

**Factors affecting the schooling performance
of secondary school pupils - the cost of high
unemployment and imperfect financial markets**

Lidia Farré and Claudia Trentini

Ivie

Working papers
Working papers
Working papers

Los documentos de trabajo del Ivie ofrecen un avance de los resultados de las investigaciones económicas en curso, con objeto de generar un proceso de discusión previo a su remisión a las revistas científicas. Al publicar este documento de trabajo, el Ivie no asume responsabilidad sobre su contenido.

Ivie working papers offer in advance the results of economic research under way in order to encourage a discussion process before sending them to scientific journals for their final publication. Ivie's decision to publish this working paper does not imply any responsibility for its content.

La Serie AD es continuadora de la labor iniciada por el Departamento de Fundamentos de Análisis Económico de la Universidad de Alicante en su colección "A DISCUSIÓN" y difunde trabajos de marcado contenido teórico. Esta serie es coordinada por Carmen Herrero.

The AD series, coordinated by Carmen Herrero, is a continuation of the work initiated by the Department of Economic Analysis of the Universidad de Alicante in its collection "A DISCUSIÓN", providing and distributing papers marked by their theoretical content.

Todos los documentos de trabajo están disponibles de forma gratuita en la web del Ivie <http://www.ivie.es>, así como las instrucciones para los autores que desean publicar en nuestras series.

Working papers can be downloaded free of charge from the Ivie website <http://www.ivie.es>, as well as the instructions for authors who are interested in publishing in our series.

Edita / Published by: Instituto Valenciano de Investigaciones Económicas, S.A.

Depósito Legal / Legal Deposit no.: V-1134-2009

Impreso en España (marzo 2009) / Printed in Spain (March 2009)

WP-AD 2009-07

Factors affecting the schooling performance of secondary school pupils - the cost of high unemployment and imperfect financial markets*

Lidia Farré and Claudia Trentini**

Abstract

This paper investigates the implications of major financial markets crises for the human capital accumulation decisions of households. We use data for Argentinean households over the period 1995-2002 to examine households' response to negative idiosyncratic income shocks in different macroeconomic scenarios. In particular we study how teenagers' school progress responds to household head unemployment during periods of high economic growth and compare it to the response during recession years, when families are more likely to be financially constrained. After accounting for the potential endogeneity of household head unemployment we find that school failure in response to unemployment shocks increases during periods of economic instability and that, at least for boys, this results from a greater involvement in labor market activities. Our results add to the existing literature on the long term cost of macroeconomic crises.

Keywords: imperfect credit markets, human capital, parental unemployment

JEL Classification: D52, J22, J24

* Farré thanks the Spanish Ministry of Education (Grant SEJ 2005-02829/ECON) for financial support.

** L. Farré: University of Alicante. C. Trentini: EUI Florence and UCL London.

1 Introduction

Under the assumption that households have access to a complete market in contingent claims, marginal utilities of consumption and of human capital investments are not affected by purely idiosyncratic shocks. Accordingly investment decisions, including those in human capital, are determined solely by rates of return. However, in the presence of credit and insurance market imperfections, labor market shocks and fluctuations can have a deep impact in household consumption and time allocation behavior. Self-insurance strategies or informal arrangement to cope with unexpected shocks might include the liquidation of physical assets or the reallocation of time of family-members towards income-earning activities, and possibly a decrease in human capital investments. As a consequence income shocks might increase the transmission of poverty across generations and have long term consequences on inequality.

This paper examines the consequences of credit market imperfections for households' human capital investment in Argentina during the economic crisis of the late 1990's and early 2000's. We use data over the period 1995 - 2002 to cover both a recessionary and a growth period. During periods of aggregate instability families are likely to experience difficulties accessing credit; as a consequence, negative shocks to household income may lead to a higher involvement in productive activities by household members. If young household members are those who increase participation in home and market production they will have to sacrifice part of their time at school and consequently reduce their investment in human capital. By comparing the response of human capital investment decisions to negative household income shocks in different macroeconomic scenarios we can test for the presence of credit market imperfections.

For developing countries there is growing empirical evidence that these concerns apply to rural areas and affect child labor supply. Jacoby and Skoufias (1997) and Jacoby (1994) find that Indian agrarian households lacking access to formal financial markets are found to draw upon the labor of their children when faced with an income shortfall. A wide literature also examines the consequences of the macroeconomic crisis suffered by Indonesia. Frankenberg,

Smith and Thomas (2003) find that household's labor supply increase during the crisis while Thomas, Beegle, Frankenberg, Sikoki, Strauss and Teruel (2004) find evidence of a negative effect of the macroeconomic shock on the attendance rate of younger children with older siblings in the household. However, Indonesia had a very large rural sector in which to work during the crisis.

Evidence of whether the same concerns are relevant for the relatively wealthier urban areas typically characterized by a wide heterogeneity in the nature and effectiveness of formal safety nets is remarkably rare. Based on panel data from urban Brazil, Duryea (1998) examines the role of transitory shocks to household income in children's advancement through school in Brazil. Her results show that children's time is used to buffer rare transitory income shocks to households in ways that are consistent with education models that incorporate insurance or credit market imperfections. On the same data Duryea, Lam and Levinson (2007) find that unemployment shocks significantly increase the probability that a child enters the labor force, drops out of school and fails to advance. In particular teenager girls are the most affected by the household shock. Looking to the Mexican peso crisis Parker and Skoufias (2006) find that while significant added-worker effects are in place for adult females, for teenage males there is no significant evidence that labor force participation, school attendance and the likelihood of advancing to the next school grade are influenced by the event of unemployment of the household head. This is in contrast to Attanasio and Székely (2004) findings that show that Mexican households tend to react to idiosyncratic shocks reducing human capital expenditures. Finally, consistent with the hypothesis of income effects driving the labor market incentives of children, Schady (2002) finds positive effects on schooling attainment of urban peruvian children aged 11 to 17 years old during the macroeconomic crisis of 1988-1992.

Evidence based on urban data is more mixed than in rural areas partly because macroeconomic circumstances also influence the incentives of child labor. In particular as the labor market conditions determine the likelihood that the household heads loose their job, they

also determine the average wage children can expect to receive entering the labor market, thus affecting the opportunity cost of schooling.¹ A change in the wage that a child can earn has both income and substitution effects on children's time allocation decisions. Children who work to meet a standard of consumption will work fewer hours when their wage increases (income effect), while the substitution effect implies that children will work more when wages increases.

This paper examines the labor market and educational behavior of teens both during recession and high growth years in urban areas of Argentina. We focus on teenage children both because recent efforts to increase schooling attendance have been targeted at this group and also because teenagers may be in a better position to contribute to household income than younger children. Our analysis focuses mainly on the educational and work behavior of boys as previous research suggests that they are more likely than girls to participate in market activities to insure the household (UNICEF (1997), EANNA (2004)).² However, for comparison purposes, we replicate the same empirical analysis for girls.

In our empirical investigation the presence of negative idiosyncratic income shocks is measured by unemployment spells affecting the household head. There may be the concern that interruptions in the work career of the head are not exogenous to the educational and labor market performance of teenagers in the household. Accordingly we need to find a valid instrumental variable to estimate the causal effect of idiosyncratic shocks on teenagers behavior. In rural settings natural events, typically rainfalls, are used as a source of exogenous variation for household head's unemployment spells. In urban settings it is more difficult to find a valid instrument. In this paper we use trade related measures, namely export prices and measures of import penetration for the sectors in which the household head works, as a source of exogenous variation for the unemployment probability. Both instruments are

¹Clearly also their probability of finding a job is affected by general conditions, depending on the separation of the two labor markets or the substitutability of adult work with child work.

²Studies which do have access to information about children's time use (Levison, Moe and Knaul (2001), Cigno and Rosati (2005), or Emerson and Souza (2002)), show that while for girls the traditional work - school tradeoff is far from resolved, the relevant work activity to be considered in the analysis of girls' time use is house chores work.

shown to be highly correlated with unemployment spells while not being a choice variable of the worker.

We find evidence that during periods of economic deceleration unemployment spells by the household head have a negative effect on boys and girls' human capital investment. In contrast, these spells do not affect schooling progress during growth periods. Our study of labor market behavior also suggests that boys schooling failure results from their greater involvement in market activities. For girls, we do not find evidence that the failure is produced by a similar mechanism. This result is consistent with previous research where girls' time is more likely to be employed in home production. On the whole, our results indicate that during periods of economic instability, when access to credit is more difficult, households use teens' time to insure themselves against negative labor market shocks. Accordingly macroeconomic crisis and related financial market failures have important costs in terms of human capital investment by teens.

The paper proceeds as follows: in the next section we outline the macroeconomic conditions of Argentina during the period under study. Section 3 contains a description of the theoretical framework of reference. Section 4 presents the data and empirical strategy and Section 5 discusses the results followed by some concluding remarks.

2 Argentina economy and education system

2.1 The economy

After a decade of recurring debt crisis and stagnating growth, in 1991 Argentina implemented a wide ranging set of reforms such as liberalizing the country to foreign capital and trade, as well as reforming the labor market and fixing the exchange rate to the dollar. Economic opening and regional integration increased both exports and imports. In general, trade opening led to a higher surge in imports than in exports, that produced a structural negative trade balances. The currency board was partly responsible for this disappointing

performance since it kept the price of exported goods artificially high. As a matter of fact exports recovered after the 2001 crisis, supported by the strong devaluation of the local currency. The impact of the increase in imports during the 1990s was negative as a result of the industrial restructuring and a rise in labour productivity (Galiani and Hopenhayn (2003)). The unemployment rose from nearly 6% at the end of the 1980s to around 15% at the end of the 1990s and over 20% during the 2001-2002 crisis.³

Table (A-1) shows some key macroeconomic indicators over the period 1995–2002. This period is of particular interest as it includes 3 years of high growth 1996, 1997, 1998 after which Argentina entered in a prolonged recession coupled with 3 years of deflation.

