Child Labor and the Influencing Factors: Evidence from less Developed Provinces of Iran

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Abstract

Background: This study aimed to calculate the child labor rate and establish the factors affecting this phenomenon in the less developed provinces of Iran.

Methods: This study has used the secondary data of population and housing census gathered by Iranian Statistical Center in 2011. The data belonged to 14859 children between 10 and 14 of 9 less developed provinces of Iran. A multiple regression model was hypothesized drawing on related literature and accordingly using data; the logistic regression was estimated. Data cleaning process was also conducted prior to the analysis.

Results: The child labor force participation rate for all children between 10 and 14 years old was 1.7%, of which boys' child labor rate was higher than girls' (2.4% over 1%). As such, the mothers' fertility rate and education were of the strongest, yet converse, effect on child labor supply in the country.

Conclusion: A little proportion of children in less developed regions of Iran was suffering from child labor. However, given the diminishing and rising effects of, respectively, variables such as mothers' literacy and working on the child labor; the authorities could restrict child labor attending more to such a group. The factors identified could also be of a high value for the policy-makers at both national and international level such as the Health and Welfare ministries, EMRO, ILO and UNICEF.

Keywords: Child labor, Iran, Less-developed provinces, Influential factors

Introduction

Work at young ages could give rise to plenty of physical and mental disorders. During industrial revolution, materialistic and inhumane abuse of children left abject conditions in industrial societies (1). 'Child labor' refers to forcing children to work at the age of childhood, i.e. children under 14 years old (2). The work that deprives children of their childhood, potential and dignity, is harmful to their physical and mental development, and requires them to attempt to combine school attendance with excessively long and heavy work (3). What distinguishes child workers from other children is spending more time by the former at work within an unsafe and tense environment instead of being at safe places of home or school (4). Child labor could have severe effects on education by leaving not enough time to receive required education (5). Workers that are more uneducated could mean unskilled and probably non-creative workers, somehow disturbing human capital building and ultimately leading to less economic growth rates (6). There is also evidence that child labor could affect health (6). As health in adulthood is strongly influenced by childhood conditions, child labor may jeopardize children health and leave persistent effects in long time.

International Labor Organization (ILO) reports indicate that 168 million children worldwide are child labor ers-11% of the child population as a whole and agriculture is of the highest proportion of child labor (58.6%) among other sectors (7). They also show that the number of child labor has reduced from 245,500,000 in 2000 to 167,956,000 in 2012 (7).

Iran, as a developing country, might also suffer from this phenomenon given its current large proportion of young age population. The whole population of Iran was 77 million in 2014, of which around 7.55% were between 10 and 14 years old. This was 8% for Morocco and Thailand, 3% for Bhutan and 4% for Kyrgyzstan (8). Further, 71.4% of the population lived in cities and the rest in rural regions (9). According to the country regulations, those under 15 are banned to work in Iran and the workers between 15 to 18 years old are entitled to special protection (10).

Various factors might allegedly affect child labor; for instance, economic factors such as low income and inflation (11); agriculture economy (12); children attendance in school (13); fertility rate (14-15); literacy rate of parents (12); gender (16) and the absence or presence of father (16). Understanding child labor concept and its determinants could provide invaluable policy insights and implications towards preventing and managing its dysfunctional effects in different societies. Child labor in this study is considered, according to Iranian Statistical Center (ISC), as 'the proportion of children aged 10-14 years old involved in any economic activity (employment) for at least one hour per week' (17). Despite all abovementioned studies, overall, there are a few studies on the prevalence and determinants of child labor in developing countries, especially in Iran.

Given the lack of related data about child labor force participation (CLFP) in ILO data bank for Iran, this study aims to calculate the child labor rate, for the first time in this country. The researchers also continued to identify the factors affecting child labor supply.

