

Child labour and Schooling in Mexico during the post-NAFTA period*

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Abstract

Child labour is one of the obstacles on the way to the Millennium Development Goal to combat poverty. This article analyses the evolution of child labour rates in Mexico joint with the probability of attending to school for a period of ten years after the introduction of the NAFTA agreement. A series of bivariate probit regressions identifies the determinants of child labour and school attendance at the individual and household level and control for the presence of PROGRESA, fluctuation of GDP and Foreign Direct Investment by federal states of Mexico. To this respect, we find a significant effect of the liberalization process decreasing the probability of working and a significant effect of PROGRESA increasing schooling and decreasing child labour. Additionally, we find evidence of segmentation in child labour trend among economic sectors during the post-NAFTA period. While some sectors reduce the use of child labour, as is the case of the primary and secondary sectors, others increase significantly the children work participation, as occurred in the tertiary sector.

Key words: Trade liberalization; discrete choice models, child labour.

JEL Classifications: C25, J22, O12, O54, J54

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1. Introduction

As in many developing countries, the educational attainment of children increased in Mexico during the 1990s, and continued increasing over all 2000s.¹ On the contrary, the child labour continued persistent at the end of the 90s at rates equal to or greater than Latin American as a whole (Abler and Vasquez, 2000). One of the explanation for such a persistence in child labour is the increase in the extreme poverty produced in Mexico between the early 1980s and mid 1990s (PROGRESA 1997), which may have forced households to put children to work to make up for reduced parental income. Although this is a phenomenon that was spread across all Mexican states, however, the use of child labour is not equally distributed across all the economic stratus. Agriculture, traditionally, had concentrated an important source of demand for child labour in Mexico during the 1980s and 1990s (Vasquez and Abler, 2002). Moreover, the informal sector, mainly composed by small family enterprises, relies heavily on family labour, including child labour (Ramos and Chiquiar 1999, De Janvry et al. 1997).

This is the situation of the children distribution of time for the 80s and 90s. However, data about child labour participation for the end of the 1990s and the 2000 show a decreasing tendency in child labour rates. Abler and Robles-Vasquez (2002) show this phenomenon and name the year 2000 “the break point in the persistence of child labour”. The justification they name for this turning point has mainly social factors. The implementation of social programs at the end of the 90s, such as PROGRESA in 1998, increased the school attendance mostly in the rural regions. They remarked the importance of this social program to break the persistence in child labour, especially for girls living in rural areas.

In this paper, contrary to previous authors who develop an analysis of child distribution of time in aggregate terms, our goal is to develop an analysis of the evolution of child labour rates controlling by different economic stratus depending on the sector in which the household head is operating. Moreover, we introduce the macroeconomic factors occurred in Mexico during the 90s as a parallel explanation for the evolution of child labour.

There are many important macroeconomic events happened in Mexico during the 80s and 90s. The economic crisis of the 1995 and the trade liberalization reforms initiated in

¹ Significant changes in educational policy have contributed to this success. One of the most noteworthy reforms was an increase in the compulsory schooling age from grade six to grade nine in 1993.

Mexico in 1985 are the main responsible phenomenon for the Mexican's economic situation of the 90s. The General Agreement on Tariffs and Trade (GATT) in 1986 and the North American Free Trade Agreement (NAFTA)² in 1994 marked a process of openness in Mexico and contributed to alter the labour opportunities and, consequently, the household income. Concretely, they put on pressure the wages of many workers (Economic Policy Institute's Report 2001) and changed the labour opportunities in many sectors.

Edmonds, Pavcnik and Topalova (2007), and Edmonds and Pavcnik (2005) remark the importance of linking trade reforms and the evolution of child labour rates. They provided evidence on why children work by examining how children in rural India were impacted by India's Tariff reforms in the early 1990s (Edmonds et al., 2007) and in Vietnam (Edmonds and Pavcnik, 2005). As they point out the agriculture trade liberalization of Vietnam and India increases the price of agricultural goods relative to non-agricultural goods which has mainly two effects on child labour: An income effect, since the probability of child labour increases; A substitution effect, because higher prices of agricultural goods causes substitution to other goods, including child leisure.