2.2 The education system and child labor

Since 1884 Argentina established mandatory primary school: this involved 7 years of education for children aged 6 to 12. Secondary school (nivel medio) followed from age 13 to 17. Both primary and secondary schooling have traditionally been public and free.⁴ In 1993 the mandatory years of schooling increased from 7 to 10. Last year of pre-school at age 5 and the first two of high school (age 13 and 14) became obligatory.

Table (A-2) describes upgrading and repetition rates by grade and year. All the rates reported- promotion, repetition, lagging behind and dropping out- show a dramatic change passing from grade 7 (the old primary school - mandatory school) to grade 8 (old secondary school). However, the reform seems to have had some effect as all the rates improve over time, in spite of adverse economic conditions.

Argentinean legislation prohibits work to children younger than 14 years old (law on work contract 1976) and strictly limits the hours of work and working conditions of the children aged 14 to 17 years old. The Children's and Teenagers' Activities survey (Encuesta de Actividades de Niñas, Niños y Adolescentes, EANNA) designed to measure the incidence

³Calvo, Izquierdo and Talvi (2003) explain in detail the macroeconomic context of the crisis. For a review on the effects on workers/ households see McKenzie (2004) or Giovagnoli, Fiszbein and Adriz (2003).

⁴According to official statistics from the Argentinean Ministry of Education for the period 1996-2000, only 20% of primary school pupils and roughly 27-28% of secondary school pupils attended private schools.

of child labor in Argentina found that in 2004 6.5% of children aged 5 to 13 years old worked at least an hour in the market or doing house work, while this figure was about 20% for the children aged 14 to 17 years old. These percentages are much higher than the figures found in our sample as they include hours of homework, and they include rural areas, where helping in the parents farm is a relatively common task.

According to the EANNA, the most common activity for boys aged 5 to 17 in urban areas is to work in shops and workshops, while for girls the main occupation is housework taking care of younger children, elderly and sick persons. This is why in our analysis, we will consider primarily boys, as girls's opportunity cost of schooling is badly represented by market wage. Both home and market work clearly affect the schooling performance of children. This is evident from table (A-4) constructed with the information in our sample.⁵

3 Theoretical framework

To investigate the implications of household head unemployment on teens human capital investment we take as a theoretical framework of reference the model in Jacoby and Skoufias (1997). Consider a household i that has a single child eligible for school over a year t over the time interval $[0, T]$. Households are assumed to derive utility from household's consumption C_{it} in each period and the bequest left to the child at the end of the schooling phase. The bequest consists of a child human capital stock $H_{i,T+1}$ valued by an increasing and concave function ϕ . The optimization problem of the household is thus the following:

$$\mathbb{E}_0 \left[\sum_{t=0}^T \beta^t U(C_{it}) + \phi(H_{i,T+1}) \right] \quad (1)$$

⁵The corresponding statistics from EANNA in 2004 are broadly comparable in magnitude taking in account the fact that our data only considers market labor activities.

subject to the budget constraint

$$\mathbb{E}_0 \sum_{t=0}^T \lambda_t [C_{it} + W_t S_{it}] \leq \lambda_t Y_{it} \quad (2)$$

where S_{it} is the time-effort spent in schooling, W_t is the price of the time spent in schooling or spot market wage rate for teenagers, λ_t is the general price level and Y_{it} is total family income. Education in Argentina is free thus the only cost of schooling is represented mainly by foregone production or earnings. We assume that child wage rate differ across regions, sexes and age. In particular we define a wage rate for those kids aged 12-15, who have low human capital and experience and are subject to school obligation, and those aged 16-18 which can legally, even if with restrictions, participate in the labor market. Human capital (years of school) is accumulated according to the following technology:

$$H_{i,t+1} = g(S_{it}, H_{i,t}; \theta_{i,t}) \quad (3)$$

Maximizing (1) subject to (2) and (3), gives rise to usual Euler equation. Human capital investment is determined by its price:

$$\mathbb{E}_0 \left[- \frac{dS_{it}}{dS_{it-1}} \Big|_{H_{it+1} \rho_{it} / \rho_{it-1} (W_t / W_{t-1})} \right] = 1 \quad (4)$$

where ρ_t / ρ_{t-1} is the shadow price of consumption in period t relative to consumption in period $t - 1$.⁶ Under the assumption that there is a complete market in contingent claims, Altug and Miller (1990) show that $\rho_{it} = \eta_i \theta_t$. η is the Lagrange multiplier on the household's lifetime budget constraint, whose value is determined by the household's lifetime wealth and θ is the aggregate shock in time t . The intuition behind this result is that a complete set of contingent claims allows households to smooth their marginal utility over lifetime, except for the fact that in equilibrium they cannot insure against aggregate shocks θ . First differencing

⁶In other words ρ_t and ρ_{t-1} are the Lagrangean multipliers associated with respectively period t and $t - 1$ budget constraints.

the logarithm of ρ yields $\Delta \ln \rho_{it} = \Delta \ln \theta_t + \Delta \ln \eta_i = \Delta \ln \theta_t$. Note that λ the price level is the same for all households thus it is incorporated into the aggregate shock $\Delta \ln \theta_t$ θ captures aggregate shocks to prices and wages which are assumed to be set collectively. A natural means of testing full insurance is therefore to consider the following model:

$$\Delta \ln S = \Delta \ln W + \Delta \ln \theta + \mu K_{it} + \epsilon_{it} \quad (5)$$

where ϵ_{it} contains preference shocks and measurement error, and K_{it} represent the idiosyncratic shock to the marginal utility of wealth. Note that the above equation does not include the expectation error, as these are common to everybody and are incorporated in the aggregate shock.⁷

Equation (5) can be estimated by using a set of time dummies to capture the first difference of aggregate shocks θ . As a measure of the shock to the marginal utility of wealth we use household's head unemployment during the academic year. Household's head employment status is likely to be correlated with a household's unobserved components of tastes if they are decision variables for the household (e.g., Ham and Jacobs (2000)). This could invalidate the results of our test, to address this concern we will use instrumental variables discussed in the next section.

Under full insurance μ should be zero. Note that in the above specification we impose separability between family consumption and human capital investments. Ham and Jacobs (2000) analyze the importance of the assumption of separability between leisure and consumption decisions and conclude that separability does not significantly affect the results for full insurance test as the one presented here. This is because the effect of the omitted choice variable (omitting either leisure or consumption is equivalent to assuming separability) will be mostly captured by the time dummies. Note also that the above model is in differences and thus it does not include any variable constant over time. However, as our primary interest is to measure deviations to full insurance we include some preference shifters

⁷This is different from what one would obtain in a permanent income/rational expectations model.

in our specification. Thus our test results are conditional on a set of demographic variables such as the age of the child and the education level of the parents. This set of preference shifter allows for the possibility that the marginal utility derived from human capital investment varies considerably according to the parents' own educational attainment. Under this alternative specification the utility function (1) would then look like this:

$$\mathbb{E}_0 \left[\sum_{t=0}^T \beta^t U(C_{it}) + \phi(H_{i,T+1}) \exp(\delta_1 X_c + \delta_2 X_p) \right] \quad (6)$$

where X_c and X_p are the age of the child and the education level of the parents respectively.

The previous model suggests that if households can fully insure against risk, changes over time in teenagers' human capital investments of households who are fully sharing risk depend on changes in their collective resources, but not on changes in the distribution among them of those resources. Thus testing full risk insurance across a set of households simply requires examining cross-section correlation between their changes in educational investment and their change in resources. That is, we can estimate the relationship in (5).

4 Data and empirical strategy

Our main source of data is the Permanent Household Survey (Encuesta Permanente de Hogares, EPH) from 1995 to 2002. This is a national socio-economic survey collected by the Argentinean Statistical Institute (INDEC) in the major urban areas of Argentina. In its most recent wave the survey covers 29 urban centers, which represent 70% of urban national population and 61% of the national population.⁸ The EPH is the only survey that covers the whole country for a long period of time.

The survey is conducted twice per year, in May and October. The survey, identical in both waves, contains an individual questionnaire and a household questionnaire surveying the family characteristics and standards of living. Since the academic year in Argentina runs

⁸Note that the rural population in Argentina represents less than 10% of total population.

between March and November, the two waves contain information on schooling attendance during the third and eighth month of the academic year, respectively.

The survey is designed as a rotating panel. Each household is interviewed in four consecutive waves, after the fourth round it is removed and replaced by a new household. The design is such that in any given cross section of EPH, 25% of the households are in their first interview, 25% are in their second interview and so on. We construct two years panels following each 25% of households from March to March.

Although the length of the panel at the household level is short, the data allows us to follow teens attendance and progress in school over a year time, and at the same time track the employment and earnings experiences of their family members. The sample is restricted to young members in the household aged 12 to 18 years old over the period 1995-2002, who are enrolled, cohabit with their parents and whose household head is employed at the time of the first interview (May). Household heads who are currently unemployed in the first observation may have already experienced a shock and, therefore, be deviated from their long run path.

Our measure of interest is whether children and teenagers successfully complete the grade at which they are enrolled at the time of the first interview. We define upgrading individuals as those who in the third observation (i.e. March of the year after the household was first interviewed) declare to be enrolled in a higher grade respective to the previous year or have completed the grade they were enrolled in. To complete our empirical analysis we also track these individuals labor market behavior from the first to the third observation. For the household head we reconstruct working histories using questions on the duration of the employment or of the unemployment spell. We can therefore classify heads as always employed if in the three observations they declare to be employed and their experience or tenure in the second year is greater than in the first observation. All other cases, excluding voluntary changes in occupation, are categorized as events creating a negative shock to the

household's income.⁹ With two waves per year over 8 years, we have an average of 2,000-2,500 boys (girls) per year and thus our final sample contains roughly 8,600 observations for each gender. We do not include information in surveys before 1995 as the sample design is different and households are not easily tracked over a year time.

