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# Parental disability: School dropout, idleness and child labour

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## Abstract

School dropout and child labour are associated with low socioeconomic status, as parents are keen to send offspring to the labour market to increase household income. The literature has focused primarily on impaired children but none, to our knowledge, has considered whether impaired parents are associated with children's school dropout, idleness and child labour in Mexico. Our hypothesis posits that parental disability, because of lack of parental supervision, can be related to school dropout because a greater dependence on child labour, but also to higher idleness. Using a sample of 598 children between 14 and 17 years old in the municipality of San Andrés Cholula, Puebla (Mexico), we found that parental disability is associated with increased idleness, but not with child labour. Also, the mother in the household helps preventing school dropout as well as adding paid work to school activities.

*Keywords*: child labour, idleness, parental disability, school dropout.
*JEL classification*: I21.

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# Discapacidad parental: deserción escolar, inactividad y trabajo infantil

**Resumen**

La deserción escolar y el trabajo infantil se asocian con un bajo nivel socioeconómico, ya que los padres desean enviar hijos al mercado laboral para aumentar los ingresos familiares. La literatura se ha enfocado principalmente en niños discapacitados pero, hasta donde sabemos, ninguno ha considerado si los padres con impedimentos están asociados con el abandono escolar, la ociosidad y el trabajo infantil en México. Nuestra hipótesis postula que la discapacidad de los padres, debido a la falta de supervisión de los padres, puede estar relacionada con la deserción escolar debido a una mayor dependencia del trabajo infantil, pero también a una mayor inactividad. Usando una muestra de 598 niños de entre 14 y 17 años de edad en el municipio de San Andrés Cholula, Puebla (México), encontramos que la discapacidad de los padres se asocia con un aumento de la inactividad, pero no con el trabajo infantil. Además, la madre en el hogar ayuda a prevenir la deserción escolar, así como a agregar trabajo remunerado a las actividades escolares.

*Palabras clave*: trabajo infantil, ociosidad, discapacidad de los padres, deserción escolar.
*Clasificación JEL*: I21.

## 1. Introduction

According to human capital theory and research thereafter, a positive relationship between education and income through increased labour productivity has been found (Becker, 1964; Mincer, 1974; Psacharopoulos, 1975). Also, a higher educational level is associated with a better quality of life through the opportunities provided by increased knowledge (Ross & Van Willigen, 1997), a view that has been promoted at the international level through the establishment of the Millennium Development Goals (Inter-American Development Bank (IDB, 2004).

Despite the benefits of schooling, too many children do not attend school. This is because assistance is related to both household's socio-economic characteristics and quality of educational services (Espíndola & León,

2002). In Mexico, according to the *Instituto Nacional para la Evaluación de la Educación* (INEE, 2008) during the school year 2007/2008, the percentage of enrolled students aged 15 to 17 years old decreased from 67.9% to 46.3% but falling to 17.9% for 18 years old students. The data of the *Consejo Nacional de Evaluación de la Política de Desarrollo Social* (CONEVAL, 2009) address the same problem when stating that 39% of individuals between 15 to 17 years old are not attending school. Research in Mexico has analyzed the school dropout issue under the Progresa/Oportunidades social program framework. Accordingly, establishing social programs to alleviate household's poverty in order to foster development is often advised (Mitra, 2005). Even though for other countries, the literature has addressed the issue of disabled children focusing on their lower school attendance (Filmer, 2008), in Mexico, a gap in the quantitative research exists when accounting for the presence of disabled parents in their children's school attendance. Previous research found that sons and daughters take care of their disabled parents (Aldridge & Becker, 1999; Olsen & Clarke, 2003), but they might also be incentivized to support the household's economy through substituting school activities for wage labour. Also, the inherent lack of parental supervision due to impairment can promote children's idleness. The literature has recurrently acknowledged that lack of parental supervision may endanger child development as being related to risky, as well as to harmful behaviors.

The purpose of this research is to link the facts above in order to determine whether parental disability is associated with the likelihood of higher school dropout and increased propensity toward child labour or idleness. To test our hypothesis, we estimated a multinomial logistic model on a sample of 598 children between 14 and 17 years old, drawn from the municipality of San Andrés Cholula, Puebla (Mexico) between February and April of 2008.

