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ESTIMATING THE RETURNS TO EDUCATION:

ACCOUNTING FOR HETEROGENEITY IN ABILITY

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Abstract: Typically estimates of the benefits of education investments show average private rates of return for the average individual. The average may not be useful for policy. An examination of the distribution of the returns across individuals is needed. The few studies that have examined these patterns focus on high-income countries, showing investments to be more profitable at the top of the income distribution. The implication is that investments may increase inequality. Extending the analysis to 16 East Asian and Latin American countries we observe mixed evidence in middle-income countries and decreasing returns in low-income countries. Such differences between countries could be due to more job mobility in developed countries, scarcity of skills, or differential exposure to market forces.

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Introduction

There is an extensive empirical literature on estimates of the rate of return to investment in education, covering both developed and developing countries. Most studies estimate the mean return to education which may be interpreted as the return to additional schooling for an individual with mean ability; in other words, the return for the average individual. A number of observations on the pattern of returns across countries have been highlighted in the literature (see, for example, Psacharopoulos and Patrinos 2004). In particular, past average return to education estimates suggest that returns are higher in developing compared to developed countries, with developing countries exhibiting high returns to primary education, while returns to tertiary education are higher in developed countries. Worldwide average returns to schooling, as compiled from hundreds of studies, is about 10 percent (Psacharopoulos and Patrinos 2004), with considerable variation between developed and developing countries (higher in developing countries, at about 11 percent compared to about 7.5 percent for OECD countries).

However, if there is significant variation in returns across the earnings distribution, with higher returns for those with higher levels of income (assumed to indicate high ability individuals as well), and then investment in education will generate more inequality. This could challenge the conventional view of investment in education, which is that education promotes equality in the long run, other things being equal.

Recently, an increasing number of studies investigate the pattern of returns to an additional year of education along the earnings distribution using quantile regression analysis. Estimation of returns to education using Ordinary Least Squares (OLS) disregards variation in the returns for workers in the same education group. On the other hand, quantile regression analysis, by allowing the return to vary within education groups can be used to measure inequality within groups, since quantile returns represent the wage differential between individuals in the same education group but at different earnings quantiles.

An examination of the results of recent studies (several for developed countries and a handful for developing countries) allows the identification of certain emerging stylized facts. In particular, in Europe and North America we observe increasing returns with quantiles. In the

few low-income developing countries for which evidence exists and from preliminary analysis of available data for a few other lower income countries, we tend to observe decreasing returns with quantiles. Evidence from middle-income countries is mixed.

Increasing returns as one goes from the lower to the higher end of the earnings distribution has been interpreted as an indication that ability and education (or skills) complement each other, with more able workers benefiting from additional investment in education. On the other hand, a negative relationship between ability and returns to education may be interpreted as evidence of substitutability between education and ability. Finally, if there is no distinct pattern, then average returns (in the absence of biases in their estimation) capture the overall profitability of education. The question is empirical: Which pattern best fits the evidence and are there variations across groups of countries?

The aim of this study is to investigate the pattern of returns across a mix of countries by conducting a systematic examination of the returns to education along the conditional distribution of the dependent variable (log of hourly earnings), as well as examining the pattern of returns within education levels for each country; subsequently we investigate the existence of a relationship between a country's labor market characteristics and the pattern of returns to education along the conditional earnings distribution.

For policy purposes, this question is important. For example, if the returns to education are higher for those at the top of the income distribution, then further investments in education – doing nothing else different – will lead to an increase in inequality. That is, if marginal schooling returns in a particular country are higher for the less able (assuming that "ability" is captured by the residuals of the earnings function), educational opportunities should be expanded for this section of society, as education and ability are substitutes. Furthermore, in such a case the interaction of education and ability has an equalizing effect on earnings. But if education leads to more inequality, then compensatory interventions may be necessary in order to equalize the chances of the less able. If, on the other hand, education tends to equalize earnings, then further investment is warranted, without changes in the way it is provided.