We attempt to analyse these links for the case of Mexico by using the six disposable rounds of the ENIGH (*Encuesta de Ingresos y Gastos de los Hogares*) from 1992 to 2002. By looking over the entire decade of the 1990s, the analysis spans the planning and negotiation period for NAFTA (1992-1994), and the period following its enactment (1996-2002), as well as the planning and negotiation period with the European Union agreement³ in 2000. This helps account for the possibility that firms began adjusting to the openness before the treaty was formally approved. It also extends the time period well beyond the severe recession Mexico suffered in 1995, when real GDP fell by 6.2% which was precipitated by a bungled devaluation of the peso.

² The North American Free Trade Agreement (NAFTA) is a comprehensive trade agreement that improves virtually all aspects of doing business between Canada, Mexico, and the United States. Upon NAFTA's entry into force on January 1, 1994, Mexico immediately eliminated tariffs on nearly 50% of all industrial goods imported from the United States and removed many non-tariff barriers. Virtually all tariffs on industrial goods were eliminated by 2003 and tariffs on U.S. exports of certain agricultural products to Mexico will be phased out on January 1, 2008.

³ The EU-Mexico FTA (free trade agreement) came into force in 2000. Tariffs were reduced at that time to a maximum of 5% on many goods and services and by 2007, all goods and services not covered by the specific restrictions will pass through with zero import/export tariffs assigned to them - effectively making Mexico a virtual EU trading partner.

The contribution of this study is twofold. First, we show a decline in children labour participation rates in aggregate terms occurred from 1998 to 2002.⁴ Additionally, we found an explanation for that in the macroeconomic scenario produced by the Mexican liberalization process and the evolution of the GDP. Second, we found statistical evidence of the existence of disparities by economic stratus in the persistence of the child labour participation rates during the post-NAFTA period. Concretely, while the percentage of child labour decreases in the agriculture sector; the manufactures, trade, and, mainly, the services sectors present a significant increase in the use of child labour.

Our main results show that during the post-NAFTA period child labour rates decreases in aggregate terms and disparities in the evolution of child labour rates among sectors appear. In these poor economies, the sector in which the household is operating defines the economic stratus of the family. Therefore, the existence of disparities in child labour rates among sectors might produce differences in the educational attainment and, consequently, in the human capital accumulation of the Mexican children among economic stratus This fact may produces differences in the productivity later in life and inequalities in the income distribution in the long run and, therefore, it could negatively affect the economic growth of the country. As a result, the importance of our finding relies on the basic and fundamental ideas of the liberalization process, since they claim for a sustainable economic growth in the long run that help to combat the increasing poverty rates in these economies.⁵ Therefore child labour is shown as one of the obstacles on the way to the Millennium Development Goals to combat poverty.

The remainder of the chapter is organized as follows. Section 2 presents the data series used in the analysis, and discusses the evolution of the labour force participation for children across our sample of years. Section 3 presents the methodology applied on our pooled data in order to determine the social and economical determinant of child labour and school attendance in Mexico, and it explains the results of the estimations. Finally, section 4 concludes.

⁴ Robles and Abler (2002) show this phenomenon till 2000.

⁵ This is one of the main arguments used by the international institutions to defend the liberalization processes in poor economies (World Bank 2000).