## 2. Review of the literature

School dropout is the result of a process when surpassing the retention threshold (Astone & McLanahan, 1991; Goldschmidt & Wang, 1999). Risk factors contributing to dropout have been associated with the lack of economic resources and access to credit, work activities, the direct and indirect costs of attending school, and with a low education quality perception (Rumberger, 1995; Morrison, 2002; Ersado, 2005; Yuren, de la Cruz, Cruz, Araujo-Olivera, & Estrada, 2005; Baschieri & Falkingham, 2007; Rosati &

Rossi, 2007). In addition to these economic factors, low ability children are more prone to dropout (Bacolod and Ranjan, 2008), but parents still play an important role as school attendance is positively related to parental education (Raccanello, Garduño, & Damián, 2009). Moreover, the literature on differences in educational achievement by children living in single parent families has not reached a consensus yet (McLanahan, 1985; Zimiles & Lee, 1991; McLanahan & Sandefur, 1994).

Poverty seems to be the utmost factor that compels parents to send their children to the labour market which, in turn, jeopardizes school attendance (Basu & Van, 1998; Basu, 1999; Edmonds & Pavcnik, 2005; Bhalotra, 2007). This is so when the opportunity cost of attending school is perceived as greater than the loss of income associated with work activities that might be performed (Beegle, Dehejia, & Gatti, 2005). Even though earlier wage-work is associated with a lower level of education (Psacharopoulos, 1997), it may allow children to attend school (Jensen & Nielsen, 1997; Patrinos & Psacharopoulos, 1997; Ravallion & Wodon, 2000), but it may also lead to lower school achievements (Orazem & Gunnarsson, 2003; Beegle *et al*., 2005; Gunnarsson, Orazem, & Sánchez, 2006).

The impact of child labour has both short and long-term consequences (Galli, 2001). In the short term, child labour may alleviate poverty through an increase in household income; however, it has a negative impact on future generations because of a lower human capital accumulation and greater gender inequality that undermine economic development in the long term (Filmer, 2000; Galli, 2001; Ilahi, Orazem, & Sedlacek, 2001; Bruns, Mingat, & Rakotomalala, 2003; Currie & Moretti, 2003; Schultz, 2003; van der Berg, 2008). Because of household needs and the low effectiveness of the institutional framework prohibiting child labour, the literature suggests that implementing social programs based on conditional cash transfers are a viable, albeit non-perfect, mechanism to reduce child labour by relaxing household's financial constraints (Skoufias & Parker, 2001; Bando, López-Calva, & Patrinos, 2005; de Janvry, Finan, Sadoulet, & Vakis, 2006). Despite these advantages, the need for a more rigorous analysis of these program's impacts by including also their costs has been called for (Paruzzolo, 2009). Because the program's architecture assumes a direct relationship between attendance and learning, regardless of the low quality of education that prevails in the areas in which they are implemented, the program's effectiveness has been questioned in terms of knowledge acquisition by beneficiaries (Reimers, DeShano da Silva, & Treviño, 2006).

Child labour has traditionally been associated with performing productive activities. However, during the International Conference of Labour Statistician in 2008 the measurement of child labour was adjusted. Actually, the definition includes those children engaged in economic production that perform dangerous unpaid housework; that is, those activities carried on in an unhealthy environment or through extended hours (International Labour Organization [ILO], 2010). This modification allowed researchers to recognize a problem that during 2007, in Mexico, reached 59.8% of boys and 72.6% of girls between the ages of 5 and 17 who carried out some housework activities (United Nations Children's Fund [UNICEF], 2009). Even when housework enables individuals' social development (Maganto, Bartau, & Etxeberria, 2003), the evidence indicates that it also reduces time devoted to study and hinders school attendance (Levinson, Moe, & Knaul, 2001; Raccanello, Garduño, Herrera, & Uribe, 2011).