Literature Review

It is hypothesized that heterogeneity in "abilities" which contribute to higher earnings are related to schooling acquisition. This is in addition to other unobservables which may be sorting individuals into better paying jobs, especially in developing countries. The latter may include family connections, government imposed controls, and political allocation of jobs in the civil service and public enterprises (Schultz 2003). In other words, the response to the "treatment" (schooling) varies across individuals (Heckman 1997; Heckman and Vytlacil 1999). Of the two important questions posed by Card (1995), namely, "what is the causal effect of education?" and "is there evidence of individual heterogeneity in returns to education?" the second will be addressed. To simultaneously address both questions, one needs a proper instrument to estimate returns to education using an Instrumental Variables-Quantile Regression analysis. The few empirical papers which address this question utilize data on twins in the context of a "family effects" model (see for example, Arias and others 2001; Ashenfelter and Rouse 1998). In the absence of such data, simply using family background information (such as parents' years of schooling) as the instrument is less than ideal, even if it passes the standard econometric tests. The problem is that estimates of returns from family background instruments are expected to be biased. Furthermore, the focus of this paper is on the investigation of the quantile-returns relationship in a large number of countries. While theoretically schooling cannot be taken as exogenous in Mincer equations, empirical results suggest that the extent of the bias may be small (Card 1999; Dearden and others 2002).

The concept of ability utilized here, as in Arias and others (2001), is not one based on measures derived from tests (such as "IQ"). Rather it relates to those unobservable, earnings-enhancing, human capital characteristics of an individual. Such ability characteristics are hypothesized to interact with education. As in Mwabu and Schultz (1996) and Arias and others (2001) we will be interpreting a negative relationship between ability and returns to education (decreasing returns with quantile) as evidence of substitutability between education and ability, and a positive relationship (increasing returns with quantile) as evidence of complementarily between education and ability.

From the evidence available, in most countries, increasing returns with quantiles have been observed. In particular, increasing returns have been documented for 15 out of 16 European countries studied, the United States, and whites in South Africa. The countries are: Austria, Denmark, Finland, France, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom (Martins and Pereira 2004); South Africa (Mwabu and Schultz 1996); and the United States (Buchinsky (1998).

There are four different patterns of returns by quantile in economically developed countries (Pereira and Martins 2000). First, for Austria, Finland, France, Ireland, Netherlands, Norway, Spain, Sweden, Switzerland and the United Kingdom, a positive and stable relationship exists over time. Second, for Portugal, one sees a positive relationship which is becoming more acute over time. Third, for Denmark and Italy returns are very similar across the distribution over time. Fourth, for Germany (only marginally) and Greece the returns-quantile profile is negative. Rates of return increase by quantile for all countries (with Denmark, Germany and Italy being borderline cases) except Greece, for which returns decrease moderately with quantiles (Martins and Pereira 2004). However, the data for Greece do not allow for a straightforward comparison with the other countries, as they are based on net wages. The authors point out that progressive taxation is likely to have a strong impact in eroding the returns to education at the top of the distribution than at its bottom. This may explain the Greek results. A likely explanation for the observed pattern of returns is the interaction between ability and schooling, which results in an amplification of the impact of ability upon earnings. Another possible explanation has to do with school quality differences. In particular, it may be that individuals who do worse in the labor market (for a given school attainment), are those individuals who received lower quality schooling. On the other hand, a negative relationship between ability and returns to education (decreasing returns with quantile) may be interpreted as evidence of substitutability between education and ability (see, for example, Walker and Zhu 2001).

For the United States, using data for 1972, 1979, 1985 and 1992, Buchinsky (1998) finds that returns for college graduates are always higher at the higher quantiles. For high school graduates returns are lower at higher quantiles in 1972 and 1979, but this pattern is reversed in

the post-1985 period, during which an increase in wage differentials by education has been documented.