Tables (A-3) and (A-5) present some descriptive statistics for our sample. Table (A-3) shows the probabilities that the household head remains employed throughout the academic year by educational level. We can identify three different levels of education: only primary or less than primary education, at most secondary and more than secondary school. The probability of remaining employed increases in the educational level attained suggesting that unemployment risk and volatility is unequally distributed and that low skilled heads are more likely to experience unemployment spells. The time trend and timing of the crisis are also clear from this table. Table (A-5) shows the labor market participation rate of children younger than 15, - thus subject to the mandatory schooling rule - and older than 15, both for household heads who are always employed throughout the period examined and those who experience an unemployment spell. The table suggests that older children are much more likely to participate in market activities and that children of households heads experiencing unemployment spells have higher chances of entering the labor force. However mandatory schooling seems successful in limiting labor market participation among the youngest when the head becomes unemployed. These patterns characterize the labor market behavior of boys as well as that of girls. Thus the figures in this table indicates that the Argentinean economic crisis in the late 1990's and early 2000's seems to have interrupted the improving trend into reductions of child labor participation and school interruption. Next we explore the contribution of financial market incompleteness in explaining these trends in children and teens educational behavior.

We first focus on educational behavior and estimate a model for the probability of up-

⁹We follow the official definition of employment participation in which an individual is considered to be in the workforce if he or she was employed for 1 hour or more of paid work in the week of reference; or if he or she did work for 15 hours or more without a pay; or if he or she did not work in the reference week for reasons due to leave, vacation, strike, or illness but maintained his or her employment status.

grading. Progress to a higher grade can be thought to be a function of the child's effort spent on schoolwork. This effort, e_{it}^c , can not be observed; however it can be considered a latent variable that influences the likelihood of upgrading. Accordingly we model the upgrading probability using an indicator variable ΔS_{it}^{child} that takes value 1 if e_{it}^c exceeds an unobservable threshold and therefore the child is promoted to the next grade, and 0 otherwise. We test for credit market imperfections in a model of children's schooling progress where the employment status of the household head is included as an explanatory variable. The coefficient on this variable can be interpreted as an indicator for the presence of imperfect insurance markets.

The economic literature has widely documented that the economic behavior of children resembles that of their parents (see Mulligan (1997); Solon (1999)). Thus our empirical specification allows the unobserved factors affecting the schooling behavior of children to be correlated with those affecting the labor market behavior of the household head. Accordingly we estimate the following system of equations:

$$\Delta S_{it}^c = \begin{cases} 1 & \text{if } e_{it}^c = \alpha_S + \gamma_S E_{it}^{hh} + \beta_S \Delta \ln W_{it} + \delta_{1S} X_{ci} + \delta_{2S} X_{ip} + \varsigma_{1S} R_{it} + \varsigma_{2S} Y_{it} + \varepsilon_{it}^S > 0 \\ 0 & \text{otherwise} \end{cases} \quad (7)$$

$$E_{it}^{hh} = \begin{cases} 1 & \text{if } E_{it}^{hh} = \alpha_E + \beta_E X_{if} + \theta Z_{it} + \varsigma_{1E} R_{it} + \varsigma_{2E} Y_{it} + \varepsilon_{it}^E > 0 \\ 0 & \text{otherwise} \end{cases} \quad (8)$$

where ΔS_{it}^c is the indicator of progression in school for child i . E_{it}^{hh} is an indicator variable taking value 1 if the head in child i 's household has not experienced an unemployment spell during the academic year and 0 otherwise. We assume that the employment experiences of the household heads depend upon a vector of household characteristics, X_{if} , which include the age and educational level of the household head and his/her partner, family size, number and gender composition of household members younger than 18 years, the partner's working status in the first observation, an indicator for the presence of persons older than 60 years, a house ownership indicator and the number of rooms and other characteristics of the

house. Z_{it} refers to the variables that are used as instruments to identify the causal effect of household head unemployment. The variables in Z_{it} are carefully discussed at the end of this section.

The schooling model in equation (7) contains a vector of child’s characteristics, X_{ic} , such as child’s age and an indicator for being subject to school obligation or not. It also includes the education level of the parents, X_{ip} , to take account of differences in preferences among families. $\Delta \ln W_{it}$ accounts for the log wages of children and teens in the year of reference. This variable is included to capture the effect of changes in the opportunity cost of college. The variable is constructed as the mean wage in the individual’s cell, where cells are defined on the basis of region, gender and an indicator for whether he/she is older than the minimum school-leaving age (i.e. 15 years old). Real mean wages at the cell level are computed from the entire sample of individuals between 12 and 18 years old in the EFH survey in each semester and not just the subsample of households in our panel.¹⁰ In addition both the schooling and the employment equation include a set of year, Y_{it} , and regional dummies, R_{it} . Year dummies are used to control for the role of common aggregate shocks and to absorb potential changes in the real interest rate $r(t)$ faced by households.

Finally $\{\varepsilon_{it}^E, \varepsilon_{it}^S\}$ are the unobserved terms in the model affecting the employment status of the household head and the child’s schooling, respectively. Those factors, such as ability or preferences for studying and working, are likely to be transferred across generations. Accordingly we estimate a model that takes into account the potential correlation in the model unobservables. Under the assumption that the unobserved terms $\{\varepsilon_{it}^E, \varepsilon_{it}^S\}$ are joint normally distributed we estimate the unknown parameters in equations (8) to (7) using a bivariate probit model.

The bivariate probit model assumes that ε_{it}^E and ε_{it}^S have mean zero and variance-covariance matrix V , which has unit diagonal elements and off-diagonal elements equal

¹⁰The nominal wage for each individual in any given semester was deflated by the simple average of the value of the national consumer price index (CPI) prevailing in each month of the academic year. The monthly CPI was obtained from the INDEC website.

to $\rho_{jk} = \rho_{kj}$. In estimating the model parameters, the evaluation of the likelihood function requires the computation of bivariate normal integrals, which are approximated via the Geweke-Hajivassiliou-Keane smooth recursive simulator.¹¹

In the presence of unobserved factors shared by children and their parents, identifying the causal effect of household head's unemployment in equation (7) requires the use of instrumental variables. Here we propose the use of two alternative instruments that are denoted by Z_{it} in equation (8) and are likely to have affected the demand for labor in Argentina during the period, but not the supply side. Thus not being a choice variable for the worker. The instruments we propose are related to Argentinean trade performance. Argentina liberalized its trade regime at the beginning of the 1990's. Total trade almost quadrupled between 1990 and 1998. According to traditional trade theory, economic liberalization is meant to increase trade, accelerate technological change, efficiency gains and growth. It is argued that a more efficient allocation of resources due to trade liberalization will, in the long run, lead to increased welfare and will have a positive impact on employment as well as on poverty and inequality. However negative employment effects in specific sectors are expected during the transition period. Based on these considerations we propose two instruments.

The first instrument is an index of export prices. There are several reasons to support the conjecture that the price of Argentinean exports is determined in the worldwide market, without much influence of its own economic conditions. First, Argentina is a relatively small open country, thus it is not supposed to influence world market prices. Second, the bulk of Argentinean exports are agricultural goods, petroleum and combustibles, which are traded on relatively free international commodities markets. Last, but not least, Argentina adopted a currency board policy during the 1990's, that prevented exchange rate manipulations to favor exports.

Our measure of export prices is obtained from the Argentinean Statistics Office that provides export price indexes for major product industries. The indices are constructed in

¹¹Our empirical estimation is performed using the `myprobit` program in STATA by Capellari and Jenkins (2003).

different ways depending on the product type. For primary products or products not highly elaborated, the prices used to construct the index refer to unit values available from the customs registry for any tariff item. Primary products constitute the leading Argentinean export sectors, and can thus be decomposed in rather precise price indexes, as each product is listed under a certain tariff. For more elaborated goods, like capital goods or durable goods, customs registries cannot be used. This is because the various parts of these products, or the different models of the same product can be subject to different tariffs. Thus for these goods, the unit values reported in the customs registry can reflect both changes in export prices and the application of different tariffs. To construct price indexes for these sectors, prices of international market leaders are used. Thus for these kind of goods, only more aggregated price indexes are available.¹² For services, which are traded but lack the information on export prices we use the general export price level, meant to be valid for the whole economy's exports. Finally, for the public sector/non traded sectors, we set the export price index equal to 100. The public sector will provide us with a valuable benchmark. While our instruments are capturing the differential impact of trade across sectors, the public sector remains unaffected by any shock.¹³

The second instrument we propose is a measure of foreign competition in the industry of the household head's occupation. Foreign competition can have an impact on domestic companies, giving them incentives to increase their efficiency, restructuring and cutting working places. This relationship is empirically well established for the US. Bertrand (2004) and Revenga (1992) find a significant negative impact of import penetration on both wage and employment rates in different sectors of the US economy. In Argentina import penetration, calculated as the ratio of imports to gross product added per industry, rose from 5,7% in 1990 to 19% in 1999 for the whole manufacturing sector. Additionally there was substantial variation in import penetration across industries. For example, sectors where Argentina has

¹²These prices are already expressed in real terms referring to 1993 prices, we thus do not need to adjust for inflation.

¹³see Corbacho, Garcia-Escribano and Inchauste (2007) for an extensive analysis of the role of the public sector during Argentinean's crisis.

a comparative advantage (such as food and beverage production, petroleum distillery and non metallic products) were not very affected and by 1999 foreign industry penetration in these sectors was below 4%. Complementary evidence on the effects of foreign competition on the national market appears in Galiani and Sanguinetti (2003) who find a negative and significant relationship between import penetration and industries' prices. Moreover, since the early 1990's the Argentinean employment structure underwent important changes and unemployment tripled. Some authors have argued that part of it can be attributed to foreign competition (Galiani and Hopenhayn (2003)).

