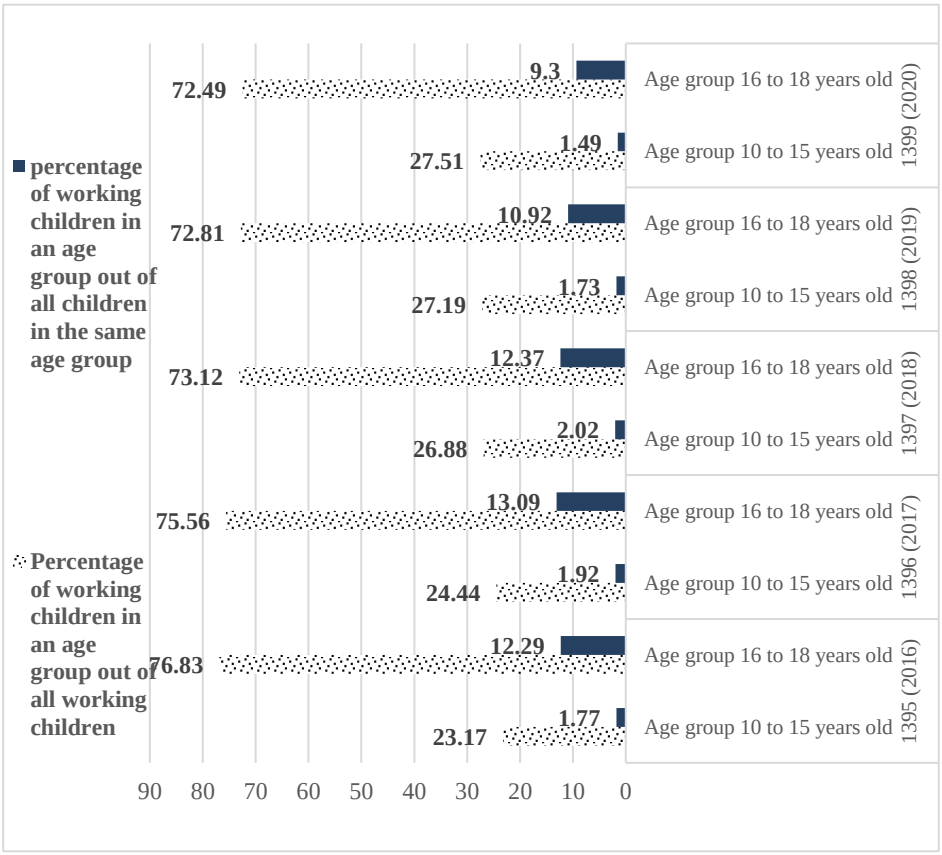


Figure3: The age distribution of working children in Iran, categorized by the years 1395 to 1399
Source: *Research Calculation*

The analyzed data indicates that between 76% and 79% of child laborers have employed supervisors1 (table 2). This proportion has been even higher during times of economic crises, specifically in the years 1396 (2017) and 1399 (2020), signifying a deepening social crisis in the event of an economic downturn. An interesting observation is that most child laborers have supervisors with at least a high school diploma or lower education level. Having a diploma or less education significantly increases the likelihood of child participation in the labor market. Based on the collected data, only 2% of child laborers had educated supervisors[2].

[1]- The term of "supervisor" refers to the role of the head of household, as mentioned in the official surveys, which can include parents or guardians of the children.
[2] - Two percent of child laborers have university-educated guardians.

As evident from the comparison of information in Tables 2 and 3, child labor supervisors had a higher illiteracy rate. Regarding employment status differences, no significant distinction is observed between child labor supervisors and supervisors of other children.