Evidence for middle and low income developing countries is scarce, especially for the latter. For low income developing countries, Girma and Kedir (1994; 2005) present evidence for Ethiopia. After controlling for endogeneity using parents' education, they find that education is more beneficial to the less able. In particular, returns in the lowest (10th) quantile of the earnings distribution (at about 20 percent) are twice that in the highest (90th) quantile. Quantile-returns estimates for white and non-white South Africans show that among Africans returns do not increase by their decile in the distribution of residuals (Mwabu and Schultz 1996). Among whites, returns to higher education increase significantly, from 9 to 18 percent. This is interpreted as evidence that ability and higher education are complements for whites (one-third of whom obtained this form of education) and substitutes for African males, at least at the primary level.

Empirical evidence is also emerging for middle and upper-middle income South American countries. For Argentina (covering the period 1992-2002), Brazil (1988-1998), Chile (1990-1998) and Venezuela (1992-2002), there are increasing returns with quantiles (Giovagnoli and others 2005; Arabsheibani and others 2003; Montenegro 2001; Patrinos and Sakellariou 2004). On the contrary, using different assumptions about the sample and ages included, Zamudio (2001) and Patrinos and Metzger (2004) find that returns in Mexico decrease for higher quantiles.

Very little evidence exists from Asia. Lee and Lee (2002) report quantile regression results (from an expanded earnings function) for the Republic of Korea, a high income East Asian country, and conclude that the returns to education in the Korean labor market are low and relatively stable across wage quantiles. In other words, average returns would suffice for Korea.

Methodology and Data

The ordinary least squares (OLS) regression relies on the mean of the conditional

distribution of the dependent variable. OLS allows us to estimate the mean effect of education for the average individual. But the average individual may not be useful for policy purposes. It would be of interest to estimate the variance in returns around this mean. The wage distribution reflects not only education but also other unobservable factors, including unobserved ability and other skills relevant for the labor market. Those at the bottom of the wage distribution tend to have lower educational attainment but also a lesser endowment of unobservable skills. Thus, it is interesting to ask whether the effects of education are independent of these unobservable skills or whether education compensates for them or complements them. If the effect is independent of unobservable skills, then we should find that the effect of education is the same throughout the wage distribution. On the other hand, if education compensates for low skill, then we should find a larger effect at the bottom of the wage distribution than at the top; on the other hand, a larger effect at the top of the wage distribution should be found if education complements the unobservable skills. It is possible that the returns to schooling may be different for individuals in the upper part of the wage distribution compared with individuals in the lower portion of the wage distribution.

One of the properties of OLS estimation is that the regression line contains, or passes through, the mean of the sample. Quantile regression, on the other hand, is based on the entire sample available, thus allowing the estimation of the return to education at any arbitrary quantiles of the wage distribution. The idea behind quantile regression is to look at the returns at one part of the distribution, say the bottom quintile, so as to facilitate a comparison with returns at another part, say the top quintile. The comparison then allows us to infer the extent to which education exacerbates or reduces underlying inequality in wages due to other, perhaps unobservable, factors.

When it is suspected that various exogenous variables (such as schooling and experience) influence parameters of the conditional distribution of the dependent variable other than the mean, quantile regressions are particularly useful because they allow the full characterization of the conditional distribution of the dependent variable, rather than the conditional mean only. In short, the quantile regressions method allows an investigator to differentiate the contribution of regressors along the distribution of the dependent variable. In particular, the estimation of returns to education entails much more than the fact that, on average, one more year of education results in

a certain percent increase in earnings.