Previous evidence suggests that the important variations across industries and over time in the degree of foreign competition can be used to identify the effect of household head unemployment on children and teens' schooling performance. Measures of import penetration seem to explain employment differences across industries, however there is the risk that the competition faced by one sector or industry is partly determined by its labor force composition. It is also possible that individuals sort into industries or sectors according to the degree of foreign competition and thus the risk of becoming unemployed. To prevent these effects to distort our identification strategy we construct an index of foreign import penetration using the fixed-coefficient index approach in Katz and Murphy (1992) and Freeman (1975), (1980). This approach assumes that any increase in the volume of imports between two periods is distributed across sectors or industries following the distribution that prevailed in the initial period. Accordingly this approach captures variations in the degree of foreign competition which are exogenous to the sector's labor force composition.¹⁴ To construct the proposed measure we first predict imports by year and sector using the imports distribution across sectors that prevailed in 1993 and then divide this prediction by the gross value added by sector in the corresponding year.¹⁵ We use measures of import penetration on trade at 2

¹⁴The fixed-coefficient index approach has been widely used to study the effects of immigration on regional labor markets (Card (2001))

¹⁵Imports by sector and year are predicted by multiplying the total volume of imports in the year of interest by a factor that captures the imports' distribution across sectors in the base period. Our base period is 1993 as detailed data on import penetration was only available in this period. By 1993 the liberalization process was mostly completed and thus this year provides an accurate characterization of the new economic

digit SITC level for the manufacturing sector as available from UNCOMTRADE, data from trade in services from the IMF Balance of Payment dataset, and data on gross value added from INDEC.

Note that the model in equations (7) and (8) is in differences, thus in estimation individual characteristics constant over time drop from the error term. Accordingly our instruments will be valid as long as they are uncorrelated with children and teens' unobserved characteristics changing over time. While preferences for education and working habits might change with the economic context, they also have a large persistent component that is inherited from previous generations (Toledo (2008)) and will not immediately adjust to the new economy. However, as a robustness check for our identification strategy, we estimate the schooling model using as instrument lagged values of export prices in the sector where the household head is employed. While export prices in the previous period are likely to be correlated with the current employment level, they are certainly uncorrelated with contemporaneous idiosyncratic shocks at the individual level.

The model in equation (8) - (7) allows us to analyze the effect of household head's unemployment on children's schooling outcomes and test for the presence of credit market imperfections. To further investigate the mechanism behind this relationship we explore the implications of household head's unemployment for children and teens' labor market behavior. The labor supply of young household members can be used as an informal mechanism to insure households against unexpected and negative idiosyncratic shocks such as unemployment spells. However the time that children and teens spend on various activities such as work and school is likely to be simultaneously determined. Thus it is reasonable to expect that an increase in the number of hours a child is employed will reduce time for other activities and negatively affect their schooling outcomes.

To investigate the previous conjecture we regress the change in the child's labor market status over the academic year on the same set of explanatory variables included in the

environment.

schooling model in equation (7). The model for the change in the child’s labor market behavior is:

$$\Delta P_{it} = \alpha_P + \gamma_P E_{it}^{hh} + \beta_P \Delta \ln W_{it} + \delta_{1P} X_{ci} + \delta_{2P} X_{ip} + \varsigma_{1P} R_{it} + \varsigma_{2P} Y_{it} + \varepsilon_{it}^P \quad (9)$$

where P_{it} is an indicator value that takes value 1 if the child works in period t and 0 otherwise. Thus the dependent variable in the model can take the values -1, 0 or 1, and it is obtained from comparing the child’s labor market status in March of two consecutive years. We estimate the model in equation (9) by two-stage least squares using the previous instruments to control for the potential endogeneity of head’s unemployment.

5 Results

In this section we examine the implications of credit market imperfections for human capital investment decisions. In the presence of full insurance we expect discontinuities in the work career of the household head not to have any effect on the schooling progress of other household members. In contrast, if household do not fully share risk, interrupted work careers by the head will negatively affect the human capital investment decisions of other household members, if they have to increase their degree of labor market involvement to insure the household against income drops. To test this conjecture we first estimate the schooling model in equations (8) and (7) for all the years available in the sample. However imperfections in financial markets are likely to vary depending on the aggregate state of the economy, thus we re-estimate the schooling model separately by economic period: a) the recessionary years 1999-2002, b) the growth years 1996-1998.

We first estimate the schooling model by a multivariate probit that allows the unobserved terms in equation (7) and (8) to be correlated. The estimation results of this model for boys are displayed in Table (1). From this table the coefficient on the indicator for the absence of discontinuities in the work career of the household head is positive and statistically significant

on the children’s likelihood of upgrading for the entire period (i.e. 1995-2002). However this coefficient is imprecisely estimated when we run the model separately for the two economic periods.

As mentioned in the previous section the estimation results in Table (1) do not reflect the causal impact of household head unemployment in the presence of unobserved factors associated both with parents’ and children’s schooling and labor market performance. To account for the potential endogeneity of parental unemployment we jointly estimate equation (8)-(7) using a multivariate probit model that includes as exclusion restrictions in the equation for the employment situation of the household head the instrumental variables discussed in the previous section. Table (2) presents the estimation procedure that uses the export price index as instrument.¹⁶ The upper part of the table indicates that the export price index is statistically correlated with the head employment status both when the model is estimated on the entire period and when is estimated separately for the growth and crisis years. We take this result and the discussion about the validity of our instruments reported in the previous section as evidence that the export price index satisfies the conditions required to identify the effect of head’s job losses on schooling progress.

The lower part of Table 2 corresponds to the estimates of the schooling equation. When the model is estimated using all the years, the adjusted coefficient on the indicator variable for the employment status of the household head reveals a statistically significant and positive effect of continuous work careers on the upgrading probability of the child. To assess the magnitude of this effect we report the average marginal effect on the upgrading probability conditional on changes in the head’s labor market status. This figure indicates that if the head is continuously employed during the academic year the child’s probability of upgrading increases by 0.154 points, and this effect is statistically significant at the 10% level of significance.¹⁷ Considering separately crisis and growth years reveals that the coefficient on

¹⁶Using as instrument the degree of import penetration in the sector in which the head is working at the beginning of the period does not affect our main conclusions. These results are available upon request from the author.

¹⁷The standard errors of the average marginal effects are computed using the delta method. We are

head's employment status is only statistically significant when the model is estimated on the recessionary period. The average marginal effect on the upgrading probability during the crisis years is slightly above the effect estimated on the entire period (i.e. 0.169 points). Thus employment interruptions by the household head negatively affect the schooling behavior of boys only during recessionary periods.¹⁸

For comparison purposes the schooling model has also been estimated as a linear probability model adjusting the endogeneity of household head unemployment by conventional instrumental variable techniques. The results of this model are displayed in Table (3). While the linear probability model is less efficient than the multivariate probit, the former is still consistent when the unobserved terms in the model are not normally distributed. A comparison of Table (2) and (3) indicates that the results are similar under the two estimation strategies.

Our results are consistent with estimates by Duryea et al. (2007) for younger children in Brazil. Her estimates over the 1980s and the 1990s of an unemployment spell during the academic year for children age 10 to 15 years old is about 0.09 points. This is comparable to our results taking into account that children in our sample are older.

The other estimated coefficients in Table 2 are consistent with previous results in the literature. From the employment equation it seems that more educated workers are less likely to suffer unemployment spells. Though the corresponding coefficients are not reported in the table, we also find evidence that the characteristics of the spouse, in particular his/her education and labor market attachment, are important determinants of the head's employment status. Accordingly household heads whose spouses have higher levels of education are less likely to suffer unemployment spells, while household heads whose spouse is actively participating in market activities are associated with a higher probability of suffering unemployment spells. These results are consistent with recent models in the economics of the family in which spousal human capital and labor supply are viewed as an insurance mecha-

grateful to Anna Sanz-de-Galdeano for her advice on this matter.

¹⁸The growth years considered discard 1995 when Argentina suffered from the Mexican Tequila crisis.

nism against negative shocks to the household (see Cullen and Gruber (2000) for an extensive survey). The employment model contains some variables such as the characteristics of the house and the type of tenancy that we use to proxy the long term economic situation of the family. The coefficients on these variables indicate that heads who own a house or live in bigger houses are less likely to suffer an unemployment spell, reflecting the greater labor market stability of those individuals living in favorable economic environments. Finally the year dummies included to capture the effect of aggregate economic conditions clearly reflect the negative effect of the crisis on the individual employment prospects during the early 2000's.

The estimates of the schooling model indicate that children with more educated parents have higher chances of being successful at school and less likely to participate in market activities. This result indicates that intergenerational mobility, at least in education, is low in Argentina. Finally the coefficient on the variable capturing changes in wages is negatively correlated with the probability of schooling progress. This is evidence that teens' educational choices respond to the opportunity cost of staying at school. Accordingly an increase in the opportunity cost of school, as measured by the wage rate, increases the chances that individuals drop out from school to participate in market activities.

The most important feature in table 2 is the negative response of children's school progress to household's idiosyncratic shocks during recessionary periods. This finding clearly lead us to reject the full market insurance hypothesis in periods of aggregate instability. We now investigate the potential mechanisms behind the observed academic failure. The data allows us to explore whether it is due to a reduction in schooling effort motivated by a higher degree of children's labor market involvement. To investigate this possibility we estimate the model in equation (9).