Table 2. Characteristics of Child Labor Supervisors

	employment status		Gender		education		
Year	employed	Unemployed	Female	Male	Illiterate	Below Diploma	University Degree
1395 (2016)	247,482	79,223	41,136	285,569	108,131	211,806	6,769
	76%	24%	13%	87%	33%	65%	2%
1396 (2017)	269,686	72,977	40,192	302,471	113,232	222,201	7,230
	79%	21%	12%	88%	33%	65%	2%
1397 (2018)	262,502	78,503	40,361	300,644	95,140	233,044	12,821
	77%	23%	12%	88%	28%	68%	4%
1398 (2019)	231,958	69,473	35,158	266,273	75,006	217,970	8,455
	77%	23%	12%	88%	25%	72%	3%
1399 (2020)	204,893	56,372	25,386	235,879	67,337	189,581	4,348
	78%	22%	10%	90%	26%	73%	2%

Source: *Research Calculation*

Table 3. Characteristics of all children Supervisors

	employment status		Gender		education		
Year	employed	Unemployed	Female	Male	Illiterate	Below Diploma	University Degree
1395 (2016)	4,959,337	1,356,285	469,316	5,846,306	899,446	4,479,837	936,338
	79%	21%	7%	93%	14%	71%	15%
1396 (2017)	5,008,472	1,334,408	490,581	5,852,300	833,692	4,533,440	975,748
	79%	21%	8%	92%	13%	71%	15%
1397 (2018)	5,207,962	1,339,361	461,550	6,085,773	702,135	4,773,457	1,071,731
	80%	20%	7%	93%	11%	73%	16%
1398 (2019)	5,418,263	1,320,431	455,536	6,283,158	664,403	4,944,700	1,129,591
	80%	20%	7%	93%	10%	73%	17%
1399 (2020)	5,463,543	1,408,819	425,538	6,446,824	634,292	5,110,102	1,127,968
	80%	21%	6%	94%	9%	74%	16%

Source: *Research Calculation*

Although the average statistics indicate that 5% of children are engaged in work, Figure 4 distinguishes between Iranian and non-Iranian children. The proportion of Iranian child laborers among all Iranian children is less than 5% and

has shown a declining trend over time, reaching 3.4% in 1399 (2020-2021). Regarding non-Iranian children, this ratio (non-Iranian child laborers to all non-Iranian children) has even reached 18% in some years, which can be attributed to financial and currency crises. While the population of child laborers among non-Iranian nationals is influenced by factors in their home countries, Figure 5 shows a significant increase in the non-Iranian population in 1396 (2017-2018). However, the rise in the child labor ratio may also be a function of exchange rates and economic conditions in the destination country (Iran).

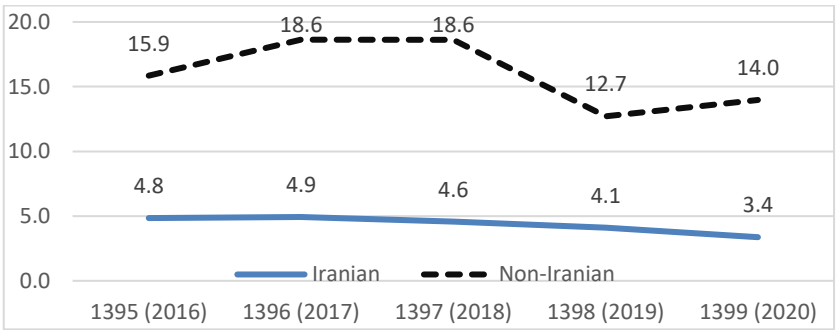


Figure 4. Proportion of child labor among the total child population, disaggregated by Iranian and non-Iranian children
Source: *Research Calculation*