The quantile regression model (Buchinsky 1994) can be outlined as (for an introduction, see Koenker and Hillocks 2001; Koenker and Bassett 1978):

$$\ln w_i = X_i\beta_\theta + u_{\theta i},$$

$$X_i\beta_\theta = (\text{Quantile})_\theta(\ln w_i|X_i); \qquad (3)$$

where X_i is a vector of exogenous variables; β_θ is the vector of parameters; $(\text{Quantile})_\theta(\ln w_i|X_i)$ is the θth conditional quantile of $\ln w$ given X, with $0<\theta<1$. The θth quantile is derived by solving the problem (using linear programming):

$$\min_{\beta\in R^k} \sum_i \rho_\theta(\ln w_i - X_i\beta_\theta), \qquad (4)$$

where $\rho_\theta(\varepsilon)$ is the check function defined as $\rho_\theta(\varepsilon) = \theta\varepsilon$ if $\varepsilon\geq0$, and $\rho_\theta(\varepsilon) = (\theta-1)\varepsilon$ if $\varepsilon<0$. Standard errors are bootstrap standard errors. The median regression is obtained by setting $\theta = 0.5$ and similarly for other quantiles. As θ is varied from 0 to 1, the entire distribution of the dependent variable, conditional on X, is traced.

The quantile approach has a number of useful features, in addition to allowing the full characterization of the conditional distribution of the dependent variable, such as: (a) the linear programming representation of the quantile regression model makes estimation easy; (b) the quantile regression objective function is a weighted sum of absolute deviations, resulting in a robust measure of location, so that the estimated coefficient vector is not sensitive to outlier observation on the dependent variable; (c) when the error term is non-normal, quantile regression estimates may be more efficient than OLS estimators (Buchinsky 1998).

Estimated returns to education at different quantiles can provide further insight into within-education level/skill group changes and differences in returns at the upper and lower level of the income distribution, as well as differences by sex.

Quantile regressions will be used to estimate standard earnings functions (Mincer 1974), which involves the fitting of a function specified as:

$$lnYi = \alpha + \beta Si + \gamma_1 EXi + \gamma_2 EX^2i + \varepsilon i,$$

where lnY is the natural logarithm of monthly wage, S is the number of years of schooling of individual i, and EX and EX^2 are the years of experience and its square. We assumed two years of foregone earnings for those with primary schooling.

The corresponding level of education equation is:

$$lnYi = \alpha + \beta_1 PRIMi + \beta_2 SECi + \beta3HIGHER + \beta4UNIVi + \gamma_1 EXi + \gamma_2 EX^2i + \varepsilon i,$$

where PRIM, SEC, HIGHER and UNIV refer to dummy variables for primary, secondary, higher and university education, from the formulas:

$$r_{(PRIM)} = \beta_1 / S_{PRIM}$$

$$r_{(SEC)} = (\beta_2 - \beta_1) / (S_{SEC} - S_{PRIM})$$

$$r_{(HIGHER)} = (\beta_3 - \beta_2) / (S_{HIGHER} - S_{SEC})$$

$$r_{(UNIV)} = (\beta 4 - \beta_2) / (S_{UNIV} - S_{SEC})$$

where $S_{PRIM,}$ S_{SEC}, S_{HIGHER} and S_{UNIV} are the total number of years of schooling for each successive level of education.

Data used are for East Asian and Latin American countries. Information about data sources and survey year are given in Table 1. Descriptive statistics are included in Annex 1. A consistent sample across countries is used, with the same variables used and few control variables added, to make the work comparable to the work carried out in advanced countries. That is, the working samples for every country consist of males employed for wages in private or public sector (excluded are day laborers, workers in agriculture, self-employed and employers), who are 25 to 65 years of age. The dependent variable is the logarithm of hourly wage (derived from dividing monthly earnings by the monthly hours worked), except for Mongolia and Thailand, for which the dependent variable is the logarithm of monthly earnings.

Quantile regression analysis also allows us to test certain hypotheses. As mentioned earlier, available evidence from a number of high and upper middle-income countries (mainly from Europe and U.S.) shows rather conclusively that returns increase with quantiles; on the other hand, the very limited evidence from low-income countries suggests that the opposite tends to be the case. We believe that additional evidence from other low and middle-income countries

reveals certain stylized facts on the nature of the heterogeneous ability-schooling interaction. In particular, the hypothesized pattern is for high income countries to be associated with increasing returns by quantile (complementarity of ability and education) while for low income countries (which have less developed and possibly distorted labor markets) the tendency will be for decreasing returns (substitutability of ability and education). An implicit assumption in interpreting the results by quantile as decreasing (or increasing) returns is that the distribution of earnings for each level of schooling remains constant.