## 3. Latin America and Mexico: child labour overview

According to the ILO (2010), during the period 2004-2008, child labour has declined in the Asia-Pacific and Latin America regions, but increased in sub-Saharan Africa. Even though the number of young workers declined, some changes in its structure have been acknowledged. Along with a fall in child labour among people between five and 14 years, an increase for those aged between 15 and 17 was observed. Worldwide estimates for 2008 report that approximately 215 million children were working and about 6.56% (14.1 million) were living in Latin America and the Caribbean region.

UNICEF (2009) reported that in Mexico about 12.49% of children between the ages of five and 17 (3.647 million) were working for the year 2008. Males represent the largest share (66.9%) compared to women (33.1%), being primarily engaged in the agricultural (29%), commercial (25.3%) and service sectors (23.7%). According to world trends (UNICEF, 2009), the majority of child labour in Mexico (69.5%) involves children between the ages of 14 and 17 of age.

The same source (UNICEF, 2009, table 4, p.10) reports that out of the total population between five and 17 years old, only 89.5% were attending school, but among the working population attendance drops to 58.5%. Child labour and school attendance are gender biased because male workers attend school

in a lesser percentage than girls (56.1% vs. 63.3%). During 2007, both the state of Puebla and the state of Jalisco ranked 2nd at national level in terms of child labour: 7.9% of the population between five and 17 years old was performing some work activity (just behind Estado de México with 8.6%), but Puebla has the highest percentage at national level (8.7%) for those aged between five and 13 (unicef, 2009, Charts 10-11, pp. 18-19).

## 4. Disabilities in Mexico

According to the XII Censo General de Población y Vivienda 2000 –XII General Census of Population and Housing 2000– (Instituto Nacional de Estadística, Geografía e Informática [inegi], 2000), Mexico had nearly 1.8 million disabled people fairly distributed according to gender. The most common disabilities were physical (45.3%), visual (26%), mental and hearing (16.1% and 15.7%, respectively) affecting about 5% of the population between 0 and 44 years. In the same year the state of Puebla was accounting for 4.6% of the total, mimicking the national pattern (physical, 43.1%, visual, 26.8%, hearing 17.6%, and mental 14.6%).

### *Adult disabilities*

The literature accounts for a two-ways relationship between poverty and disability. On one hand, the loss of income, the lower participation in labor market (Contreras, Ruiz-Tagle, Garcés, & Azócar, 2006), and the additional costs resulting from the condition and social exclusion may cause households to fall into a poverty trap but, on the other hand, poor people may work in risky environments, where accidents are more likely to occur, because of the lack of better opportunities (Elwan, 1999).

When focusing on adult disability, previous research reported the negative implications associated with economic hardship (Mitra, Posarac, & Vick, 2011) and limitations in daily activities due to the impairment (Kirshbaum & Olkin, 2002). As a consequence, children with a disabled parent are less supervised, but they also take care of their disabled parent, a role that does not correspond to their age. This is why the literature refers to them as 'young carers' (Aldridge & Becker, 1999; Olsen & Clarke, 2003). However,

when an adult with such limitations is present in the household, children's school attendance may be lower (Cuong & Mont, 2011) because the care to be provided, as well as when substituting school activities for child labour (ILO, 2007, 2010).

### *Child labour*

Even though child labour has both positive (e.g. promotes a higher sense of responsibility) as well as negative (e.g. some tasks may be performed in unhealthy environments) consequences for offspring development, children undergo a process of adultification as they have to "assume extensive adult roles and responsibilities" (Burton, 2007:329). When offspring are providing emotional support, general and domestic care among others, some consequences of adultification are evident during childhood, but others turn out to be palpable only when reaching adulthood as they attain the physical, emotional, social and education grounds (Halpenny & Gilligan, 2004). Though, ethnographic evidence reveals that children do not necessarily fulfill parental expectation despite the household's needs because the combination of family beliefs and strategies that may be implemented to cope with the consequences accompanying impairments (Rolland, 1999).

### *Idleness*

In addition to school dropout, the lack of parental supervision, as a consequence from a disability, may induce children to idleness (children who neither attend school nor work), that may jeopardize their future development. In fact, it has been acknowledged that parental supervision diminishes children's risky behavior in early childhood (e.g. safety and injury), and middle childhood when psychological and sociology problems (e.g. delinquency, peer influence) as well as substance abuse (e.g. drinking, smoking, drug abuse) may be prevented through proper adult monitoring (see Dishon and McMahon, 1998 for an insightful review of the literature).