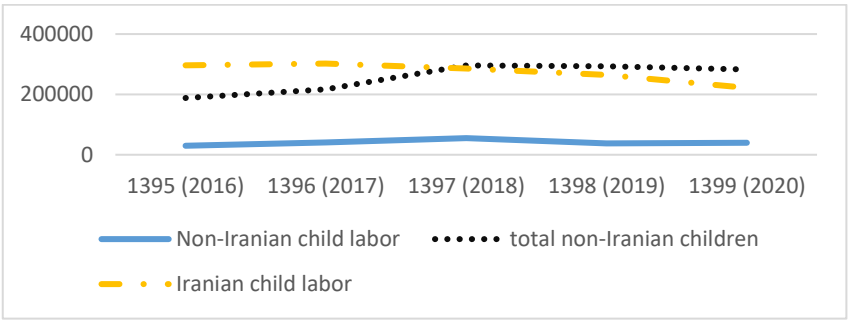


Figure 5. Child labor disaggregated by Iranian and non-Iranian children
Source: *Research Calculation*

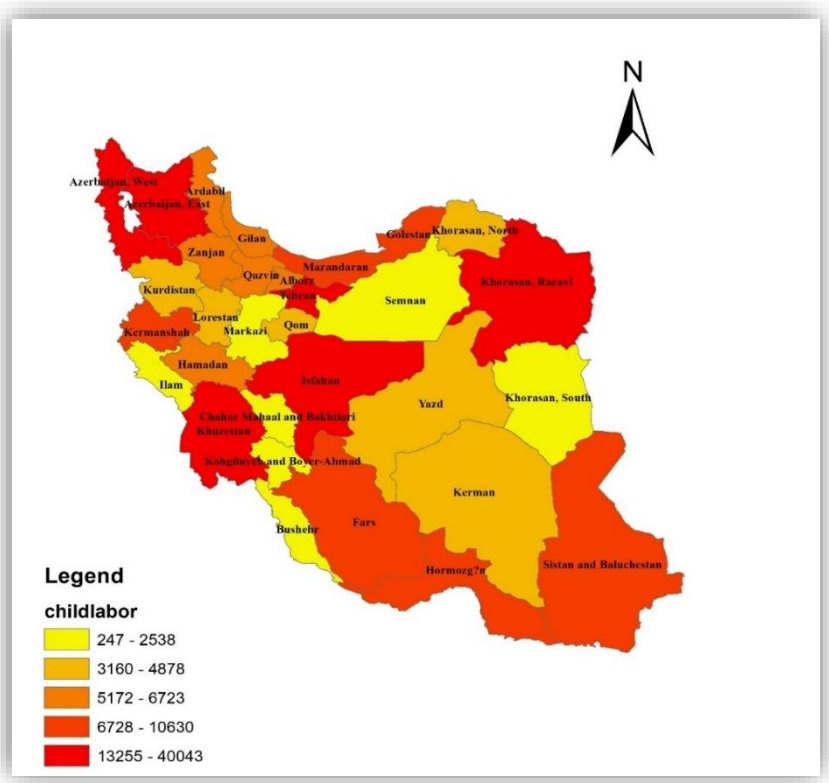


Figure 6: Heat map of child labor distribution in the Iran's provinces (1399(2020))
Source: *Research Calculation*

The Heat map (figure 6) shows the concentration of children in border areas and economic hubs. Tehran, Isfahan, Azerbaijan, Khuzestan, and Khorasan Razavi are major economic centers attracting many domestic and foreign migrants for work, which increases the likelihood of children from these households participating in the labor market. Except for Semnan province, where factors such as higher job opportunities relative to the resident and migrant population make child labor less visible, other yellow-colored provinces fall into the category of less economically advantaged regions.

4. Logistic Model

Conventional linear models assume a continuous dependent variable aligning with normal distribution properties for accurate estimation through methods like Maximum Likelihood Estimation (MLE) and Ordinary Least Squares (OLS). However, these assumptions fail when the dependent variable exhibits a discrete distribution, leading to potential issues, such as unrealistic predictions in OLS that can result in probabilities outside the [0, 1] range. To

remedy this, logistic regression employs a link function to model the relationship between independent variables and the probability of a discrete outcome. Logistic regression is particularly suited for binary or categorical dependent variables, providing a more realistic and bounded probability estimation (Green, 2012; Mood, 2010).