Methods

In current descriptive and analytical study, our secondary data were derived from 2011 Population and Housing Census gathered by ISC between 24 October and 13 November 2011. The ISC had not recorded labor information for children under 10, hence, only those for the age range 10-14 were available. In this study, all of the available data were used, related to 14,859 children (2% of the country child population) of 10 and 14 of nine less developed provinces of Iran (Sistan-vaBaloochestan, Kordestan, Ilam, Lorestan, KhorasaneJonoubi, Chaharmahal–va-Bahtiari, Kohkilooye-va-Boirahmad, Boushehr and Hormozgan). The development ranking level of these provinces was sorted by a study done by Maleki and Sheykhi in 2009 in Iran (18). The authors thought child labor might be more apparent in these provinces because of their poor economic conditions.

Model

Binary logistic regression was performed to calculate the effects of explanatory variables in dependent variable. The model we used in this study is as below:

$$Y_i = X_i\beta + u_i$$

Where Y is our dependent variable (i.e. child labor), X represents independent variable and u indicates residuals for regression model. In addition, i shows the children between 10 and 14 in nine less developed provinces of Iran and β is the coefficient matrix. The econometrics model used in this study is shown below:

$$clfp_i = urb_i + sex_i + age_i + edu_i + fage_i + fwork_i + tfr_i + mr_i + u_i$$

$clfp$ is our dependent variable assuming two values (0 is for the child 'not working' and 1 represents child workers). Further, if the children were forced to either work, for money or free for their family, the value of this variable was also 1.

We also used some explanatory variables: Living in urban or rural regions (urb) variable, as child labor might increase in an agricultural economy. This variable has two values: living in urban re-

gion [1] or rural region [0]. Gender of child (sex) is another explanatory variable (0 for girls and 1 for boys), because boys might be more put under child labor than girls or vice versa (5, 12). 'Age' was also used as a variable to have some influence on child working (19). This variable has been categorized into five values (0 for 10 years old children, 1 for 11, 2 for 12, 3 for 13 and 4 for 14).'edu' represents children attendance in school (1 for attendance and 0 not). School goers are less exposed to child labor (5).'fage' is the age of mother, when rises; parents' ability to work lessens, making the situation conducive to increased child labor (20). Data were not available for fathers so we decided to use the age of mothers only. We divided the age of mothers into four categories (0 for under 25 years old mothers married in adolescence, 1 for between 25 and 40 moms, 2 for those from 40 to 65 and 3 for above 65 mothers). 'fwork' signifies the mother's labor force participation; drawing on the fact that with mother working, the necessity for child labor might be diminished (1 for working mother and 0 for not working) (21). 'tfr' represents mothers' total fertility. As some studies show, high total fertility rate in rural regions is to use children to work with their parents or earn money (14). The variable is given five values (1 means one child, 2 for two children, 3 for three children, 4 stands for four to six children, 5 for more than six children). 'mr' is used for the child mortality related to a given mother (0 for no dead child, 1 for one dead child, 2 for two dead children and 3 for more than two dead children). Depending on the level of mortality and poverty, when child mortality increases, the number of child workers is expected to increase or decrease, as Miller and Urdinola argue (22).

In this study, STATA SE software version 12 was used for analyzing data.

Results

Profile of children

Children included 7523 (50.60%) male and 7336 (49.4%) female, of whom 266 were working giving

a *clfp* rate of 0.0179 for all children studied, 0.0247 for boys and 0.0109 for girls, separately. Table 1 displays the descriptive results of all variables for working children, other children and total children. For example, out of 14859 children, 6650 (44.8%) lived in rural areas and 8209 (55.2%) lived in urban regions; 3573 (24%) children were 11, 3753 (25.2%) were 12, 3720 (26%) were 13 and 3813 (25.6%) were 14 years old; 12855 attend to school; 1004 (6.8%) using internet at home; 630 (4.2%) had a migration during the time between 10 and 14; 14289 (96%) were literate. From working children, 16 (5.8%) had an independent labor, 41 (15.5%) worked in private sector and 192 (72.1%) children worked with their parents and family without receiving any wages.