### *Hypothesis*

The research related to adults with disabilities has been pioneered in the United Kingdom and Australia but, recently, advances have been made

in both developed (Becker, 2007; Mitra, 2008a) and developing countries, where disabled people are less likely to be employed (Mitra 2008b; Mitra and Sambamoorthi, 2008). Nonetheless, due to the lack of information on the relationship between parents with disabilities, school dropout and child labour at the same time for developing countries, this paper seeks to partially fill the gap as the Mexican case has not been studied at all. In order to do so, we propose the following hypothesis: a permanent disability of either parent reduces children's school attendance as they undertake working activities but it might also shift children toward idleness due to the inherent lack of parental supervision.

### *Methodology*

*Participants.* Data were collected through administering a questionnaire comprised of 36 multiple choice closed-ended items to 400 households in the municipality of San Andrés Cholula, Puebla (Mexico) and suburbs during February, March and April of 2008. The sample was stratified according to number of citizens in the municipality and suburbs; then, households to which the instrument was applied were randomly selected. In the 400 surveyed households, we detected 598 children between the ages of 14 and 17 that represent the number of observations used in the analysis.

*Materials.* Once the household was selected, an adult caregiver (mother or father of the child/children) was informed of the purpose of the research, and assured that all responses would be anonymous, thus providing them with full confidentiality. The caregiver was then asked if s/he would be willing to participate in the research. Once verbal consent was obtained, the adult caregivers were administered the survey either by giving them the instrument to fill out, or, in cases of illiteracy, by reading the questions and recording their responses. All participants were treated in a manner consistent with the highest of ethical standards.

The instrument provided information on various household characteristics such as: the number of family members (adults, elderly, children and other members), parental marital status, place of residence (municipality or suburbs), the level of schooling of the household's head and the range of total household income. Also, we inquired about the type of housing where the family lives in (own property, shared, rented or mortgaged), possession of other real estate (shops, land, houses/apartments, warehouses), means of transportation,

as well as the range of total household debt. In order to detect any household member with disabilities, the survey provided information related to the disabled parent and the kind of limitation s/he had (hearing, speech, visual, mental, physical or other).

After administering the questionnaire, out of 400 households, in 30 cases some disabilities were detected of which 70% corresponding to father's impairment (table 1). Because of the low number people impaired, we could not differentiate for every single disability in the econometric model but, we aggregated all of them into a single comprehensive variable according to the person (father or mother) who was concerned.

Table 1
Parent's disabilitiesv

| | **Father impaired** | | **Mother impaired** | | **Full sample** | |
|---|---|---|---|---|---|---|
| Impairment | Obs. | % | Obs. | % | Obs. | % |
| Physical | 10 | 47.62 | 1 | 11.11 | 11 | 36.67 |
| Hearing | 7 | 33.33 | 4 | 44.44 | 11 | 36.67 |
| Visual | 2 | 9.52 | 3 | 33.33 | 5 | 16.67 |
| Other | 2 | 9.52 | 1 | 11.11 | 3 | 10.00 |
| Total | 21 | 100.00 | 9 | 100.00 | 30 | 100.00 |

Source: Field survey.

For the young people, the questionnaire asked about their main activity (working, attending school, both or idle), regular participation in housework (i.e. household tasks, babysitting), school attendance (in case s/he did not attend, what were the reasons), school (public or private) and her/his level of education. In relation to any work activities outside the household, we enquired for the child's average monthly monetary contribution to the household and the weekly number of hours worked.

### *Results*

The methodology for testing our hypothesis, following Bacolod & Ranjan (2008), is based on estimating a multinomial logistic model (*mlogit*) with robust standard errors and the dependent variable (*activity*) takes four

values according to the activity undertaken by the offspring. In particular, the value of 0 is attached to those whose neither attend school nor work (idle); a value of 1, if s/he simultaneously works while attending school; a value of 2, if her/his only activity is attending school, and finally, a value of 3, if s/he only works. The base category, on which the results have to be compared, consists of individuals who attend school only. Thus, the estimation results consist of the change in probability (dF/dx) to belong to a category under analysis (0, 1 or 3) with respect to the base (2).