Table 1: Data Sources and Year of Survey

Country	Survey	Year
Cambodia	Socio-economic Survey of Households	2003-5
China	Economic, Population, Nutrition and Health Survey	2000
Indonesia	*Survei Sosial Economi Nasional (Susenas)*	2003
Mongolia	Living Standards Measurement Survey	2002
Philippines	Annual Poverty Indicator Survey (APIS)	1999
Singapore	Labor Force Survey (LFS)	1998
Thailand	Socioeconomic Survey	2002
Vietnam	Survey of Households	2001-2
Argentina	*Encuesta Permanente a Hogares (INDEC)*	2003
Bolivia	*Mejoramiento de las Encuestas y Mediciones de las Condiciones de Vida (MECOVI)*	2002
Brazil	*Pesquisa Nacional Por Amostra De Domicilios (PNAD)*	2002
Chile	*Encuesta de Caracterización Socioeconómica Nacional*	2003
Colombia	*Encuesta de Calidad de Vida*	2003
Guatemala	*Encuesta Nacional sobre Condiciones de Vida (ENCOVI)*	2000
Mexico	*Encuesta Nacional de Ingresos y Gastos de los Hogares*	2002
Venezuela	*Encuesta de Hogares por Muestro*	2002

Descriptions

Educational attainment in East Asia (Table 2) for those aged 25-65 years and employed in the formal sector, measured by years of schooling, ranges between 7.4 and 11.3 years (for Cambodia and China) for males with an 8 country average 9.8 years, and between 5 and 13.2 years (for Cambodia and Philippines) with an 8 country average of 9.9 for females. The proportion individuals employed for wages 25-65 years with tertiary education exhibits considerable variation, with Mongolia and the Philippines registering the highest proportion of tertiary education graduates for both men and women, while the lowest proportion is found in Cambodia (for both men and women), Indonesia and Thailand (males) and Singapore (females) – when Polytechnic diplomas are excluded. About 23 percent of working males and 30 percent of working females in East Asia has tertiary qualifications.

Educational attainment, as measured by years of schooling, in Latin America averages 9.0 and 10.2 years of schooling for men and women. Laggards in male educational attainment among the Latin American countries examined are Brazil and Guatemala, with 7.6 and 7.7 years of schooling, while the lowest female educational attainment is found in Guatemala and Mexico, with 9.0 and 9.1 years. However, the proportion with tertiary education among adults 25-65 years working for wages in Latin America is considerably lower compared to East Asia. Colombia registers the highest proportion of tertiary education graduates, at over 40 percent for both men and women, compared to only 11 percent for men and 15 percent for women in Guatemala.

Table 2: Schooling Attainment by Country (male wage earners, 25-65 years)

Country	Mean years of schooling	% with tertiary education
Cambodia	7.4	1.7
China	11.3	22.9
Indonesia	10.2	16.1
Mongolia	9.2	38.7
Philippines	10.1	31.3
Singapore	10.1	28.0*
Thailand	9.0	17.4
Vietnam	10.9	27 6
East Asia Mean	*9.8*	*23.0*
Argentina	10.0	16.4
Bolivia	9.8	16.2
Brazil	7.6	12.5
Chile	9.3	9.5
Colombia	10.5	20.3
Guatemala	7.4	11.2
Mexico	8.6	8.5
Venezuela	8.5	11.7
Latin America Mean	*9.0*	*13.3*

Note: see Annex 1 for full set of descriptive statistics
*Includes Polytechnic diplomas

Looking at type of employment, in Latin American countries we observe higher shares of wage employment, with Argentina and Chile at the top (68 and 67 percent) compared to East Asian countries (highest proportion in China and Thailand with 61 and 47 percent). Countries with particularly low rates of wage employment are Indonesia (28 percent) and Bolivia (35 percent). A consistent finding of interest is that technical/vocational secondary/post-secondary

education seems to serve graduates better in entering wage employment (and the formal sector in general), compared with secondary education. This finding is more pronounced in Bolivia (72 percent of participation in wage employment compared to 40 percent for those with secondary education), China (86 compared to 70 percent) and Vietnam (57 compared to 36 percent).