2. Child labour in Mexico: A descriptive analysis

2.1 Data

The dataset used for this paper comes from the Mexican survey ENIGH (*Encuesta Nacional de Ingresos y Gastos de los Hogares*)⁶, which is a series of nationally representative cross-section household survey. Although the ENIGH is not a specialized survey on education or child labour, it provides information on the labour force status of household members. We use the six disposable rounds from 1992 to 2002⁷, to analyse school attendance and labour force participation, for children between 12 to 17 years old. We focus on this age group because there is no information in the ENIGH about labour force for children younger than 12 since the legal age to work is 12 years old. Therefore, we consider children from 12 to 17 years old, a range of age that composes the biggest percentage of child labour in Mexico.⁸

The question of the ENIGH from which we compute the child labour participation, gives us information about whether the child had any job the month before the survey. This question includes working for a wage or salary, non remunerable and occasional jobs. Therefore, this question gives us information about whether or not the child is in the labour force. From these survey questions, we define a binary variable indicating whether the child participates in the labour market.

Additionally, we also provide information about the child school attendance, since it is possible that child's principal activity might be work while the child also attends school. In this case, we use the question of the survey that indicates if the child is currently attending to any educational centre.

2.2. The children's distribution of time

In this section, we begin drawing the evolution of the children distribution of time in Mexico during from 1992 to 2002. We provide information of both the percentage of children working and the percentage of children attending to school, since as we mention above, it is possible that a child was at the same time working and attending to school.

⁶ Data can be purchased from the INEGI (Instituto Nacional de Estadística y Geografía).

⁷ Although it was not possible at the beginning of the analysis, at the moment is possible to extend the analysis to 2004.

⁸ Knaul and Parker (1998) estimates under the 3 percent the labour force participation rate among children less than 12 years old.

Table 1a shows the principal activity of children by percentage of the total population, and therefore, describes the trend of schooling and child labour participation in Mexico from 1992 to 2002. In the first column, we observe that the percentage of children decreases from 1992 with 14.84% of the total population to 13.71%. Columns 2 and 4 have the percentage of children working and the percentage of children attending to school, respectively.⁹ We observe, before and after 1998, two tendencies in the child labour participation: the year 2000 is the first year we find a reduction in child labour rates. This fact makes to some author, such as Abler and Robles (2002), names this year “the break point in the persistence of child labour”.¹⁰ Here, we show that this phenomenon hold till 2002 at least.

Between 1992 to 1998, there is a combination of both child labour and school attendance: schooling has increased from 63.4 in 1992 to 69.74 in 1998, and the percentage of children in the labour market increases as the same time, from 20.76 in 1992 to 24.6 in 1998. What is relevant from this table is the change in the tendency that can be observed from 1998. The percentage of children in the labour market decreases from 24.6 in 1998 to 20.8 in 2002, while the educational attainment of children continues increasing. In total it grows 13.67 points, from 63.4% in 1992 to 76.7% in 2002. This is a tendency that comes from the 80s (Able and Robles, 2000). We show that this tendency has not been interrupted during a decade after the NAFTA arrives to Mexico.

Columns 2 and 3 of the Table 1b breaks down the percentage of children in the labour market in two possible situations: children attending to school and working at the same time, and children who are just working. We observe that the percentage of children combining both school and work increases from 4.34 in 1992 to 9.36 in 1998. However, from 2000, children appear to be decreasingly combining both school and work. On the other hand, full time students increase during the whole period, being this increasing more dramatic from 2000.

⁹ In these percentages the child who is working could be attending to school at the same time. So these two percentages do not add 100%, but the columns 2 and 3, and columns 4 and 5 do.

¹⁰ The authors argue that this was mainly a consequence of the PROGRESA, started in 1997, which had a great influence on reducing child labour rates especially on girls between 12 and 14 years old living in rural areas.

From these tables we highlight a change in the tendency of the aggregate child labour rates. Summarizing, it could be said that children in aggregate terms are working less and also massively attending to school (76.7% in 2002).