Table (4) reports the OLS and the IV estimates of the linear probability model for boys' labor market involvement. The OLS estimates do not identify any statistical relevant effect of household head unemployment on children's labor market behavior. However, this does

not seem to be the case when the endogeneity of the head’s employment status is taken into account. The IV results in the table correspond to the estimation that uses as exclusion restriction the export price index. As expected the first stage regression, in the appendix, indicates that the export price indicator has a negative and statistically significant effect on the probability that the head is continuously employed during the academic year. The second step of the instrumental variables procedure, in Table (4), reveals that the absence of employment interruptions by the head during the academic year has a negative sizeable and statistically significant effect on the labor market participation of children during recessionary periods. The point estimate on the head’s employment status variable indicates that the probability of the child being in the labor market at the beginning of the next academic year is reduced by 0.219 points if the head has experienced a continuous work career during the current academic year. This effect is comparable to the estimates in Duryea et al. (2007) for Brazil, where she finds that negative idiosyncratic income shocks are associated with an increase of 0.18 points in the child’s probability to enter the labor market. Also in this case the effect is only statistically significant during the crisis years suggesting that in moments of general economic distress, when insurance markets fail, households turn to self insuring strategies resorting to children work.

A striking result from table (4) is that wages do not seem to provide any incentive to enter the labor market. It is rather the educational level of the parents the most significant variables associated with children labor market activities. Parental education can be interpreted as a proxy for permanent income. Thus the previous result suggests that the decision to let children participate in the labor market is more related to credit constraints or financial difficulties than to the opportunity cost of schooling.

As our model in equations (7) or (9) is in differences, permanent unobserved factors difference out, and thus individuals choosing a sector on the basis of their permanent tastes will not cause endogeneity problems. However, as our preferred instrument export prices by sectors, one might argue that individuals might shift sector of employment because of

a temporary taste shock. To address this problem we also estimate all the equations using as instrument the lagged export index price.¹⁹ Results from this instruments are basically coincident with the ones reported in the appendix for the contemporaneous export price index.

Finally, we estimate the same schooling and labor supply model for girls. Table (5) presents the estimates for the schooling advancement. The estimated marginal effect indicates that the upgrading probability increases on average by 0.154 points when the household head is continuously employed during crisis. The results also indicates that employment experiences by the head do not affect girls' schooling outcomes during growth periods. Accordingly the educational behavior of girls also suggests the presence of credit market imperfections during periods of aggregate economic distress. We do not find any effect of the head's employment status on girls labor supply both during growth and recessionary periods. This evidence support the conjecture that girls' time out of school during recessions is employed in non market activities.

Our empirical findings reveal important adverse effects on human capital accumulation by Argentinean youth due to the presence of credit market imperfections during the economic crisis of the late 1990's and early 2000's. We find evidence that household heads' job losses were associated with higher levels of labor market involvement for boys, which then reduced their schooling performance. For girls unemployment spells by the head also led to reductions in schooling effort and upgrading probabilities, however, girls' time was most likely employed in home rather than market production. Our results suggests potential mechanisms to understand the poor schooling performance of Argentinean children and teens during recessionary years.

¹⁹Note that the import penetration instrument is constructed using the method of the fixed coefficients, and thus already takes in account this problem.

6 Conclusions

This paper examines the implications of credit market failures for human capital investment decisions in Argentina during the period from 1995 to 2002. Our results suggest a remarkable negative and statistically significant effect of household heads' work career interruptions on the schooling progress of children during years of economic distress. We also find evidence that during periods of economic instability, in response to household head unemployment shocks, boys increase their involvement in labor market activities whereas girls seem to increase participation in home production. We interpret these results as evidence that during the Argentinean economic recession between 1999 and 2002, credit markets collapsed significantly affecting households' insurance strategies and investment decisions.

Our findings indicate that macroeconomic crises can potentially have a persistent effect on the well-being of subsequent generations. If children left behind as a result of parental job losses do not catch up with their cohort counterparts, macroeconomic shocks will have a persistent effect on the level of inequality of younger generations. Therefore policies designed to protect and boost the schooling enrollment of children during periods of economic turbulence would be desirable to prevent temporary shocks affecting the current working population to have a permanent effect on subsequent generations.

Table 1: Schooling advancement BOYS

	all years 1995-2002		Crisis 1999-2002		Growth 1996-1998	
Equation 1 : employment status of the household head E_{it}						
age hh	0.041*	(0.022)	0.013	(0.032)	0.02	(0.035)
age2 hh	0.000*	(0.000)	0.000	(0.000)	0.000	(0.000)
hh no educ	-0.509***	(0.168)	-0.293	(0.250)	-0.722**	(0.297)
hh primary	-0.128**	(0.060)	-0.071	(0.087)	-0.099	(0.095)
hh second	-0.068	(0.056)	0.102	(0.081)	-0.162*	(0.088)
gender hh	-0.092	(0.086)	-0.338***	(0.119)	0.142	(0.141)
room	0.013	(0.009)	0.075***	(0.023)	-0.012	(0.011)
owner	0.080*	(0.048)	0.06	(0.073)	0.159**	(0.073)
cat60	-0.095	(0.065)	-0.071	(0.103)	-0.128	(0.098)
size fam	-0.020**	(0.010)	-0.023*	(0.014)	-0.009	(0.016)
tot18	0.001	(0.004)	-0.005	(0.007)	0.005	(0.006)
sp no educ	-0.381**	(0.157)	-0.254	(0.229)	-0.228	(0.289)
spouse prim	-0.169**	(0.066)	-0.218**	(0.096)	-0.158	(0.105)
spouse sec	-0.105*	(0.060)	-0.183**	(0.087)	-0.003	(0.096)
work sp	-0.084**	(0.038)	-0.09	(0.057)	-0.117*	(0.061)
d96	-0.099	(0.065)			-0.051	(0.066)
d97	-0.041	(0.071)				
d98	-0.043	(0.071)			-0.004	(0.068)
d99	-0.136**	(0.069)	0.199***	(0.067)		
d00	-0.133*	(0.069)	0.201***	(0.067)		
d01	-0.340***	(0.067)				
d02	-0.189**	(0.075)	0.134*	(0.074)		
reg dumm	YES		YES		YES	
Equation 2 : School promotion						
E_{it}	0.471**	(0.232)	0.459	(0.385)	0.116	(0.140)
marginal effects	0.153**	(0.065)	0.143	(0.102)	0.034	(0.040)
age	-0.948***	(0.145)	-1.095***	(0.223)	-0.869***	(0.224)
age2	0.029***	(0.005)	0.034***	(0.008)	0.027***	(0.008)
schoolk	0.018	(0.064)	0.037	(0.099)	0.107	(0.099)
hh no educ	-0.469***	(0.162)	-0.540**	(0.231)	-0.526*	(0.293)
hh primary	-0.265***	(0.054)	-0.299***	(0.080)	-0.268***	(0.082)
hh second	-0.117**	(0.051)	-0.156**	(0.075)	-0.114	(0.079)
sp no educ	-0.334***	(0.061)	-0.355***	(0.088)	-0.303***	(0.097)
sp primary	-0.239***	(0.059)	-0.215**	(0.087)	-0.274***	(0.093)
sp second	-0.168***	(0.055)	-0.149*	(0.080)	-0.203**	(0.087)
d96	0.144***	(0.054)			-0.100*	(0.056)
d97	0.245***	(0.057)			0.285***	(0.066)
d98	0.498***	(0.061)				
d99	0.370***	(0.061)				
d00	0.286***	(0.060)	0.089	(0.064)		
d01	0.277***	(0.061)	-0.003	(0.064)		
d02	0.245***	(0.067)	-0.028	(0.070)		
$\Delta \ln W$	-0.122*	(0.069)	-0.071	(0.089)	-0.315**	(0.126)
reg dumm	YES		YES		YES	
$\rho_{1,2}$	-0.230*	(0.127)	0.096	(0.072)	-0.045	(0.066)
Nr obs	8597		3821		3679	

Table 2: Schooling advancement BOYS; biprobit results

	all years 1995-2002		Crisis 1999-2002		Growth 1996-1998	
Equation 1 : employment status of the household head E_{it}						
exprice	-0.004 ***	(0.000)	-0.004 ***	(0.001)	-0.003 ***	(0.001)
age hh	0.036	(0.022)	0.024	(0.032)	0.015	(0.035)
age2 hh	0.000	(0.000)	0.000	(0.000)	-0.000	(0.000)
hh no educ	-0.446 ***	(0.169)	-0.134	(0.252)	-0.663 **	(0.297)
hh primary	-0.072	(0.061)	0.002	(0.089)	-0.051	(0.097)
hh second	-0.025	(0.057)	0.149 *	(0.082)	-0.122 *	(0.090)
gender hh	-0.116	(0.082)	-0.260 **	(0.112)	-0.092 **	(0.135)
Family char.	YES		YES		YES	
reg dumm	YES		YES		YES	
time dumm	YES		YES		YES	
Equation 2 : School promotion						
E_t	0.474	(0.329)	0.533 *	(0.305)	-0.168	(0.576)
Marg eff	0.154*	(0.092)	0.169 **	(0.080)	-0.046	(0.170)
age	-0.956 ***	(0.145)	-1.081 ***	(0.222)	-0.869 ***	(0.225)
age2	0.029 ***	(0.005)	0.034 ***	(0.008)	0.027 ***	(0.008)
school obl.	0.018	(0.064)	0.036	(0.097)	0.105	(0.099)
hh no educ	-0.465 ***	(0.169)	-0.456 *	(0.234)	-0.589 *	(0.311)
hh primary	-0.263 ***	(0.055)	-0.275 ***	(0.081)	-0.272 ***	(0.083)
hh second.	-0.110 **	(0.050)	-0.166 **	(0.074)	-0.114	(0.079)
m. no educ	-0.334 ***	(0.061)	-0.342 ***	(0.087)	-0.298 ***	(0.097)
m. primary	-0.237 ***	(0.060)	-0.175 **	(0.088)	-0.281 ***	(0.093)
m. second.	-0.167 ***	(0.055)	-0.119	(0.081)	-0.201 **	(0.087)
$\Delta \ln W$	-0.125 *	(0.069)	-0.069	(0.088)	-0.313 **	(0.125)
reg dumm	YES		YES		YES	
time dumm	YES		YES		YES	
$\rho_{1,2}$	-0.238	(0.186)	-0.264	(0.177)	0.111	(0.322)
Nr obs	8597		3821		3679	