Profile of children mothers

Overall, 12930 (87%) mothers had husband and lived with the family; 1920 (12.9%) had been divorced or widowed or their husband had left them; 6113 (41.1%) were illiterate; 1159 (7.7%) worked outside and 13559 (91.2%) were housekeeper. The average age of mothers was 41.54 and the average of mothers' total fertility rate was 4.07 children per each mother. The mean of dead children for each mother was 0.336. Dead in children is different from infant or prenatal mortality and contains all of children death of mother's in all age groups. Other results of children and their mothers are shown in Table 1.

Table 2 compares the characteristics of the children engaged in child labor to the children who were not engaged in child labor and the *t*-test results for differences between two groups. According to the results, age, sex, living place, attendance to school and literacy was statistically different between two groups. Concerning the mothers of working children in comparison to other mothers, the results showed that a difference existed in terms of mothers' literacy and mothers working between two groups. The comparisons were not significant for mother's age, mother's marriage status and migration.

Table 1: Descriptive statistics of children

Variable	Results for child workers	Results for other children	Total results
	Child labor force participation		
Works	-	-	266 (0.0179)
Not works	-	-	14593 (0.9821)
	Urbanization		
Rural region	206 (0.7765)	6444 (0.4415)	6650 (0.4480)
Urban region	60 (0.2234)	8149 (0.5584)	8209 (0.5519)
	Gender		
Girls	80 (0.3030)	7256 (0.4973)	7336 (0.4940)
Boys	186 (0.6970)	7337 (0.5027)	7523 (0.5060)
	Child age		
11	31 (0.1174)	3542 (0.2429)	3573 (0.2405)
12	56 (0.2121)	3697 (0.2533)	3753 (0.2526)
13	71 (0.2652)	3649 (0.2499)	3720 (0.2501)
14	108 (0.4053)	3705 (0.2539)	3813 (0.2566)
	School attendance		
Not attended	237 (0.8902)	1758 (0.1205)	1995 (0.1388)
Attended	29 (0.1098)	12826 (0.8794)	12855 (0.8612)
	Literacy		
Literate	196 (0.7386)	14093 (0.9671)	14289 (0.9608)
Illiterate	70 (0.2613)	479 (0.0329)	549 (0.0391)
	Mother with/out husband		
With husband	229 (0.8907)	12701 (0.8702)	12930 (0.8710)
No	29 (0.1093)	1891 (0.1298)	1920 (0.1290)
	Migration of family within 5 years		
Migrate	10 (0.0380)	620 (0.0428)	630 (0.0426)
Not migrate	255 (0.9620)	13923 (0.9572)	14178 (0.9574)
	Type of child works		
Independent work	16 (0.0589)	--	--
Private sector	41 (0.1554)	--	--
For family	192 (0.7215)	--	--
	Using internet at home		
Not using	265 (0.9961)	13422 (0.9305)	13686 (0.9317)
Using	1 (0.0039)	1003 (0.0695)	1004 (0.0683)
	Child's mother working or not		
Not working	221 (0.8588)	13338 (0.9304)	13559 (0.9212)
Works	36 (0.1412)	1123 (0.0695)	1159 (0.0788)
	Mother's literacy		
Literate	56 (0.2196)	5912 (0.4078)	8642 (0.5863)
Illiterate	201 (0.7803)	8586 (0.5922)	6113 (0.4113)

Table 2: Comparison of children and mothers in terms of working and not working children

Children		Mothers	
Child variable	T statistics	Mother's variable	T statistics
Age	-6.4917	age	-0.4629
sex	-6.3598	Migration in 5 years	0.3913
Urbanization	10.8616	Marriage	-0.8156
Attendance to school	38.2710	work	-3.6841
Literacy	19.9805	Literacy	12.1346