2.3 The children's distribution of time by sectors

All this changes in the children's distribution of time, took place in Mexico during the post North American Free Trade Agreement (NAFTA) period (1994-2002). Since trade liberalization processes force households to specialise in some sectors producing therefore gainers and losers among sectors and regions, it is likely to think that the turning point observed in aggregate terms in child labour rates occurred mainly in some sectors which have been affected by the trade liberalization process, while it remains constant in others. This idea have sense since the liberalization process of the 1990s changes the opportunities of many household and forces them to change the sector in which they were operating. The elimination of trade barriers within the regions and the increasing control of prices in some sectors, among other effects, would induce economies to specialize more in some sectors, producing changes in inter-industry wage differentials and forcing households to change the sector in which they operate. This was the case of the agriculture, as Hanson (2003) marked for the post NAFTA period, with the break up of *ejidos* after the agricultural reform, only relatively high-wage workers remained in the sector.

To have an idea about this fact, percentages presented in this Table 2a show a change in the sector structure of the country. Concretely, this table shows the percentage of household operating in each sector across the sample of years that enclose the years of the negotiation and the implementation of the NAFTA. Sector 1 (Primary sector or Agriculture, cattle ranching, and fishing sector); Sector 2 (Secondary sector or Mining industry, electricity, water, and gases); Sector 3 (Building industry); Sector 4 (Manufacture activities); Sector 5 (Trade Activities); Sector 6 (Transportation and communications); Sector 7 (Tertiary or Services sector). While at the beginning of the period the majority of households were operating in the primary sector, we observe that in 2002 the percentage of household operating in the services and in the agriculture sector is almost the same (24.17% of household are in the services sector and the 24.10% operating in the primary sector). This convergence shows a reduction of household operating in the primary sectors and an increase in the tertiary sectors. The rest of sectors remain almost constant or slightly decline.

How these economic changes affect the use of child labour by the households? Table 2b shows the percentage of children in the labour force desegregated by the sector in which the household head is working. Here the behaviour found in the Table 2a is replicated in the case of child labour: We observe an increasing tendency in the use of child labour made by household operating in the tertiary sectors, and a reduction (about 3 points) in the use of child labour in the primary sector.

It is also relevant to notice that the percentage of household operating in the manufacturing and trade sectors slightly declines during the whole period, but the use of child labour in these sectors increases.

3. The determinant for the use of child labour in Mexico.

We notice in previous sections that there is a change in the sector structure in the Mexican economy. During the 90s the majority of households were operating in the agricultural sector, at the end of the 2002 the percentage of households operating in the tertiary sector increase dramatically in detriment to the primary sector. Having this features in mind, in this section we study the individual, household, and macroeconomic determinants of the child labour evolution, and the persistence of child labour that it seem continues having the Mexican economy in some sectors.

3.1 Individual and household determinant for the child distribution of time.

For the purpose of testing the individual determinants of child labor and school attendance, we estimate a bivariate probit model. The set of variables includes two dependent variables and a set of individual, household and economic characteristics as explanatory variables. The two dependent variables indicates whether a child in the sample attends school or is working. Because child labor and schooling decisions are likely related, as evidenced by the high proportion of children in the sample who both work and attend school, a bivariate model is useful for combining information from the correlation among the errors of the child labor regression and the child school regression. The bivariate probit model does impose restrictions on the error terms. To ensure robustness, separate probit models were also estimated and, although they are not available in this article, they are available on request.

The set of explanatory variables includes, firstly, some individual characteristics such as a flexible polynomial function of the child's age and gender, a variable indicating the child's years of schooling, and a dummy variable indicating if the child is son or

daughter of the household head. Secondly, we consider some household characteristics as the age and gender of the household head, a dummy variable indicating whether the household head is working or not, the number of male and female adults, the number of sibling of the corresponding child, younger and older than 11 years old, and five regional dummies indicating where the child lives (reference category is the central area of Mexico). Moreover, it includes the household income net of child's earning. Finally, since we are working with pooling data, we include time dummy variables indicating to which year correspond the data we are using. Concretely, we consider five time dummy variables, one for each two years from 1994 to 2002, and we eliminate the dummy corresponding to the year in which the NAFTA was implemented, this is 1994. Finally, we include some macroeconomic variables which are different between states and years. In particular, it is considered the number of families in PROGRESA for each year and state in order to control for the effect of PROGRESA, the evolution of the GDP to control for different economic cycles, and the Foreign Direct Investment as a measure of the liberalization process. Last variable is related which the sector in which the household is operating in order to find a potential explanation for the different behaviour by sector that previously we have observed. We will explain this part of the estimation in the next section.