Out of the total sample (see table 2), 54.7% of the children attend school and 24.1% work exclusively. Only 13.7% of the sample combined both activities, while 7.5% neither worked nor attended school (idle). Girls show a higher percentage in attending school only than boys (61.4 vs. 48%), as well as idleness (13.1% vs. 2%) while boys tend mostly to work (31.7 vs. 16.4%) and to combine both activities (18.3% vs. 9.1%).

Table 2
Children's activities

| | **Girls** | **Boys** | **Total** |
|---|---|---|---|
| Activity | Obs. (%) | Obs. (%) | Obs. (%) |
| Idle | 39 (13.09%) | 6 (2.00%) | 45 (7.53%) |
| School attendance and work | 27 (9.06%) | 55 (18.33%) | 82 (13.71%) |
| School attendance only | 183 (61.41%) | 144 (48.00%) | 327 (54.68%) |
| Work only | 49 (16.44%) | 95 (31.67%) | 144 (24.08%) |
| Total | 298 (49.83%) | 300 (50.17%) | 598 (100%) |

Source: Field survey.

The independent variables introduced into the model represent the factors that, according to the reviewed literature, have been found to be associated with school dropout.

The marital status of the household's head is represented by the dichotomous variable married in which case it takes value of 1, 0 otherwise. For single parent households, according to the household's head,

the dichotomous variable singlep_mother (singlep_father) takes a value of 1 if the household's head is the mother (father), implying that the father (mother) is missing, and 0 otherwise.

Unmarried households represent the base category. Household income level is incorporated into the model through the variables income_1500orless and income_1501to 3000 that takes a value of 1 when the household has a monthly income up to 1 500 MXN, or between 1 501 and 3 000 MXN respectively, and 0 otherwise (1 United States Dollar [USD] = 10.67 Mexican Pesos [MXN] at the time of the survey).

When households have an outstanding debt, the dichotomous variables *informal_loan* (relatives/friends, pawnshops and moneylenders) and formal_loan (banks) represent the sector that granted the loan in which case they take the value of 1, and 0 otherwise. Household assets are included in the model through the variables transportation and own_house. The former takes the value of 1 when the household has at least a means of transportation (car, truck or motorcycle), and 0 otherwise; the latter takes a value of 1 when the household owns the house (or apartment) in which it resides, and 0 otherwise.

To take into account the type of housing, the dichotomous variable *cement_floor takes* a value of 1 if the house has a concrete floor, and 0 otherwise. Because the sampling was carried out both in the town of San Andrés Cholula and its suburbs, the dichotomous variable sach takes a value of 1 when the individual is residing in the municipality, and 0 when living in a suburb.

About household composition, the discrete variable elderly represents the number of household members who are older than 65, while the dichotomous variable children_5orless takes a value of 1 if in the household there is at least one child under five years old. As well, siblings_14to17 stands for the number of young siblings living in the household aged between 14 and 17 years old. The total number of sons and daughters living in the household is represented by the discrete variable offspring.

Because the educational level of the parents is one of the variables associated with the level of education of the children, the dichotomous variable mother_noedu (father_noedu) takes a value of 1 if the mother (father) has no formal education, and 0 otherwise. For higher school levels, mother_prim and mother_sec (father_prim and father_sec) is similarly defined and corresponds to whether the mother (father) has primary or secondary school education respectively. The variable mother_impaired (father_impaired) takes a value

of 1 if the mother (father) has any permanent disability (see table 1), and 0 otherwise.

The dummy variable male represents the gender of the child, in which case it takes a value of 1, and 0 if it is a female. In order to take into account the birth order of the child, the dichotomous variable firstborn takes a value of 1 if the individual is the household's firstborn, and 0 if not. Because the sample includes children aged between 14 to 17 years old, we include their age through four dichotomous variables: age_14, age_15, age_16 and age_17 that take a value of 1 according to the age of the individual, those children aged 14 constitute the base category so, the variable age_14 is omitted from the model. The discrete variable years_edugap indicates the school gap of the child in terms of years forgone; this variable has been calculated as the difference between the age of the child and the age at which s/he should have completed the school level s/he has. Finally, if the child performs regular activities in the household (i.e. washing dishes or caring for younger siblings, but not disabled parents), the dichotomous variable housework takes a value of 1, and 0 otherwise.