In this essay, the logistic regression model is used due to the nature of the dependent variable, which is the child activity status (whether a child is involved in labor or not). This variable is inherently discrete and binary, making logistic regression an appropriate choice for accurately capturing the relationships and predicting the likelihood of child labor based on various influencing factors.

5. Model Specification

In this research, individual and family factors affecting a child's participation in the labor market have been studied. For this purpose, being active (not necessarily employed) was the criterion of operation. Being active is defined as either being employed or unemployed for the child. Using the logistic regression model, the study examined the impact of individual and family factors on child labor participation, including the gender and age of the child and the household head, the nationality of the child and the household head, household size, the number of children under 8 years in the household, the employment status of the household head, the educational level of the household head, and inter-provincial migration of the household. Variables such as the child's and household head's gender and nationality, employment, literacy, higher education, urban residency, and domestic migration were defined as dummy variables based on Table 1 (initial table).

One of the significant limitations of the existing data is the absence of information on the quality of the household head's job and the household income. This lack may likely obscure the actual effect of the job quality and the employment status of the household head on children's participation in the labor market.

Considering the possibility that individuals at lower and higher ages might be forced to rely on children's income due to insufficient earnings, the study employed the square of the household head's age to explore the effects of the household head's lower and higher ages on child labor participation. Additionally, to assess the robustness of the research findings, the model was estimated separately for urban and rural areas to perform a sensitivity analysis on these factors.

6. Estimation Results

To address research questions, a logistic model has been used, where the dependent variable represents child labor participation in the labor market (active or inactive), coded as binary (0 or 1). This estimation has been repeated for both urban and rural areas to assess whether the results are sensitive to these contexts. Additionally, instead of using the household head’s nationality as an explanatory

variable, the child's own nationality has been employed, resulting in minimal changes in the outcomes.

6.1. Global Logistic Model Estimation

In the initial estimation, all urban and rural children were considered. The sample size used in this study was 286,000 observations, with nearly 5% of children participating in the labor market. Approximately 51% were male, and the average age of the sample was 13.8 years. Among them, nearly 3% had non-Iranian nationality. The average household size was 4.6 members, with fewer than one child under eight years old per household. The average age of household heads was 45 years. Less than 1% of the sample reported internal migration. Additionally, 59% were urban residents. (Table 4)

Table 4. Statistical Characteristics of Model Variables

Explanatory Variables	Average	Std.	Min.	Max.
Children Labor Force Participation	0.049	0.217	0	1
Gender	0.514	0.499	0	1
Age	13.808	2.559	10	18
Nationality	0.027	0.163	0	1
Household Size	4.637	1.402	1	21
Number of Children under 8	0.503	0.693	0	8
Household Head's Nationality	0.027	0.164	0	1
Household Head's Occupation	0.786	0.409	0	1
Literacy Dummy of Head	0.862	0.344	0	1
University Education Dummy of Head	0.138	0.345	0	1
Gender of Household Head	0.926	0.261	0	1
Age of Household Head	45.118	8.323	11	98
Migration (Internal)	0.007	0.087	0	1
Urbanization	0.589	0.491	0	1

Source: *Research Calculation*

The logistic model estimation results are presented in Table 5. Based on the obtained results, the odds ratio for gender indicates that the likelihood of boys participating in the labor market is five times that of girls. The final effects also reveal that being male increases the probability of labor market participation by an average of 2.6%. The estimation results show that with increasing age, household size, and the number of children under eight years old, the likelihood of child labor participation will also increase. On the other hand, Iranian nationality, urban residence, higher education, and female household heads reduce the probability of child labor participation. While increasing the age of household heads during their youth decreases labor market participation, the positive second-order term suggests that this decline slows down as household heads age further. It is likely that in the early and late years of life, household

heads' income in informal occupations decreases, leading to a greater need for income support from other family members. However, the second-order coefficient is very small and does not result in a reversal of natural lifespan. Domestic migration is also associated with increased child labor participation.