Result for the bivariate probit estimation are presented in Table 3 for both child who works and attends to school. Child's age and years of schooling are included in the regression since they determine the cost of opportunity of the child. Table 3a shows the positive coefficient of the age at levels indicates that the child's age and the probability of working is positive related, because the older the child is, the smaller is the return of the education and the bigger is the probability of working. The coefficient of the education is negative and highly significant, since the most year of education the child has; the bigger is the educational efficiency. Results of age and schooling imply a significant change in the probability of working. For school attendance we find the opposite: a positive effect of the year of schooling and a negative and significant effect of the age of the child.

We include the age-gender polynomial and we proof that the fact of being a girl reduces the probability of working. However, this probability increases with the age of the girl since the older she is, the bigger is the probability of working and the lower the probability of attending to school.

To represent the competency between siblings for the household resources, we include the number of children in the household. We separate the number of children in two variables, older and smaller than 11 years old.¹¹ We observe that both have a positive and significant effect on the probability of working, and a negative effect on the probability of attending to school. However the variable that indicates the number of children younger than 11 years old has a bigger effect in both cases.

Following with the size of the household, we expect that the number of adults in the household would reduce the probability of working; because if there are adults in the household, they should be the one who work. However, since we separate this variable by gender, we observe that while the number of male adults does not affect the probability of the child being working, being negative but not significant, the number of female adults increases significantly the probability of working.

Respect to the dummy variables indicating whether the children is the son/daughter of the household head and whether the household head is active in the labour market, they both have a positive effect on the probability of working,¹² which implies that is the child of the household head is who normally goes to work and also who normally go to school, and moreover, the probability of doing it is bigger if the parent works too.¹³ We understand this last result since the point of view that it is easier for the child to enter in the labour market if the parent is inside it.

Relating with the household head characteristics, we also include in the estimation her age and gender (male is the reference category). We obtain that both variables have a positive and significant effect on the probability of working. This result introduces the second gender bias in the results since the fact of being the household lead by female, increases the probability of working.

The coefficient of the household income variable net of the child earning is negative but not significant in the case of child labour. However, this is positive and strongly significant when we focus on the probability of attending to school. Children from poor households are less likely to attend school than members of rich households. As

¹¹ Remember that 11 years old is the age at which the child can legally work and, consequently, the age from which the survey gathers information about child labour.

¹² Actually, just the effect of being the son or daughter of the household head is marginally significant.

¹³ Abler and Robles (2002) also got this result for rural areas.

previous author (eg. Huebler, 2008;) we find that household wealth is the root cause of child labour.

We also include regional dummy variables to control by possible estacionalities of the child labour and the variations and levels of development in the regional labour markets. The reference region is the central part of Mexico. The central and the north part of Mexico have the vast labour market and they are the most industrialized regions of Mexico. Children living in these regions have most remunerable labour opportunities, in comparison with the rest of Mexico. The least developed areas in Mexico are the south pacific and the area of the gulf where the labour opportunities are mostly related with the working agricultural resources. They both concentrate the highest level of poverty in Mexico, and therefore, we expect to find in the south of Mexico the highest level of child labour. This is exactly what the regional dummy variables show up. Being the reference region the central part of Mexico, the fact of living in the south of Mexico increases the probability of the child being working by 0.077, respectively. However, if the child lives in the northwest or in the gulf's area, then the probability of working significantly decreases. These results are significant at all levels. However, the fact of living in the north area has a negative but not significant effect on both the probability of working and school attendance.