Table 3: Returns to Schooling by Country (male wage earners, 25-65 years)

Country	Average return (%) (OLS)	90th-10th quantile
Cambodia	38.3	-44.6
China	12.1	-4.7
Indonesia	11.4	-0.9
Mongolia	8.5	-4.5
Philippines	11.6	-3.3
Singapore	11.9	4.3
Thailand	15.2	-5.3
Vietnam	7.2	-4.4
East Asia Mean	*14.5*	*-7.9*
East Asia mean excluding Cambodia	*11.1*	*-2.7*
Argentina	11.0	4.2
Bolivia	10.3	6.2
Brazil	15.7	6.4
Chile	12.0	7.0
Colombia	10.4	5.5
Guatemala	12.6	5.3
Mexico	11.3	2.4
Venezuela	9.9	3.3
Latin America Mean	*11.6*	*5.0*

Note: Full results are presented in Annex 3
*Includes Polytechnic diplomas

Results

Looking at returns to schooling for the average individual (from OLS regressions), the return to an additional year of schooling for males is higher in the East Asian countries under study (8 country average) at 14.5 percent, compared to the Latin American group of countries (11 percent), mainly due to the high returns in Cambodia (see Table 3). Generally speaking, returns are considerable for all countries, especially in Cambodia, Thailand and Brazil. In only three cases are the estimated returns less than 10 percent. The second column of Table 3 presents the differences in returns estimated for the bottom and top quantile. A negative entry implies that the returns are higher at the bottom of the distribution, meaning that education

investments tend to equalize earnings. A negative entry means that returns are higher at the higher end of the earnings distribution, suggesting that education tends to increase inequality. In general education tends to equalize earnings in East Asia while inequality would is enhanced through education in Latin America.

The findings on the shape of the earnings relation and policy implications are summarized in Table 4. Casual observation of the quantile regression evidence in this study suggests that by and large returns decrease with quantiles in East Asia (except for Singapore). Male returns decrease with quantiles in the cases of Mongolia, Cambodia, Vietnam, Indonesia, Thailand, China and the Philippines, while exhibiting a clearly opposite (increasing) pattern, similar to that of OECD countries, in the case of Singapore.

Table 4: Pattern of Returns by quantile and Implications, Males

Country	Returns by quantile	Pattern of returns by quantile	Education and skills (ability)	Policy implication for income inequality
Cambodia	Strongly decreasing	U-shaped	Substitutes	Decrease
China	Strongly decreasing	Fluctuations	Substitutes	Decrease
Indonesia	Weakly decreasing	U-shaped	Substitutes	Decrease
Mongolia	Strongly decreasing	Monotonic	Substitutes	Decrease
Philippines	Mildly decreasing	U-shaped	Substitutes	Decrease
Singapore	Strongly increasing	Monotonic	Complements	Increase
Thailand	Strongly decreasing	U-shaped	Substitutes	Decrease
Vietnam	Strongly decreasing	U-shaped	Substitutes	Decrease
Argentina	Strongly increasing	Monotonic	Complements	Increase
Bolivia	Strongly increasing	Monotonic	Complements	Increase
Brazil	Strongly increasing	Monotonic	Complements	Increase
Chile	Strongly increasing	Monotonic	Complements	Increase
Colombia	Strongly increasing	Monotonic	Compliments	Increase
Guatemala	Strongly increasing	Monotonic	Complements	Increase
Mexico	Weakly increasing	Monotonic	Compliments	Increase
Venezuela	Mildly increasing	Monotonic	Complements	Increase

The group of Latin American countries under study, on the other hand, portrays very similar results. While the expectation may have been that for countries such as Argentina and Chile the pattern of returns will be similar to that of high income countries, and this is confirmed, a mixed pattern may have been expected for the rest. However, it was found that returns exhibit

a pattern more akin to high income countries in every other country examined.