Increasing household size and the number of children under eight years old raises the odds ratio by approximately 1 unit. Child age also increases the odds ratio by 1.675 units, with a final effect of 0.8%. The most significant final effect is related to household head's nationality. Non-Iranian nationals increase the probability of child labor participation by 3.2%, with odds ratios exceeding 3. Internal migration ranks second among determining factors for child labor participation. In simpler terms, migration (especially international) is likely to lead to child labor participation.

Among the variables that reduce child labor participation, household head's education plays a crucial role. Having an educated household head (with primary or secondary education) decreases the likelihood of child labor participation by 1.3% and 1.5%, respectively. Urban residence, consistent with other studies, reduces the probability by 1.2%, likely due to greater rural child participation in the primary household activity (agriculture or livestock farming). Consequently, internal migration and lack of household head's education are the most significant environmental factors contributing to increased child labor participation.

Table 5. Results of the Base Model Estimation

Explanatory Variables	Coefficients	Odds Ratio	Final Effects	Robust Std. Deviation	Prob.
Gender	1.605	4.97	0.026	0.023	0
Age	0.516	1.675	0.008	0.004	0
Household Size	0.033	1.034	0.0005	0.007	0
Number of Children under 8	0.047	1.048	0.0007	0.017	0
Household Head's Nationality	1.154	3.172	0.032	0.041	0
Household Head's Occupation	0.494	1.64	0.006	0.028	0
Literacy Dummy of Head	-0.0658	0.518	-0.013	0.024	0
University Education Dummy of Head	-1.657	0.19	-0.015	0.059	0
Gender of Household Head	-0.429	0.651	-0.007	0.037	0
Age of Household Head	-0.076	0.926	-0.001	0.005	0
Square of Household Head's Age	0.0007	1.0007	0.00001	0.00005	0
Migration (Internal)	0.729	2.073	0.016	0.084	0
Urbanization	-0.738	0.477	-0.012	0.019	0
Cons.	-9.072	0.0001	-	0.153	0

Source: *Research Calculation*

6.2. Results of Estimation in Urban Areas

To assess the strength of the obtained results and the consistency of those results in rural and urban areas, the baseline pattern (national) has been separately estimated for rural and urban regions. In urban areas, the estimation was based on nearly 169,000 observations, with approximately half of the sample being female and the other half male. The average age in urban areas was 13.8 years. The proportion of foreign nationals in urban areas was 3.4%, slightly higher than the national average. The average household size was 4.5 members, close to the nationwide data. Approximately 77% of child caregivers were employed, and over 91% were literate, with nearly 20% having education beyond a high school diploma. Nearly 90% of caregivers were male, and the average age of caregivers was 45 years. Additionally, about 1% had experienced some form of internal migration.

Table 6. Statistical Characteristics of Urban Model Variables

Explanatory Variables	Average	Std.	Min.	Max.
Children Labor Force Participation	0.033	0.18	0	1
Gender	0.511	0.499	0	1
Age	13.862	2.568	10	18
Nationality	0.034	0.182	0	1
Household Size	4.507	1.336	1	21
Number of Children under 8	0.452	0.652	0	8
Household Head's Nationality	0.035	0.184	0	1
Household Head's Occupation	0.775	0.417	0	1
Literacy Dummy of Head	0.911	0.284	0	1
University Education Dummy of Head	0.204	0.43	0	1
Gender of Household Head	0.93	0.254	0	1
Age of Household Head	45.239	7.994	12	97
Square of Household Head's Age	2110.55	779.086	144	9409
Migration (Internal)	0.009	0.098	0	1