Table 3: Schooling advancement BOYS: IV estimates

	all years 1995-2002		Crisis 1999-2002		Growth 1996-1998	
Equation 2 : Schooling advancement BOYS						
E_{it}	0.204*	(0.111)	0.257**	(0.123)	0.057	(0.205)
age	-0.255***	(0.044)	-0.282***	(0.065)	-0.230***	(0.067)
age2	0.008***	(0.002)	0.009***	(0.002)	0.007***	(0.002)
school obl.	0.012	(0.022)	0.020	(0.033)	0.042	(0.032)
hh no educ	-0.144**	(0.061)	-0.133	(0.085)	-0.166	(0.106)
hh primary	-0.074***	(0.015)	-0.072***	(0.022)	-0.077***	(0.022)
hh second	-0.029**	(0.013)	-0.043**	(0.019)	-0.030	(0.021)
m. no educ	-0.092***	(0.016)	-0.093***	(0.023)	-0.082***	(0.025)
m. primary	-0.059***	(0.016)	-0.033	(0.023)	-0.073***	(0.024)
m. second.	-0.040***	(0.014)	-0.022	(0.020)	-0.052**	(0.021)
$\Delta \ln W$	-0.037*	(0.020)	-0.022	(0.025)	-0.092***	(0.035)
reg dumm	YES		YES		YES	
time dumm	YES		YES		YES	
Nr obs	8597		3821		3679	

Table 4: Labor participation BOYS

	All years 1995-2002		Crisis years 1999-2002		Growth years 1996-1999	
	OLS	IV	OLS	IV	OLS	IV
E_t	-0.003 (0.009)	-0.279*** (0.076)	-0.007 (0.012)	-0.278*** (0.079)	0.015 (0.013)	-0.192 (0.156)
age	-0.075** (0.033)	-0.081** (0.034)	-0.133*** (0.045)	-0.141*** (0.048)	-0.06 (0.056)	-0.070 (0.057)
age2	0.003** (0.001)	0.003*** (0.001)	0.005*** (0.002)	0.005*** (0.002)	0.003 (0.002)	0.003 (0.002)
school	0.013 (0.015)	0.013 (0.015)	0.000 (0.019)	0.001 (0.021)	0.019 (0.025)	0.019 (0.025)
hh no educ	0.135*** (0.041)	0.089** (0.045)	0.188*** (0.066)	0.155** (0.072)	0.076 (0.061)	0.035 (0.065)
hh primary	0.040*** (0.009)	0.030*** (0.009)	0.045*** (0.011)	0.034*** (0.013)	0.039*** (0.014)	0.035** (0.014)
hh second.	0.011* (0.007)	0.006 (0.007)	0.014 (0.009)	0.016 (0.010)	0.012 (0.011)	0.005 (0.013)
m. no educ	0.036*** (0.010)	0.035*** (0.010)	0.035*** (0.013)	0.032** (0.014)	0.035** (0.017)	0.037** (0.018)
m. primary	0.008 (0.009)	-0.001 (0.010)	-0.005 (0.012)	-0.020 (0.013)	0.009 (0.016)	0.004 (0.017)
m. second.	0.005 (0.007)	-0.001 (0.008)	0.004 (0.009)	-0.007 (0.010)	0.012 (0.013)	0.013 (0.014)
$\Delta \ln W$	-0.007 (0.011)	-0.006 (0.011)	0.008 (0.012)	0.007 (0.014)	-0.002 (0.024)	-0.000 (0.024)
reg. dummies	yes	yes	yes	yes	yes	yes
year dummies	yes	yes	yes	yes	yes	yes
Nr.obs	8600	8600	3822	3822	3680	3680
R-squared	0.0241		0.0323		0.0252	
F-value	6.84	11.90	4.16	4.39	8.82	3.22

Note: in the IV regression household head employment status is instrumented with the same variables of the schooling equation.

Table 5: Schooling advancement GIRLS

	all years 1995-2002		Crisis 1999-2002		Growth 1996-1998	
Equation 2 : Schooling advancement GIRLS						
Eprice	-0.004 ***	(0.000)	-0.004 ***	(0.001)	-0.003 ***	(0.001)
age hh	0.041 *	(0.021)	-0.012	(0.033)	0.027	(0.036)
age hh2	0.000 *	(0.000)	0.000	(0.000)	0.000	(0.000)
hh no edu	-0.319 *	(0.174)	-0.393	(0.255)	-0.357	(0.287)
hh primary	-0.108 *	(0.063)	-0.022	(0.091)	-0.167	(0.103)
hh second	-0.109 *	(0.058)	-0.034	(0.083)	-0.139	(0.096)
gender hh	-0.053	(0.084)	-0.205 *	(0.122)	0.171	(0.138)
Family char.	YES		YES		YES	
reg dumm	YES		YES		YES	
time dumm	YES		YES		YES	
Equation 2 : School promotion						
E_t	0.882 ***	(0.207)	0.533 *	(0.273)	0.329	(0.498)
Marg eff	0.287 ***	(0.050)	0.154 **	(0.063)	0.094	(0.126)
age	-0.585 ***	(0.144)	-0.959 ***	(0.233)	-0.290	(0.229)
age2	0.014 ***	(0.005)	0.027 ***	(0.008)	0.004	(0.008)
school obl.	-0.291 ***	(0.065)	-0.286 ***	(0.102)	-0.242 **	(0.104)
hh no educ	-0.164	(0.171)	0.401	(0.329)	-0.430	(0.282)
hh primary	-0.159 ***	(0.056)	-0.202 **	(0.084)	-0.216 **	(0.094)
hh second.	-0.061	(0.052)	-0.083	(0.079)	-0.147 *	(0.088)
m. no educ	-0.298 ***	(0.063)	-0.326 ***	(0.093)	-0.246 **	(0.104)
m. primary	-0.21 ***	(0.062)	-0.212 **	(0.097)	-0.198 **	(0.098)
m. second.	-0.227 ***	(0.057)	-0.207 **	(0.087)	-0.224 **	(0.092)
$\Delta \ln W$	0.158 **	(0.070)	0.191 **	(0.091)	-0.085	(0.133)
reg dumm	YES		YES		YES	
time dumm	YES		YES		YES	
$\rho_{1,2}$	-0.471 ***	(0.132)	-0.263	(0.162)	-0.132	(0.271)
Nr obs	8597		3821		3679	

Table 6: Labor participation GIRLS

	All years 1995-2002		Crisis years 1999-2002		Growth years 1996-1999	
	OLS	IV	OLS	IV	OLS	IV
E_{it}	-0.001 (0.006)	-0.031 (0.044)	-0.005 (0.008)	-0.037 (0.044)	-0.004 (0.010)	0.03 (0.103)
age	-0.038 (0.026)	-0.039 (0.026)	-0.058 (0.036)	-0.058 (0.036)	-0.041 (0.041)	-0.038 (0.042)
age2	0.002 (0.001)	0.002 * (0.001)	0.002 * (0.001)	0.002 * (0.001)	0.002 (0.001)	0.002 (0.002)
school obl	-0.005 (0.011)	-0.005 (0.011)	-0.002 (0.015)	-0.002 (0.015)	0.000 (0.017)	-0.001 (0.017)
hh no educ	0.010 (0.037)	0.007 (0.037)	0.073 (0.045)	0.068 (0.046)	-0.01 (0.075)	-0.007 (0.077)
hh primary	0.021 *** (0.007)	0.02 *** (0.007)	0.027 ** (0.011)	0.025 ** (0.011)	0.019 * (0.010)	0.021 (0.012)
hh second	0.005 (0.006)	0.004 (0.006)	0.008 (0.009)	0.006 (0.009)	0.003 (0.009)	0.004 (0.010)
m. no educ	0.009 (0.008)	0.009 (0.008)	0.007 (0.011)	0.007 (0.012)	0.019 (0.014)	0.018 (0.014)
m. primary	-0.005 (0.007)	-0.007 (0.007)	-0.021 ** (0.011)	-0.023 ** (0.011)	0.006 (0.011)	0.007 (0.011)
m. second	-0.001 (0.006)	-0.001 (0.006)	-0.004 (0.009)	-0.004 (0.009)	0.006 (0.010)	0.005 (0.011)
$\Delta \ln W$	-0.008 (0.008)	-0.008 (0.008)	0.003 (0.010)	0.003 (0.010)	-0.030 (0.019)	-0.031 (0.019)
reg dummies	yes	yes	yes	yes	yes	yes
year dummies	yes	yes	yes	yes	yes	yes
Nr.obs	8528	8528	3769	3769	3584	3584
R-squared	0.0159		0.0218		0.0161	
F-value	0.00	0.00	0.00	0.00	0.00	0.00

Note: in the IV regression household head employment status is instrumented with the same variables of the schooling equation.

APPENDIX A - Data appendix

Table A-1: Macroeconomic summary

Indicator	1995	1996	1997	1998	1999	2000	2001	2002
Real GDP growth	-2.8	5.5	8.1	3.9	-3.4	-0.8	-4.4	-10.9
Urban unempl, Oct.	16.6	17.3	13.7	12.4	13.8	14.7	18.3	17.8
Consumer Price Index	3.4	0.2	0.5	0.9	-1.2	-0.9	-1.1	25.9
Imports growth	-9.8	17.5	26.9	8.4	-11.3	-0.2	-13.9	-50.1
Exports growth	22.5	7.6	12.2	10.6	-1.3	2.7	2.7	3.1
Export price index	108.8	115.9	111.9	100.3	89.1	98.0	94.7	91.0

Source: INDEC. All indicators except export price index are in percentage.

Export price index refers to 1993= 100.