Results of binary logistic regression

According to the results of logistic regression, the urban residence had a negative relationship with child labor, while being boy came with a positive relationship. No significant relationship was found between age groups and child labor except for children of age 14. The school attendance showed a strong negative relationship with child labor of a high coefficient (-4.26), the highest coefficient in the model. The results also revealed that if the mother was literate, the probability of sending her child to work would decrease, nevertheless, when mother works she might requires her children also to work (i.e. a positive relationship with child labor). Mothers with husband were found not to make their children work, as the relationship was

not significant. As to the fertility factor, number of children born to each mother, there was no significant relationship in the case of having one or two children, whilst the relationship between fertility and child labor was significant and positive for more children. The coefficient of this variable further increased for bigger fertility rates (i.e. 1.68 for having 3 children, 2.64 for 4 to 6 children and the 3.10 for having more than 6 children). For child mortality rate, the relationship was negative and significant for more than two dead children. In the case of mother's age, the relationship with child labor for those mothers more than 65 years old is significant and negative. That is, children are less likely to be sent to work in such families.

Table 3: Results of the binary logistic regression

Variable	Coefficient	Standard error	*P*-value
Urban or rural Urban=1	-0.5663479	0.1810	0.002
Boys or girls Boys=1	1.5243	0.1643	0.000
Age:			
11 years old children=0	(base)	--	--
12 years old children=1	0.3072	0.2717	0.255
13 years old children=2	0.2654	0.2625	0.308
14 years old children=3	0.5569	0.2487	0.024
Attending school or not Attendance to school=1	-4.2741	0.2236	0.000
Mother is literate or not Literate mother=1	-1.4359	0.1928	0.000
Mother is working or not Working mother=1	1.5420	0.2531	0.000
Mother has husband or not Mother has husband=1	-0.4561	0.3944	0.101
Total fertility:			
1 child=0	(base)	--	--
2 children=1	0.2977	0.5309	0.575
3 children=2	1.5756	0.4724	0.020
Between 4 and 6 children=3	2.5342	0.5404	0.000
More than 6 children=4	3.0128	0.4747	0.000
Child mortality:			
0 dead child=0	(base)	--	--
1 dead child=1	-0.1040	0.2302	0.651
2 dead children=2	-0.1225	0.3419	0.720
More than 2 dead children=3	-1.1143	0.5031	0.027
Mother's age:			
Under 25 years old=0	(base)	--	--
Between 25 and 40 years old=1	-0.0009	0.3774	0.998
Between 40 and 65 years old=2	-0.9116	0.3910	0.020
More than 65 years old=3	-2.6886	0.4935	0.000
Constant variable	-3.3344	0.6440	0.000

Discussion

According to the findings, only a little proportion of children (1.7%) studied was found exploited for work in the provinces, with lesser rate for the girls as compared to boys (2.4% over 1%). This rate is far lower than the world average (i.e. 10.6%) and the regional average (i.e. 9.3) for this age range in 2012 (7). Of the all variables considered, those such as working mother, fertility rate and being a14 yr old child were found increasing the rate of child labor in the provinces. By contrast, a literate and/or old mother (more than 65), one with more dead children (more than two dead), being a schoolchild and urban living families appeared decreasing the rate of working among the children. The strongest effect on the child labor was from fertility rate. As the rural residence was also of similar effect on child labor , the study could claim that an underlying reason for high number of children in the less developed regions, especially villages, could be the families' intention to use them for working, e.g. in the farms. This is why the family planning efforts have reportedly failed in these regions as compared to the cities (23). In developed countries, children are more exploited to work in retail trades, instead (24). In both developed and less developed countries, school attendance reduces the probability of child labor.

Urbanization appeared to be in a negative relationship with child labor. Two reasons could be raised: first, in rural areas the percentage of poverty is more than urban regions (25). Poverty is an underlying factor for having child workers which is accompanied with the higher number of child workers. Lire Ersado found a stronger link between poverty and working children in rural region than urban areas (26). Second, in rural regions, working in farms is dominant. In agricultural economy, parents might force their children to assist them in farming, leading to greater amount of child labor in these regions. Literature abounds with similar results (eg. 27, 28). Interestingly, it is argued that some families try to increase the numbers of their children to generate necessary labor (28, 29).