Source: *Research Calculation*

Despite the similarities between urban and national sample characteristics, noticeable differences appear in the estimated coefficients. While the direction of the variables affecting child participation remained unchanged, the intensity of environmental factors related to household participation in urbanization also matters. The odds ratio of being male, which is less than 5 in the overall country, reached 6.7 in urban areas, indicating that boys' participation is nearly 7 times higher than that of girls in urban regions. Being male increases the likelihood of participation by 1.6%. The age coefficient in urban areas (0.58) is higher than the national average, suggesting that older children in urban regions enter the labor market. The impact of household size on child participation in urban areas is more pronounced. The odds ratio for caregiver nationality is slightly higher than 4 in

urban areas, one unit more than the national average, implying that foreign nationals in urban areas are more likely to allow child labor. Similarly, the caregiver's employment coefficient is around 0.2, indicating that employed caregivers in urban areas are less likely to permit child labor. The effect of education level on child participation in urban areas is similar to the national average and has contributed to reducing child labor in the job market. Overall, the intensity of the examined variables has decreased child participation in the urban labor market, making the likelihood of urban child participation lower than that of rural children. In urban areas, the most influential environmental factors, in order of importance, are migration (both international and internal) and household unemployment. Therefore, a different employment pattern for children in the urban labor market can be observed. The observed differences between urban and rural areas compared to the national context suggest the need for distinct policy approaches, as adhering strictly to nationwide data may lead policymakers to errors resulting from aggregated observations.

Table 7. Estimation of the Equation for Factors Affecting Urban Child Labor (Coefficients and Probability Ratios)

Explanatory Variables	Coefficients	Odds Ratio	Final Effects	Robust Std. Deviation	Prob.
Gender	1.901	6.691	0.016	0.039	0.00
Age	0.584	1.794	0.004	0.008	0.00
Household Size	0.0871	1.091	0.0006	0.011	0.00
Number of Children under 8	0.0431	1.044	0.0003	0.027	0.11
Household Head's Nationality	1.414	4.114	0.022	0.055	0.00
Household Head's Occupation	0.209	1.232	0.0015	0.040	0.00
Literacy Dummy of Head	-0.684	0.504	-0.007	0.042	0.00
University Education Dummy of Head	-1.628	0.196	-0.008	0.069	0.00
Gender of Household Head	-0.541	0.582	-0.005	0.054	0.00
Age of Household Head	-0.115	0.891	-0.0008	0.007	0.00
Square of Household Head's Age	0.0009	1.0009	0.000007	0.00008	0.00
Migration (Internal)	0.770	2.160	0.008	0.108	0.00
Cons.	-9.957	0.00004	-	0.234	0.00

Source: *Research Calculation*

6.3. Results of Estimation in Rural Areas

The number of observations in rural areas exceeds 117,000. Approximately 7.2% of children have participated in the labor market. Slightly more than half of the observations are related to boys, while the rest pertain to girls. The average age is 13.7 years, and approximately 1.7% of the sample consists of foreign nationals. The average household size is 4.8 members, higher than that in urban areas. On average, there were 58 children under the age of eight per 100 households. Around 80% of household heads are literate and employed, with approximately 92% being male. The average age of household heads is 45 years, and internal migration accounts for less than 1%.

Table 8. Statistical Characteristics of Rural Model Variables

Explanatory Variables	Average	Std.	Min.	Max.
Children Labor Force Participation	0.072	0.259	0	1
Gender	0.518	0.499	0	1
Age	13.73	2.544	10	18
Nationality	0.017	0.129	0	1
Household Size	4.824	1.469	1	20
Number of Children under 8	0.578	0.740	0	6
Household Head's Nationality	0.017	0.130	0	1
Household Head's Occupation	0.803	0.397	0	1
Literacy Dummy of Head	0.791	0.405	0	1
University Education Dummy of Head	0.044	0.206	0	1
Gender of Household Head	0.920	0.270	0	1
Age of Household Head	44.944	.8.771	11	98
Square of Household Head's Age	2096.98	833.22	121	9604
Migration (Internal)	0.004	0.067	0	1