Table 3
Mlogit model estimation

| Base category (2): School attendance | Idleness (0) | | | School and work (1) | | | Work only (3) | | |
|---|---|---|---|---|---|---|---|---|---|
| | dF/dx | Robust s.e. | | dF/dx | Robust s.e. | | dF/dx | Robust s.e. | |
| Married | 0.003 | 0.539 | | -0.011 | 0.391 | ** | -0.333 | 0.308 | *** |
| Singlep_mother | -0.027 | 0.903 | ** | -0.023 | 0.541 | * | -0.174 | 0.527 | ** |
| Singlep_father | 0.152 | 1.186 | * | 0.007 | 1.019 | | -0.035 | 0.905 | |
| Income_1500orless | -0.022 | 0.576 | ** | 0.050 | 0.398 | * | -0.177 | 0.392 | ** |
| Income_1501to3000 | -0.008 | 0.483 | | 0.011 | 0.324 | | -0.010 | 0.282 | |
| Informal_loan | 0.038 | 0.625 | | 0.005 | 0.467 | | 0.001 | 0.391 | |
| Formal_loan | 0.057 | 0.853 | | -0.027 | 0.631 | | -0.084 | 0.425 | |
| Transportation | -0.041 | 0.588 | *** | -0.009 | 0.294 | | -0.087 | 0.251 | ** |
| Own_house | -0.058 | 0.484 | *** | 0.010 | 0.301 | | -0.113 | 0.275 | ** |
| Cement_floor | -0.012 | 0.476 | | -0.048 | 0.295 | *** | 0.009 | 0.257 | |
| Sach | -0.017 | 0.607 | | -0.006 | 0.292 | | -0.063 | 0.292 | |
| Elderly | -0.021 | 0.479 | * | 0.010 | 0.231 | | -0.077 | 0.248 | |
| Children_5orless | -0.007 | 0.622 | | 0.023 | 0.317 | * | 0.008 | 0.322 | |
| Siblings_14to17 | -0.005 | 0.298 | | -0.003 | 0.221 | | 0.041 | 0.201 | |
| Offspring | 0.005 | 0.129 | * | -0.003 | 0.092 | | 0.024 | 0.072 | * |
| Mother_noedu | 0.049 | 0.962 | | 0.016 | 0.837 | | -0.017 | 0.710 | |
| Mother_prim | -0.004 | 0.720 | | -0.023 | 0.468 | * | -0.119 | 0.411 | |
| Mother_sec | -0.019 | 0.748 | | -0.013 | 0.462 | | -0.214 | 0.446 | *** |
| Father_noedu | 0.053 | 1.563 | | -0.062 | 0.905 | *** | -0.052 | 0.975 | |
| Father_prim | -0.015 | 0.634 | | -0.003 | 0.401 | | 0.044 | 0.349 | |
| Father_sec | -0.024 | 0.778 | | 0.005 | 0.420 | | 0.042 | 0.401 | |
| Mother_impaired | 0.253 | 1.217 | *** | 0.020 | 1.041 | | 0.091 | 1.149 | |
| Father_impaired | 0.105 | 0.953 | ** | -0.119 | 0.524 | *** | 0.192 | 0.680 | |
| Male | -0.064 | 0.511 | *** | 0.032 | 0.279 | *** | 0.193 | 0.236 | *** |
| Firstborn | 0.003 | 0.466 | | -0.023 | 0.329 | ** | -0.015 | 0.291 | |
| Age_15 | -0.018 | 0.669 | | -0.015 | 0.415 | | -0.059 | 0.384 | |
| Age_16 | 0.008 | 0.728 | | 0.008 | 0.403 | | 0.165 | 0.396 | ** |
| Age_17 | 0.027 | 0.551 | *** | 0.009 | 0.336 | *** | 0.339 | 0.303 | *** |
| Years_edugap | 0.048 | 1.306 | ** | 0.023 | 1.310 | | 0.482 | 1.309 | * |
| Housework | 0.061 | 0.545 | ** | 0.005 | 0.362 | | -0.109 | 0.417 | |
| N = 598 | | | | | | | | | |
| Wald chi$^2$ (90) = 23,154.87 | | | | | | | | | |
| Pseudo $R^2$ = 0.3823 | | | | | | | | | |
| Log pseudolikelihood = -512.072 | | | | | | | | | |
| *** p < 0.01; ** p < 0.05; * p < 0.1 | | | | | | | | | |