Consistent with Chang and colleagues (30) and according to our results, boys seem to be stronger and of higher power for working, thus families tend to exploit largely them for labor. As such, girls work more in their house and boys have more family business works (12). Zapata and colleagues in Bolivia, on the contrary, found that families tend to take girls more than boys out of school and send them to work. They state that in the indigenous population the tendency to send women to work is higher than men, because of cultural conditions (5). Such an issue might not be seen rather absurd or obsolete, as nowadays, even in some western developed societies, there could be found cases men stay home and women do the outside job (31). Age did not have a significant relationship with child labor in lower ages but the results were significant for children aged 14. Similarly, Madhura in India and others (19, 32, 33) found that when age increased, the probability of using children for work rose. School attendees evidently have insufficient time for work leading to a decreased child labor. A different interpretation also might be that patents of these children place more value on education and rarely send their child to work.

Given its overly high coefficient, schooling could be argued that is of a huge effect on child labor as literature is replete with similar studies and results. For instance, investigating the effect of schooling in 7 to 17 years old on child participation rate, Degraff and Bilsborrowreached to same conclusion (34), similar to other studies (35-37). On the other hand, most of the studies examining the impact of child labor on schooling claim that child labor will decrease attendance to school, as children do not have enough time to attend school. It became clear that both schooling and child labor could affect each other (13, 24, 38, 39).

As per the results, the illiterate mothers were found more likely to send their child to work, apparently because in an illiterate family, parents might be unaware of the child labor dangers. Besides, income of an illiterate family could be argued that is usually low, increasing the probability of sending children to work for earning money (5, 12). Working mothers also behaved at the same

way. Such a result could be emanated from an agricultural culture, within which all family members might be considered as workers. Therefore, in an agricultural economy, mother labor supply and child labor supply could not be seen as substitute, contradicting the study hypothesis. The provinces studied were somehow of such economy in which women were not working (working mothers rate = 7%), thus given that the mother and child labor are not substitute, the only justification remains is that either the households were not required to work as they were wealthy enough or their other able family members worked instead.

Relationship between the variable 'mother with husband' and child labor supply was slightly away from being significant with negative coefficient. In these families, the husbands were expected to work and earn money and no need might remain for mothers or children to work. Therefore, such a relationship seems rather evident.

The total fertility rate of mother had a positive relationship with child labor. For more than two children, the relationship was positive and significant. That is, the more number of children, the stronger relationship between fertility and child labor and more exploitation of children for working. This finding could be in consistent with agricultural labor force theory (28), based on which families tend to expand their size since they see their children as labor force and income source. The high proportion of rural children studied also reinforces this finding. In fact, the high number of children born to a mother might augment the probability of them being sent to work (14, 15, 40). However, the relationship of child mortality rate and child labor was negatively significant in the case of more than two children dead. The justification might be the fact that more dead children means less child left for the families, thus, they are less likely to allow their other children to work, keeping them safe and hence lessening the child labor rate. In addition, in the extreme poverty and poor health condition, while child mortality is high, no children might be available for working (41). Two more variables of 'migration and using internet' were deleted from the model because of no significant relationship with child labor. In this

study, only nine less developed provinces of Iran were studied. A future research could focus on all provinces of Iran for the age range of 5 to 14.

This study has some limitations. Data of the family income were not gathered and we could not examine the effect of income on child labor. We suggest that other studies examine the effect of family income on child labor supply using other data sources. Furthermore, larger sample size might show more determinants relating with child labor.

Conclusion

An important implication of current study, of massive value for policy-makers, is the identification of the factors giving rise to child labor and recognition of those alleviating such an undesirable phenomenon. Accordingly, they can be either reinforced or forced to abate, according to their nature. For instance, as the study showed, the literate mothers and school going chance for children could reduce the rate of child exploitation, consistent with the high importance given by the UN Deputy for Education to education as an effective policy response in the fight against child labor. As such, a reason behind the low rate of child labor in Iran as in agreement with the study results might be the high rate of literacy in Iran (i.e. 88%) according to the UNICEF, especially the female literacy rate that is well over 90 percent. Overall, the low rate of child labor even though is good news; it should be interpreted cautiously, considering the possible missing in the statistics, given a self-disclosure nature.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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