Source: *Research Calculation*

The results of estimation for rural areas are presented in Table 9. These results indicate that children, especially at younger ages and under similar conditions, are more likely to enter the labor market compared to urban areas. The odds ratio for gender is close to 4. Additionally, the odds ratio for child age is estimated at 1.6, which is significantly lower than both urban areas and the national average. This suggests that younger children, especially girls, have a higher likelihood of participating in the labor market. Unlike urban areas and the overall model, household size does not significantly impact child participation in the labor market. The coefficient of household head’s nationality has greatly diminished and is now half of its previous value, indicating that being employed as a household head is a more critical factor for child participation in the labor market. Education level, internal migration, and household head’s gender have relatively consistent effects across different urban and rural regions. Furthermore,

an increase in the household head's age is associated with a less steep decline in child labor participation in rural areas.

The most influential environmental variables that increase child participation in rural areas include the education level of the household head, internal migration, and household head's unemployment.

Table 9. Estimation of the Equation for Factors Affecting Rural Child Labor (Coefficients and Probability Ratios)

Explanatory Variables	Coefficients	Odds Ratio	Final Effects	Robust Std. Deviation	Prob.
Gender	1.429	4.176	0.047	0.028	0.00
Age	0.475	1.609	0.015	0.005	0.00
Household Size	-0.008	0.992	-0.0002	0.009	0.41
Number of Children under 8	0.064	1.066	0.002	0.022	0.00
Household Head's Nationality	0.585	1.795	0.024	0.070	0.00
Household Head's Occupation	0.734	2.083	0.019	0.039	0.00
Literacy Dummy of Head	-0.647	0.523	-0.024	0.029	0.00
University Education Dummy of Head	-1.634	0.195	-0.028	0.120	0.00
Gender of Household Head	-0.359	0.698	-0.013	0.050	0.00
Age of Household Head	-0.045	0.955	-0.001	0.007	0.00
Square of Household Head's Age	0.0004	1.0004	0.00001	0.00007	0.00
Migration (Internal)	0.646	1.909	0.027	0.133	0.00
Cons.	-9.263	0.00009	-	0.20	0.00

Source: *Research Calculation*

7. Discussion

The findings of this study provide important insights into the determinants of child labor in Iran, emphasizing the significant impact of both individual and household factors. The logistic regression analysis highlighted that variables such as migration, education levels of the household head, and employment status are key drivers of child labor participation. These results align with existing literature that consistently points to socio-economic challenges as critical determinants of child labor (Edmonds, 2008; Basu & Van, 1998). However, the nuanced understanding provided by analyzing urban and rural contexts separately offers valuable new perspectives for targeted interventions.

- Implications of Migration and Urbanization:

The study identifies migration, both international and internal, as a central factor influencing child labor, particularly in urban areas. This finding resonates with global trends, where displaced families often resort to child labor due to economic hardship and lack of social support (Edmonds & Turk, 2002). In urban

settings, the interplay between unemployment among household heads and migration exacerbates children's vulnerability, suggesting the need for robust urban social protection systems. Addressing this issue requires policies that support migrant families, such as conditional cash transfers tied to children's school attendance, vocational training for adults, and improved access to housing and healthcare for migrant communities.

- Gendered Dimensions and Educational Impacts:

The study revealed a gender disparity, with boys being disproportionately represented in child labor markets. This imbalance, more pronounced in urban settings, underscores cultural and economic dynamics that prioritize boys' labor over girls'. However, the hidden nature of girls' labor—often involving unpaid domestic chores—should not be overlooked, as it similarly impacts educational attainment and well-being (Kruger et al., 2007). Policies aimed at reducing child labor must address these gendered dimensions by ensuring equitable access to education and implementing community awareness programs that challenge gender norms.