Table A-2: Educational statistics by grade years 1996-2002.

promotion rates by grade and year												
	mandatory schooling - EGB									Polimodal		
	gr. 1	gr. 2	gr. 3	gr. 4	gr. 5	gr. 6	gr. 7	gr. 8	gr. 9	gr.10	gr.11	gr.12
1996	88.34	91.03	92.67	93.06	93.28	93.62	92.11	67.19	68.32	78.46	85.21	72.85
1997	88.57	91.77	93.04	93.69	93.83	93.38	99.27	76.79	68.08	81.84	86.43	73.40
1998	88.15	91.97	92.50	93.42	93.69	93.50	99.02	76.35	77.08	81.39	86.88	74.39
1999	87.59	91.76	92.61	93.19	93.33	92.88	96.52	78.97	76.35	80.86	88.52	74.16
2000	87.11	91.62	92.46	92.85	93.26	90.66	94.55	79.16	75.86	79.18	84.33	65.23
2001	86.88	91.71	92.50	93.07	93.60	92.79	93.17	80.30	80.13	80.51	85.07	77.11
2002	86.92	91.64	92.47	92.68	93.08	92.87	92.66	79.77	79.84	77.40	81.95	77.17
repetition rates by grade and year												
	mandatory schooling - EGB									Polimodal		
	gr. 1	gr. 2	gr. 3	gr. 4	gr. 5	gr. 6	gr. 7	gr. 8	gr. 9	gr.10	gr.11	gr.12
1996	9.13	7.37	5.64	4.92	3.91	3.03	2.03	10.79	13.91	9.07	5.21	1.12
1997	9.00	6.76	5.64	4.55	3.77	2.97	2.64	11.63	12.11	9.51	4.86	1.06
1998	9.51	6.76	6.26	5.02	4.20	3.44	3.48	11.42	9.87	8.95	4.76	0.95
1999	9.93	7.06	6.10	5.23	4.61	3.78	4.41	10.69	9.51	8.09	3.95	0.99
2000	10.38	7.25	6.38	5.56	4.72	3.87	5.14	10.81	9.26	8.23	5.73	0.83
2001	9.94	7.05	6.15	5.20	4.30	3.60	5.07	9.70	8.01	7.24	5.31	0.78
2002	9.95	7.05	6.17	5.53	4.70	3.82	5.70	10.35	8.85	8.42	6.40	0.55
percentage of lagging behind children - older than the "on-time" age												
	mandatory schooling - EGB									Polimodal		
	gr. 1	gr. 2	gr. 3	gr. 4	gr. 5	gr. 6	gr. 7	gr. 8	gr. 9	gr.10	gr.11	gr.12
1996	13.57	20.31	23.10	25.11	25.29	25.62	26.56	40.39	42.05	38.76	37.13	32.00
1997	13.6	20.3	23.1	25.1	25.3	25.6	26.6	40.4	42.1	38.8	37.1	32.0
1998	14.5	18.9	23.3	25.1	26.4	26.1	26.4	38.1	40.7	40.1	36.7	33.3
1999	15.1	19.2	21.1	23.9	24.7	25.7	26.2	36.0	36.9	40.2	37.4	32.5
2000	15.1	20.1	21.8	22.4	24.4	25.1	27.3	34.8	35.5	37.8	37.3	33.8
2001	15.09	20.17	23.07	23.79	23.59	25.03	27.85	35.14	35.16	37.59	36.66	34.00
2002	16.31	20.80	23.91	25.55	25.63	25.12	28.58	35.14	35.78	37.84	36.69	32.91
percentage of drop outs by grade and year												
	mandatory schooling - EGB									Polimodal		
	gr. 1	gr. 2	gr. 3	gr. 4	gr. 5	gr. 6	gr. 7	gr. 8	gr. 9	gr.10	gr.11	gr.12
1996	2.53	1.60	1.69	2.02	2.81	3.34	5.86	22.03	17.77	12.46	9.57	26.03
1997	2.42	1.47	1.32	1.76	2.41	3.65	-1.91	11.58	19.81	8.65	8.72	25.53
1998	2.34	1.27	1.24	1.56	2.11	3.06	-2.51	12.23	13.05	9.66	8.36	24.66
1999	2.48	1.18	1.29	1.59	2.06	3.34	-0.94	10.34	14.13	11.06	7.53	24.85
2000	2.51	1.12	1.15	1.59	2.02	5.46	0.31	10.03	14.88	12.59	9.94	33.94
2001	3.18	1.25	1.35	1.73	2.11	3.61	1.76	10.00	11.86	12.24	9.62	22.11
2002	3.12	1.31	1.36	1.79	2.21	3.31	1.64	9.87	11.31	14.18	11.66	22.29

Source: Ministry of Education of Argentina

Table A-3: Percentage of household heads not suffering unemployment spells during the year by level of education.

year	primary school	secondary school	tertiary education
1995	86.25	87	94.49
1996	84.62	85.74	89.32
1997	86.42	86.44	91.59
1998	84	87.79	89.16
1999	80.36	85.67	87.5
2000	79.46	85.15	88.44
2001	73.85	82.33	88.01
2002	82.80	85.27	87

Table A-4: School promotion by labor market participation, BOYS. Years 1995-2002

year	<i>younger than 15 years</i>		<i>older than 15 years</i>	
	Non active	Active	Non active	Active
1995	73.42	41.53	65.10	40.57
1996	77.87	66.66	68.40	50
1997	80.61	72	72.09	61.53
1998	84.76	74.41	79.73	74.66
1999	83.23	73.80	76.58	65.71
2000	81.85	56.25	73.77	65
2001	80.66	53.57	73.77	72.13
2002	79.44	64.70	75.56	59.52

Table A-5: Sample statistics

Percentage of labor force participation								
year	HH HEAD ALWAYS EMPLOYED				HH HEAD NOT ALWAYS EMPLOYED			
	<i>younger than 15</i>		<i>older than 15</i>		<i>younger than 15</i>		<i>older than 15</i>	
	female	male	female	male	female	male	female	male
1995	2.05	6.88	16.28	15.78	0	16.85	20	31.91
1996	2.59	6.35	10.59	22	4.27	6.73	13.69	17.14
1997	2.50	5.99	11.23	23.10	3.12	7.54	14	25.64
1998	3.17	5.68	11.11	20.88	2.70	4.21	13.46	14
1999	2.54	8.03	13.11	19.41	2.41	5.02	11.11	17.77
2000	2.39	3.66	9.15	15.22	4.13	8.10	10	30.43
2001	1.19	4.04	10.50	15.86	2.23	2.85	9.67	23.80
2002	1.22	3.29	7.27	16.50	1.31	5.71	14.28	13.95

Percentage of school progress								
year	HH HEAD ALWAYS EMPLOYED				HH HEAD NOT ALWAYS EMPLOYED			
	<i>younger than 15</i>		<i>older than 15</i>		<i>younger than 15</i>		<i>older than 15</i>	
	female	male	female	male	female	male	female	male
1995	77.27	70.53	60.28	62.53	72.81	73.03	62.5	55.31
1996	81.85	76.98	70.28	64.54	77.77	76.92	75.34	61.42
1997	84.63	80.65	76.96	70.21	81.25	75.47	72	64.10
1998	86.32	84.48	80.99	83.78	80.23	83.15	75	86
1999	83.81	82.74	82.89	77.02	87.09	84.82	79.36	64.44
2000	81.54	82	81.01	71.97	82.06	74.77	84	69.56
2001	83.10	79.57	78.59	75.64	80.59	80.71	70.96	65.07
2002	86.24	79.74	80.90	72.51	73.68	80	65.71	72.09

Table A-6: First stage BOYS

	all years 1995-2002		Crisis 1999-2002		Growth 1996-1998	
Equation 1 : Employment status household head E_{it}						
Eprice	-0.001***	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)
age hh	0.006	(0.006)	0.003	(0.009)	0.005	(0.010)
age2hh	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)
hh no educ	-0.124**	(0.054)	-0.053	(0.073)	-0.135	(0.116)
hh primary	-0.012	(0.014)	0.002	(0.021)	-0.024	(0.023)
hh second	0.000	(0.012)	0.037**	(0.018)	-0.028	(0.022)
gender hh	-0.027	(0.020)	-0.056**	(0.026)	0.042	(0.039)
nrs room	0.004	(0.006)	0.017***	(0.006)	-0.006**	(0.003)
house owner	0.020*	(0.011)	0.017	(0.018)	0.067***	(0.022)
nr pensioners	-0.024	(0.016)	-0.023	(0.026)	-0.026	(0.029)
size family	-0.004	(0.002)	-0.007*	(0.004)	0.000	(0.004)
nr kids j= 18 yrs	0.000	(0.001)	-0.001	(0.002)	0.000	(0.001)
m no educ	-0.037*	(0.022)	-0.058*	(0.031)	0.039	(0.043)
m primary	-0.038**	(0.015)	-0.046**	(0.022)	-0.023	(0.028)
m second	-0.022*	(0.013)	-0.037*	(0.019)	0.018	(0.025)
m works	-0.017*	(0.009)	-0.02	(0.014)	-0.034**	(0.017)
d96	-0.01	(0.014)			0.000	(0.000)
d97	0.01	(0.015)			-0.003	(0.014)
d98	0.012	(0.015)			0.000	(0.000)
d99	-0.023	(0.015)	0.033**	(0.017)		
d00	-0.009	(0.015)	0.050***	(0.017)		
d01	-0.060***	(0.016)	0.000	(0.000)		
d02	-0.027	(0.017)	0.027	(0.019)		
reg dumm.	YES		YES		YES	
Obs	8600		3822		2253	
R^2	0.0279		0.0422		0.0277	