Summarizing, we observe that during the post-NAFTA period, as we have showed in this section, the use of child labour is mainly affected by the child's age, gender, and years of schooling, also the number of sibling and the male adults living in the household have a positive and significant effect. The household income net of the child earnings is also relevant and significant in determine the school attendance.

3.2 An economic explanation for the child distribution of time.

In the previous section, we have identified the individual and household determinants of child labour. Moreover, previously, we had noticed a change in the sectorial structure in the Mexican economy: During the 1990s the majority of households were operating in the agricultural sector, while at the end of the 2002 the percentage of households operating in the tertiary sector increase dramatically in detriment to the primary sector. Same behaviour was found in the case of child labour rates.

Having these features in mind, we introduce the sector dummy variables in our regression together with a globalization variable in order to identify changes in the

sector structure of the country and to which point the globalization is responsible for the variation in child labour rates that we observe in aggregate terms, and also by sectors.

How globalization is defined depends on the country this phenomenon is going to be measured. In Mexico, after the implementation of the NAFTA, channels other than trade policy, for example, emigration, Foreign Direct Investment, and the peso crisis have played a potentially more important role in defining the exposure to globalization of this country (Goldberg and Pavcnik, 2006). Moreover, in 2000, Mexico was the largest FDI recipient in Latin America (UNCTAD, 2002) since the modification in the legal framework that regulated FDI was orientated towards the facilitation of FDI inflows into the country (López-Pacheco, 2005).

In Mexico, various studies have focused on the impact of Foreign Direct Investment on labour productivity (Blomström and Persson, 1983), wages (Freenstra and Hanson, 1997; Hanson, 2003) and growth (Ramirez, 2000; Griffiths and Sapsford, 2003). Concretely, Hanson (2003) measures the exposure to globalization of Mexico after the introduction of NAFTA by using both, data on trade volumes (i.e., exports and imports) and Foreign Direct Investment expressed as share of state GDP. He finds that the regional characteristics that matter for wage in Mexico during the 1990s appear to be those related to regional exposure to foreign investment. So that, this was the main responsible for the labour market changes occurred in Mexico during this period.

In this paper we use the Foreign Direct Investment (FDI) as percentage of the GDP in U.S. Dollars to control for the exposure to globalization.¹⁴ This variable changes by years and by Mexican states.

Table 3c shows the effect of the economic variables on the probability of working by the child. We include the FDI variable as percentage of the GDP in U.S. Dollars by states, six dummies indicating whether the household is operating in the corresponding sector, and six interactions of the FDI variable with the dummy variables of each sector. This interacted variables control differences in the exposure of globalization by sectors since we do not have information about FDI by states and by sectors. The reference category is the agriculture sector. We also introduce the evolution of the GDP in order to control for different economic cycles and the number of families in PROGRESA as a way to control for the impact of the program.

¹⁴ Data about Foreign Direct Investment in Mexico is from *Secretaría de Economía*, Mexico.

The interpretation of the binary variables indicating the sector in which the household is operating is difficult, since they show the effect of each economic sector on the probability of working, but being this effect free of the effect caused by the FDI. The effect of all of them on the probability of working is negative and strongly significant, being the reference category the agriculture sector.

Respect to the probability of working, we observe an inverse effect of the FDI variable on the probability of working. This fact indicates that the probability of working decreases as the FDI increases. Moreover, we do not find different effects of FDI by sectors since the effect we find in the interacted variables are not significant. Nevertheless, the effect of the exposure to globalization of the services sector on the probability of working is positive and the effect is higher than in other sectors. However, the punctual estimation is still negative for the services sector and not significant. The GDP has no significant effect on child labour and schooling. However, the effect of PROGRESA is significant. Contrary, this variable has a positive and strongly effect on the probability of attending to school, while the effect of the GDP is not significant at any standard level.

These results indicate a significant effect of the globalization and decreasing the probability of working and a significant effect of PROGRESA increasing the school attendance and decreasing child labour. However, the sectorial change we observe in child labour rates cannot be captured by the macroeconomic variable we introduce and due to its originality it should be further investigated.