Tests conducted on the significance of inter-quantile differences show that the overwhelming majority of consecutive inter-quantile differences are statistically significant, as are almost all the 90th-10th quantile differences. A rule of thumb which may be useful to the reader is that differences in coefficients that are found to be larger than 1 percentage point (or less in the case of larger samples) are statistically significant. For example, in the case of Indonesia, the $90^{th} - 10^{th}$ interquantile difference which is less than 1 percentage point (0.9) is statistically significant at the 5 percent level.

A comparison of results from this study and the available international evidence from mainly developed countries is highlighted in Figures 1 and 2. Figure 1 shows the 9th-1st quantile differences for males for various European countries (see Martins and Pereira 2004) and the United States. It shows that in high-income countries, education and ability compliment each other. Figure 2 shows the corresponding results for the 16 East Asian and Latin American countries of this study, as well as available results for Ethiopia, South African blacks, South African whites and Korea. With few exceptions (for example low-income countries such as Guatemala and Bolivia), the pattern of heterogeneous returns is consistent with our hypothesized stylized pattern of returns is drastically different from that in high-income countries.

The results show quite well the danger in relying on average returns for policy purposes. We hypothesize that there might be a relationship between a country's development stage (and, perhaps, as this is reflected in their labor market characteristics) and returns behavior by quantile. In the OECD it is clear that education is a complement to unobserved skills (or abilities), and that education investment will increase inequality, other things being equal. We observe cases where the OECD pattern does not apply. The idea behind our approach is that if returns are higher at the top end of the earnings distribution than at the bottom end (as is the case for OECD countries and, based on our findings, other high and middle-income countries), then education tends to increase earnings inequality, since education is a better investment for the better off. On the other hand, if skills and education are substitutes, then the least skilled will benefit more from education and education tends to reduce earnings inequality.

Figure 1: 9th - 1st Decile of Male Return Differences from
Quantile Regressions across European Countries and US
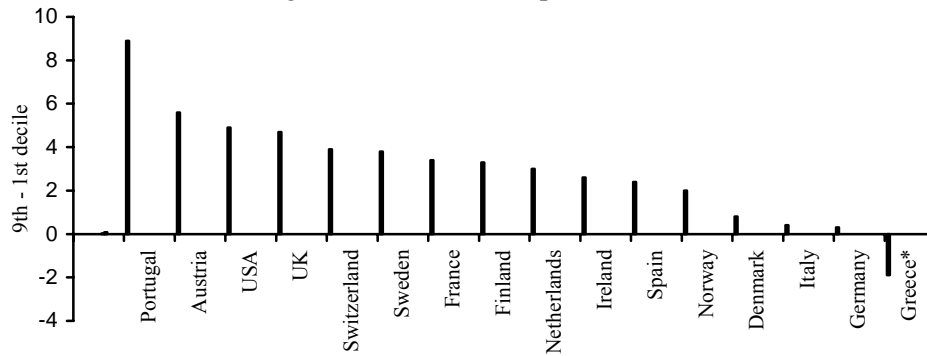
Sources: Pereira and Martins 2000; Martins and Pereira 2004
* Results for Greece based on after tax earnings