Table A-7: First stage GIRLS

	all years 1995-2002		Crisis 1999-2002		Growth 1996-1998	
Equation 1 : Employment status household head E_{it}						
Eprice	-0.001***	(0.000)	-0.001***	(0.000)	0.000***	(0.000)
age hh	0.006	(0.006)	-0.006	(0.009)	0.004	(0.011)
age2 hh	0	(0.000)	0	(0.000)	0	(0.000)
hh no educ	-0.083	(0.051)	-0.11	(0.086)	0.067	(0.068)
hh primary	-0.024*	(0.013)	0	(0.020)	-0.042*	(0.023)
hh second	-0.021*	(0.012)	-0.002	(0.018)	-0.033	(0.021)
gender hh	-0.016	(0.018)	-0.055**	(0.024)	0.082**	(0.039)
Nrs room	0.006**	(0.003)	0.012**	(0.006)	0.003	(0.002)
home owner	0.036***	(0.012)	0.082***	(0.021)	0.025	(0.022)
nrs pensioners	-0.030*	(0.017)	-0.051*	(0.028)	-0.068**	(0.031)
size family	-0.010***	(0.002)	-0.014***	(0.004)	-0.002	(0.004)
nrs kids <= 18 yrs	-0.001	(0.001)	-0.003*	(0.002)	0.001	(0.002)
m no educ	-0.034	(0.021)	-0.088***	(0.030)	0.067*	(0.041)
m. primary	-0.050***	(0.014)	-0.079***	(0.023)	-0.03	(0.028)
m. second	-0.01	(0.013)	-0.024	(0.019)	0.04	(0.025)
m. works	-0.026***	(0.009)	-0.041***	(0.015)	-0.026	(0.017)
d96	-0.015	(0.014)			0	(0.000)
d97	0.014	(0.014)			0.012	(0.014)
d98	0.003	(0.015)			0	(0.000)
d99	-0.052***	(0.015)	0.012	(0.017)		
d00	-0.047***	(0.015)	0.019	(0.017)		
d01	-0.065***	(0.016)	0	(0.000)		
d02	-0.022	(0.016)	0.039**	(0.018)		
reg dumm.	YES		YES		YES	
Obs	8528		3769		2274	
R^2	0.0386		0.0602		0.0292	

References

- Altug, S. and Miller, R. A. (1990), ‘Household Choices in Equilibrium’, *Econometrica* **58**(3), 543–570.
- Attanasio, O. and Székely, M. (2004), ‘Wage shocks and consumption variability in Mexico during the 1990s’, *Journal of Development Economics* **73**, 1–25.
- Bertrand, M. (2004), ‘From the Invisible Handshake to the Invisible Hand? How Import Competition Changes the Employment Relationship’, *Journal of Labor Economics* **22**, 723.
- Calvo, G., Izquierdo, A. and Talvi, E. (2003), Sudden stops, the real exchange rate and fiscal sustainability: Argentina’s lessons, *in v. F. G. M. Alexander V, Mlitz J, ed., ‘Monetary Unions and Hard Pegs’, Oxford University Press, Oxford, UK, pp. 150–181.*
- Capellari, L. and Jenkins, S. (2003), ‘Multivariate probit regression using simulated maximum likelihood’, *The Stata Journal* **3**(3), 278–94.
- Card, D. (2001), ‘Immigrant Inflows, Native Outflows, and the Local Market Impacts of Higher Immigration’, *Journal of Labor Economics* **19**(1), 22–64.
- Cigno, A. and Rosati, F. C. (2005), ‘Why do Indian children work, and is it bad for them?’, *IZA Working Paper* **115**.
- Corbacho, A., Garcia-Escribano, M. and Inchauste, G. (2007), ‘Argentina: Macroeconomic Crisis and Household Vulnerability’, *Review of Development Economics* **11**(1), 92106.
- Cullen, J. and Gruber, J. (2000), ‘Does unemployment insurance crowd out spousal labor supply?’, *Journal of Labor Economics* **18**(3), 546–72.
- Duryea, S. (1998), ‘Children’s advancement through school in Brazil: the role of transitory shocks to household income.’, *IADB Working Paper* **376**.
- Duryea, S., Lam, D. and Levinson, D. (2007), ‘Effects of Economic Shocks on Children’s Employment and Schooling in Brazil’, *Journal of Development Economics* **84**, 118–214.
- Emerson, P. M. and Souza, A. P. (2002), ‘Child Labor, School Attendance, and Intra-household Gender Bias in Brazil’, *Working Papers 0212, Department of Economics, Vanderbilt University*. .
- Frankenberg, E., Smith, J. P. and Thomas, D. (2003), ‘Economic Shocks, Wealth, and Welfare’, *The Journal of Human Resources* **38**(2), 280–321.
- Freeman, R. B. (1975), ‘Supply and Salary Adjustments to the Changing Science Manpower Market: Physics, 1948-1973’, *American Economic Review* **65**(1), 27–39.
- Freeman, R. B. (1980), ‘The Exit-Voice Tradeoff in the Labor Market: Unionism, Job Tenure, Quits, and Separations’, *Quarterly Journal of Economics* **94**(4), 643–73.

- Galiani, S. and Hopenhayn, H. (2003), 'Duration and risk of unemployment in Argentina', *Journal of Development Economics* **71**(1), 199–212.
- Galiani, S. and Sanguinetti, P. (2003), 'The impact of trade liberalization on wage inequality: evidence from Argentina', *Journal of Development Economics* **72**, 497–513.
- Giovagnoli, P. I., Fiszbein, A. and Adriz, I. (2003), 'El impacto de la crisis argentina en el bienestar de los hogares', *Revista de la Cepal* **79**.
- Ham, J. C. and Jacobs, K. (2000), 'Testing for Full Insurance Using Exogenous Information', *Journal of Business & Economic Statistics* **18**(4), 387–397.
- Jacoby, H. (1994), 'Borrowing constraints and progress through school: evidence from Peru', *Review of Economics and Statistics* **76**, 151–160.
- Jacoby, H. and Skoufias, E. (1997), 'Risk, Financial Markets, and Human Capital in a Developing Country', *Review of Economic Studies* **64**, 311–335.
- Katz, L. F. and Murphy, K. M. (1992), 'Changes in Relative Wages, 1963-1987: Supply and Demand Factors', *Quarterly Journal of Economics* **107**(1), 35–78.
- Levison, D., Moe, K. S. and Knaul, F. M. (2001), 'Youth Education and Work in Mexico', *World Development* **29**(1), 167–188.
- McKenzie, D. J. (2004), 'Aggregate Shocks and Urban Labor Market Responses: Evidence from Argentina's Financial Crisis', *Economic Development and Cultural Change* **52**(4), 719–58.
- Mulligan, C. B. (1997), *Parental Priorities and Economic Inequality*, University of Chicago Press, Chicago.
- Parker, S. W. and Skoufias, E. (2006), 'Job loss and family adjustment in work and schooling during the Mexican peso crisis.', *Journal of Population Economics* **19**, 163–81.
- Revenga, A. (1992), 'Exporting Jobs? The Impact of Import Competition on Employment and Wages in U.S. Manufacturing', *Quarterly Journal of Economics* **107**(1), 255–84.
- Schady, N. (2002), 'The (Positive) Effect of Macroeconomic Crises on the Schooling and Employment Decisions of a Middle Income Country', *World Bank POLICY RESEARCH WORKING PAPER* **2762**.
- Solon, G. (1999), *Intergenerational Mobility in the Labor Market*, Vol. 3 of *Handbook of Labor Economics*, North-Holland, Amsterdam.
- Thomas, D., Beegle, K., Frankenberg, E., Sikoki, B., Strauss, J. and Teruel, G. (2004), 'Education in a crisis', *Journal of Development Economics* **74**(1), 54–85.
- Toledo, M. (2008), 'On the Intergenerational Persistence of Work Hours', *Manuscript U. Carlos III Madrid*.
- UNICEF (1997), *El estado mundial de la Infancia*, UNICEF, NewYork.

PUBLISHED ISSUES*

- WP-AD 2009-01 “Does sex education influence sexual and reproductive behaviour of women? Evidence from Mexico”
P. Ortiz. February 2009.
- WP-AD 2009-02 “Expectations and Forward Risk Premium in the Spanish Power Market”
M.D. Furió. February 2009.
- WP-AD 2009-03 “Solving the incomplete markets model with aggregate uncertainty using the Krusell-Smith algorithm”
L. Maliar, S. Maliar, F. Valli. February 2009.
- WP-AD 2009-04 “Employee types and endogenous organizational design: An experiment”
A. Cunyat, R. Sloof. February 2009.
- WP-AD 2009-05 “Quality of Life Lost Due to Road Crashes”
P. Cubí. February 2009.
- WP-AD 2009-06 “The Role of Search Frictions for Output and Inflation Dynamics: A Bayesian Assessment”
M. Menner. March 2009.
- WP-AD 2009-07 “Factors affecting the schooling performance of secondary school pupils – the cost of high unemployment and imperfect financial markets”
L. Farré, C. Trentini. March 2009.
- WP-AD 2009-08 “Sexual orientation and household decision making. Same-sex couples’ balance of power and labor supply choices”
S. Oreffice. March 2009.
- WP-AD 2009-09 “Advertising and business cycle fluctuations”
B. Molinari, F. Turino. March 2009.
- WP-AD 2009-10 “Education and selective vouchers”
A. Piolatto. March 2009.
- WP-AD 2009-11 “Does increasing parents’ schooling raise the schooling of the next generation? Evidence based on conditional second moments”
L. Farré, R. Klein, F. Vella. March 2009.

* Please contact IVIE's Publications Department to obtain a list of publications previous to 2009.



Ivie

Guardia Civil, 22 - Esc. 2, 1º
46020 Valencia - Spain
Phone: +34 963 190 050
Fax: +34 963 190 055

**Department of Economics
University of Alicante**

Campus San Vicente del Raspeig
03071 Alicante - Spain
Phone: +34 965 903 563
Fax: +34 965 903 898

Website: <http://www.ivie.es>
E-mail: publicaciones@ivie.es