4. Conclusion

The statistics in this paper indicate that the Mexican economy have suffered a economic sectorial change in the use of child labour during the post-NAFTA period. While during the 1980s and 1990s the use of child labour was mainly find in the agriculture sector, data about the beginning of the 2000s show an increasing tendency in the use of child labour in the manufacturing, trade, and mainly in the services sectors. This sectorial change in the use of child labour occurred joint with a change in the sectorial structure of the households, and both during the post-NAFTA period.

However, it cannot be attributed to the globalization the sectorial change we observe, since we find that foreign direct investment reduces the probability of working for the children, and this conclusion does not change when we focus in each particular sector.

Respect to the child distribution of time, we find by estimating a bivariate probit model with pooled data that the probability of working for children and the school attendance has individual and household determinant, being the most important one the age, gender, years of schooling, number of sibling, and number of female adults in the household. Moreover, the household income net of the child earnings has a negative effect although not significant reducing the probability to work. However, the household income has a positive effect on the school attendance being the probability of schooling bigger in rich than in poor families. Finally, we find a significant effect of the globalization decreasing the probability of working and a significant effect of PROGRESA decreasing the child labour and increasing the probability of schooling.

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Table 1a.- Principal activity of children aged 12-17.

Year	Percentage of children	In Labour Force	Not in Labour Force	Attending school	Not attending school
1992	14.84	20.76	79.23	63.4	36.5
1994	14.74	22.25	77.73	64.33	35.66
1996	14.25	23.58	76.39	67.42	32.57
1998	13.91	24.65	75.34	69.74	30.26
2000	13.65	22.39	77.60	72.35	27.64
2002	13.71	20.87	79.11	76.71	23.28

Notes: The entries presented in these columns represent the percentage of children aged 12-17 in the total population (first column), in the labour force (second column), and attending to school (last column). Percentages may do not add due to rounding.

Table 1b.- Principal activity of children in and out the labour force.

Year	In Labour Force		Not in Labour Force		
	Attending School	Not attending	Full-time student	Home production	Some other activity
1992	4.34	16.42	59.05	14.30	5.88
1994	5.18	17.07	59.14	13.26	5.33
1996	7.44	16.14	59.97	10.93	5.49
1998	9.36	15.29	60.37	10.25	4.72
2000	8.07	14.32	64.28	9.14	4.18
2002	9.09	11.78	67.62	7.94	3.55

Notes: In these columns we disaggregate by activities the total percentage of children aged 12-17 in the labour market. Percentages may do not add due to rounding.

Table 2a.- Percentage of household operating in each sector.

	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7
1992	36.44	1.54	11.65	12.89	15.74	4.83	16.92
1994	35.87	1.95	11.63	12.80	14.40	5.19	18.16
1996	33.30	1.72	10.45	13.62	14.50	5.54	20.87
1998	32.08	1.53	9.21	14.16	16.02	5.36	21.64
2000	29.81	1.57	12.65	12.97	12.32	4.70	25.98
2002	27.53	1.50	11.34	13.67	13.00	5.34	27.62

Table 2b.- Labour force participation of children aged 12-17 by the sector in which the household head works.

	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7
1992	10.98	0.23	2.19	2.12	2.60	0.51	2.21
1994	11.82	0.23	2.43	2.40	2.75	0.62	2.01
1996	12.36	0.18	2.01	2.62	3.13	0.81	2.77
1998	11.62	0.35	2.47	3.18	3.37	0.63	3.38
2000	10.15	0.16	2.54	2.74	2.60	0.67	4.32
2002	8.30	0.14	2.09	2.73	2.67	0.72	4.34

Table 3a.- Determinants of child labour 1992 – 2002. Non-binary variables.