Source: Author's estimates.

## 5. School dropout and idleness

According to table 3 (column 1), in single parental households when the mother is missing (*singlep_father*) children are more likely to drop out of school for idleness (+15.2%) but, children living in mother-headed-households (singlep_mother) show a higher likelihood to continue attending school (+2.7%). *As married* is not significant, increased school attendance would not be related to the presence of both parents, but due to the support and guidance provided by the mother, the adult who spends most of the time with children.

Household wealth is positively related to school attendance. Children belonging to households that own their own homes, or that have some means of transportation, show a lower dropout likelihood (-4.1 and -5.8%, respectively). However, a low household income (income_1500orless) is also associated with a lower probability (-2.2%) of dropping out of school; this finding is quite telling as inactivity would not be an attractive option for children living in households with a few resources.

Although the extant literature suggests that higher parental education is negatively associated with school dropout (Farmer & Payne, 1992; Raccanello, Garduño, & Damián, 2009), estimations do not provide supporting evidence for this relationship as parental education variables no matter the expected signs, are not significant.

Household composition is associated with school dropout through the number of mature adults (elderly) and the number of children who live in it (offspring). In particular, for every mature adult living in the household we estimate a decrease of 2.1% in the school dropout likelihood, possibly because mature adults could provide home-based mentoring to youths. As the number of children increases, however, child dropout is more likely to occur (+0.5%), suggesting that, ceteris paribus, parents who have more children can devote less time and attention to each one of them.

Following data reported in table 2, our estimations found that males are less likely to drop out of school than girls (-6.4%) but they also show that this situation becomes more attractive when children are 17 years old (+2.7%). Also, as supported by the previous literature, those children that perform regular housework have a greater likelihood of school dropout (+6.1%). In the same vein, the delay in education, represented by years_edugap, shows that for each school-year delay, children are more likely to dropout

(+4.8%) than their peers who do not. If conceding that children with a lag in education can also have a lower ability for school, a missing variable in our model, then our results are similar to those reported by Bacolod and Ranjan (2008, p. 796).

Adult disability decreases school attendance and it appears that its effect varies significantly according to whether the mother or father is concerned. In fact, when the mother or father has a permanent disability, we estimate a greater likelihood of school dropout (+25.3%) than when the father is concerned (+10.5%). Because we controlled by the variable housework, children do not reduce school attendance in order to take care of the impaired parent – such situation was scantly mentioned by the surveyed. Thus, results suggest that dropping out of school would be related more likely to idleness derived by the lack of supervision because impaired parents, instead of the young caring related tasks. Thus, the findings above support that mother's ability to monitor children enhances school attendance.

## 6. Sharing school attendance with work activities

According to the literature, in single parent households the financial responsibility often rests on one parent only. Thus, the lack of resources can induce children to spend part of their time in performing some work activity in order to increase household income. However, our estimates (table 3, column 2) support that children living in mother-headed-households (singlep_mother) are less likely to perform any work activity (-2.3%), and a similar drop in the likelihood is observed when parents are married (-1.1%). On one hand, despite previous results, a child is more likely to work while attending school (+5%) when monthly household income is less than 1 500 MXN or when very young siblings (children_5orless) are at home (+2.3%). On the other hand, households with a better economic status (cement_floor) are associated with a lower likelihood that children share school attendance with work duties (-4.8%), supporting that a fragile economic situation motivates children to engage in wage-labour.