The education level of household heads emerged as a significant determinant in reducing child labor participation. Literate and educated household heads are less likely to rely on children's income, reinforcing the intergenerational benefits of education (Shafiq, 2007). This finding aligns with earlier studies emphasizing the role of parental education in shaping children's labor and schooling outcomes (Khanam, 2008). Strengthening adult education programs and incentivizing school attendance could break this cycle of dependency on child labor.

- Rural-Urban Disparities and Policy Recommendations:

Distinct differences between rural and urban areas were observed, with rural regions exhibiting higher child labor participation. This disparity is partly attributed to the economic reliance on agriculture and limited access to formal education in rural areas. The findings suggest that policies aimed at eradicating child labor must adopt a region-specific approach. For rural communities, interventions should focus on enhancing agricultural productivity and providing financial support to families during off-seasons to reduce their dependency on child labor. Additionally, expanding access to quality education and vocational training in rural areas is crucial for offering alternative pathways for children.

- Policy and Future Research Directions:

While this study sheds light on the key determinants of child labor in Iran, it also highlights data limitations, such as the lack of information on household income and the quality of the household head's employment. Future research could explore these dimensions to provide a more comprehensive understanding of the economic pressures driving child labor. Moreover, longitudinal studies could assess the long-term impact of interventions, such as cash transfer programs and educational subsidies, on reducing child labor. Addressing child labor in Iran requires an integrated, multi-sectoral approach that combines poverty alleviation, education reforms, and social protection measures. By addressing the root causes and tailoring interventions to the specific needs of urban and rural communities,

policymakers can ensure that all children have the opportunity to grow, learn, and thrive.

8. Conclusion

In conclusion, the multifaceted issue of child labor, particularly within the context of Iran, is a complex interplay of individual, household, and environmental factors. This study has underscored the significant impact that variables such as the education level of the household head, migration patterns, and household head unemployment have on child labor, especially in rural areas. The findings reveal that younger children, particularly girls, are more susceptible to entering the labor market, highlighting the gendered dimensions of this social problem.

The logistic regression analysis provided a nuanced understanding of the determinants of child labor, illustrating that rural and urban areas are influenced by different sets of factors. In rural regions, the diminished role of household size and the critical importance of the household head's occupation and education level were evident. Conversely, in urban areas, migration and household head unemployment emerged as primary influencers. This distinction emphasizes the necessity for tailored interventions that address the specific needs and conditions of rural and urban communities.The economic theories applied in this research demonstrate that child labor is often a coping mechanism for families facing financial constraints, illness, or unemployment of the household head. The allocation of a child's time between labor and education is influenced by the household's immediate needs and long-term aspirations. Poor households, constrained by limited access to credit and adequate educational facilities, resort to child labor to meet subsistence needs, thereby perpetuating a cycle of poverty and limited opportunities for future generations.

Moreover, the analysis confirms that social support programs can have a dual impact on child labor. While income support can increase school participation by alleviating financial pressures, it can also inadvertently lead to higher child labor rates if adult employment increases and children take on additional responsibilities at home. Therefore, it is crucial for policy interventions to carefully balance these dynamics to ensure that the benefits of increased household income do not come at the cost of children's education and well-being.

The persistence of child labor despite various regulatory frameworks calls for a multi-pronged approach. Policies need to address the root causes, including poverty alleviation, accessible and affordable education, and social protection measures that provide a safety net for vulnerable families. Additionally, raising awareness about the detrimental effects of child labor and promoting community-based initiatives can foster environments where children can thrive academically and socially without the burden of labor.

In summary, the issue of child labor in Iran is deeply rooted in socio-economic conditions that require comprehensive and context-specific solutions. Addressing this challenge necessitates collaboration between government

agencies, non-governmental organizations, and local communities to create sustainable pathways out of poverty and towards better educational and economic opportunities for all children. By prioritizing the education and well-being of children, Iran can make significant strides towards eradicating child labor and ensuring a brighter future for its younger generations.

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