Bivariate probit estimation	Change in the probability of attending to school	Change in the probability of being working
<u>Non-Binary variables</u>		
Increase in child's age by one year	-0.515*** [0.190]	0.373* [0.191]
Increase in child's squared age by one year	0.00165 [0.00657]	-0.000339 [0.00659]
Increase in child's education by one year	0.195*** [0.00633]	-0.103*** [0.00606]
Increase in child's age by one year if female	-0.749*** [0.276]	0.492* [0.299]
Increase in child's squared age by one year if female	0.0270*** [0.00956]	-0.0202** [0.0103]
Increase in the number of children in the household younger than 11 years	-0.0887*** [0.00914]	0.0819*** [0.00939]
Increase in the number of children in the household older than 11 years	-0.0620*** [0.0129]	0.0547*** [0.0136]
Increase in the number of male adults	-0.0364** [0.0174]	-0.00332 [0.0178]
Increase in the number of female adults	-0.0214 [0.0182]	0.0240 [0.0190]
Increase in head's age by one year	-0.00298* [0.00170]	0.00348** [0.00177]
Increase in real household income net of children's earnings	2.06e-06*** [6.08e-07]	-9.41e-07 [6.16e-07]

Notes: Second column of the table shows the change on the probability of working. Robust standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3b.- Determinants of child labour 1992 – 2002. Binary variables.

Bivariate probit estimation	Change in the probability of attending to school	Change in the probability of being working
<u>Binary variables</u> (Change from 0 to 1)		
The child is female	5.228*** [1.972]	-3.506 [2.148]
The child is the son or daughter of the household head	0.404*** [0.104]	0.132 [0.101]
Household head in female	-0.232*** [0.0766]	0.330*** [0.0773]
The household head is active in the labour market	-0.0360 [0.151]	0.189 [0.157]
North regional variable	0.0345 [0.0320]	-0.0448 [0.0335]
Pacific north regional variable	0.390*** [0.0471]	-0.316*** [0.0494]
South regional variable	0.0185 [0.0400]	0.0768* [0.0407]
Gulf regional variable	0.382*** [0.0345]	-0.337*** [0.0362]

Notes: Second column of the table shows the change on the probability of working. Robust standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3c.- Determinants of child labour 1992 – 2002. Macroeconomic variables.

Bivariate probit estimation	Change in the probability of attending to school	Change in the probability of being working
<u>Variables measuring globalization</u>		
FDI (share of the GDP in U.S. dollar)	9.41e-05 [5.82e-05]	-0.000104* [6.13e-05]
FDI by states for worker in the sector 2	-3.19e-05 [0.000114]	-0.000178 [0.000261]
FDI by states for worker in the sector 3	1.56e-05 [6.41e-05]	-6.57e-06 [6.89e-05]
FDI by states for worker in the sector 4	5.24e-06 [6.35e-05]	4.48e-07 [6.80e-05]
FDI by states for worker in the sector 5	-1.63e-05 [6.17e-05]	-1.59e-05 [6.70e-05]
FDI by states for worker in the sector 6	2.00e-05 [6.70e-05]	-6.36e-05 [7.89e-05]
FDI by states for worker in the sector 7	-1.34e-05 [6.12e-05]	1.47e-05 [6.48e-05]
GDP by states	0.00205 [0.00477]	-0.00777 [0.00494]
Number of families in PROGRESA by states	0.000614** [0.000292]	-0.000630** [0.000305]
<u>Variables indicating the sector of the household head</u> Binary variables (Change from 0 to 1):		
The household head is operating in sector 2	0.657*** [0.103]	-0.625*** [0.112]
The household head is operating in sector 3	0.238*** [0.0386]	-0.308*** [0.0405]
The household head is operating in sector 4	0.316*** [0.0401]	-0.305*** [0.0418]
The household head is operating in sector 5	0.329*** [0.0405]	-0.306*** [0.0420]
The household head is operating in sector 6	0.422*** [0.0598]	-0.471*** [0.0644]
The household head is operating in sector 7	0.533*** [0.0387]	-0.543*** [0.0408]

Notes: Second column of the table shows the change on the probability of working. Robust standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.