Males tend to add work activities when attending school with a higher likelihood than females (+3.2%), with a slightly increasing trend with age (+0.9% when 17 year old), but surprisingly we found that firstborn children are less likely to add paid activities when studying (-2.3%). Estimates indicate

that when children attend school and their father has no education (father_noedu) child labour is less likely to occur (-6.2%); the same happens when the mother has a primary school level (-2.3%). While the mother's educational level has been associated with increased children's school attendance in a previous study (Raccanello, Garduño, Herrera, & Uribe, 2011), our results suggest that parents without formal education might be still aware of the importance that children continue to engage solely in their school activities.

As father's disability discourages children's work activities (-11.9 percent %), part of our hypothesis is rejected because children would not substitute their parents as household's economic providers.

## 7. School dropout because of working activity

The variables related to school dropout for entering into the labour market are reported in table 3, column 3. As for the decision to take up a job while attending school, those children whose parents are married or who live in mother-headed-households avoid dropping out of school for working (-33.3 and -17.4% respectively), suggesting that the presence of the mother in the household encourages school attendance.

Offspring are less likely to leave school for wage-work when the family has a means of transportation or when it owns its own house (-8.7 and -11.3% respectively). In this model, the negative sign of the household's total monthly income lower than 1 500 MXN (-17.7%) is probably a result of inverse causality, as when kids are full-time-workers, households probably would not have a low income level.

Once again, parental education is significant in explaining children's activity; when mothers possess secondary school level education, a lower likelihood for children to be engaged in the labour market is found (-21.4%), although boys are still more likely to drop out of school to join the labour market than girls (+19.3%). Household composition is indirectly associated in children activity through the variable offspring being positively related to the probability of leaving school to work (+2.4% for each offspring), possibly because of the need to support household expenses.

We found no evidence that parental disability fosters dropouts in order to join the labour force (mother_impaired and father_impaired are

not significant). However, it emerges that children around 16-17 years old have a higher likelihood of entering the labour market (16.5 and 33.9% respectively), a result aligned with UNICEF's statistics that have been presented in an earlier section. According to the extant literature (Domínguez, 2005; Sáez, 2005), the model supports that the education gap (years_edugap) contributes significantly to school dropout for joining the labor market (+48.2%).

## 8. Conclusions

This paper has analyzed the relationship between parental disability and school dropout accompanying idleness and child labour, an issue that in Mexico had not been previously addressed by the literature.

Our findings show that parental disabilities induce children dropout probably through a lack of supervision leading to idleness, but we did not find any evidence suggesting that parent impairment could promote child labour. This is a positive result as parents seem aware of the importance that their children continue attending school.

According to the literature, the mother has an important role in supporting children to continue attending school avoiding substituting, partially or totally, school activities for paid work. This is in sharp contrast with the role of the father whom cannot reduce school dropout for idleness, when a female partner is missing in the household.

The educational delay is a factor strongly associated with dropout that in turn is linked to idleness but we found it mostly related to child labour; that is, children who abandon school tend to join the labour force instead of staying idle at home. Even though such situation may increase household income in the short run, it nevertheless engenders those adultification consequences previously described that may convey a high burden for adolescents in the long run. Results support that males are more likely to drop out of school and enter the labour market, but they are also more likely to add work activities while attending school.

Despite the benefits derived from a mother's mentoring and supervision, when she is disabled, children tend to idleness in lieu of attending school and, to a lesser extent, a similar situation occurs also when the father is disabled, probably due to the lack of proper supervision.

Finally, as school dropout results in the perpetuation of a low skill-low income vicious circle that hinders social and economic development at intergenerational level, these findings call for public policies aimed at supporting single-parent families. Such intervention should be aimed toward single-parent households where the mother is the missing adult in the family in order to avoid a lower human capital accumulation that in the long run could spoil a child´s development.

Further research is needed in order to shed light on the different types of disabilities and single-parent households, a situation we could not address here because of the sample variability. Additionally, differentiating between the severity of disabilities and their impact on a household's economy would be advisable. This may be accomplished through a larger dataset that could allow enquiring on children's activities according to gender. Nonetheless, we hope that our contribution will promote future studies in Mexico on parental disability and its impact on children.

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