Figure 2: 9th - 1st Decile of Male Return Differences from Quantile
Regressions Across Countries Outside Europe and Noth America
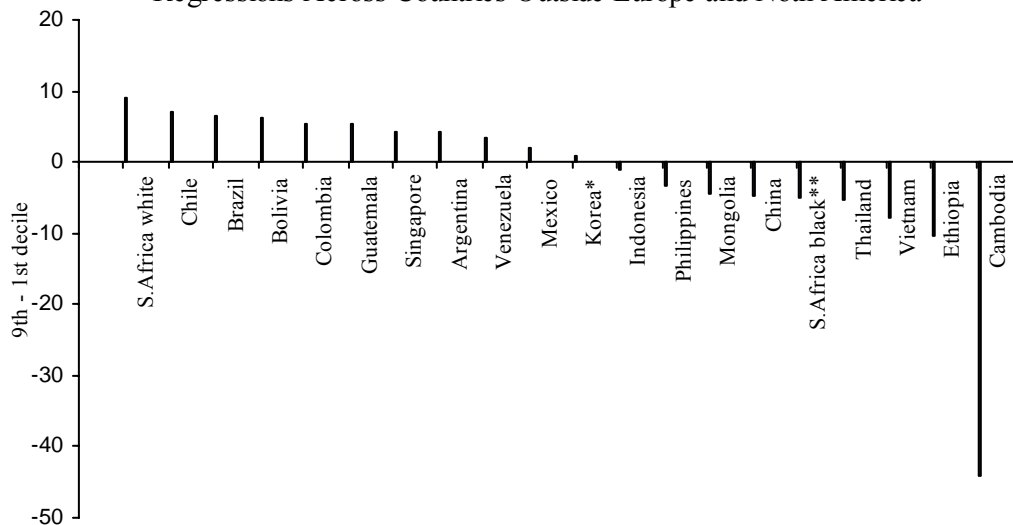
Sources: Mwabu and Schultz 1996; Girma and Kedir 2005; Lee and Lee 2002
* The 95th to 5th quantile difference is reported as authors estimates are over the 5th, 25th, 50th, 75th
and 95th quantiles; also the equation included several controls
** For higher education only

The question is what explains the patterns of decreasing returns by earnings quantile. We
offer three possible explanations for the deviation from the stylized facts observed in OECD
countries. (1) The first is that more job mobility in developed countries explains the differences.
That is, higher levels of schooling and higher levels of unobserved skills (therefore higher levels

of human capital), allow one to change jobs, to improve their position, and therefore earnings. (2) The second explanation concerns the scarcity of skills. Based on the relationship between a country's development stage and the pattern of returns, the argument might be that the lower the human capital in a country, the more equal the returns. This would fit the pattern observed in East Asia from our estimates, and the corresponding evidence from low-income countries like Ethiopia and Blacks in South Africa. Latin American countries on the other hand historically have higher levels of income inequality and this may relate to the nature of the results for Latin America. (3) The third possible explanation is differences in the quality of schooling. In particular, the deviation from the OECD pattern could be due to differential access to quality education or distribution of quality outcomes (based on measures such as test scores).

A Possible Alternative Explanation

The findings concerning the divide in the pattern of returns between two groups of countries may also relate to different labor markets (as well as different sectors within the same labor market) having a differential exposure to market forces and the link between pay and productivity. In particular, in exploring within sector differences, one can divide the data into the competitive sector (private) and the uncompetitive (public). Psacharopoulos (1979) looked at such a distinction between private and public sectors and argued that wages may exceed productivity in the public sector but not in the private sector. He found higher returns in the public sector and attributed this finding, at least partly, in the signaling value of education. Karras (2005) investigated the productivity of government and private employment for a sample of seventeen European countries. He finds that, in the majority of the countries examined, government workers appear to be overpaid (one of the exceptions is England), as the ratio of government to private wages exceeds the highest estimated value of the corresponding ratio of marginal products**.** But is the overpayment of government workers in relation to their productivity mostly found at the lower or the upper end of the earnings distribution?

The public sector wage premium (which is evident at the lower end of the earnings distribution), tends to decline and eventually become a public sector wage disadvantage at the higher end of the earnings distribution, in the United States and Canada (Poterba and Rueben 1994; Mueller 1998). Mueller (1998) comments that the findings are consistent with the public

perception of overpaid bureaucrats and useful in explaining the exodus of senior managers to the private sector in Canada during the 1990s. Several other studies show that the public sector pay premium in developed countries is declining as one moves up the conditional wage distribution, suggesting that the profitability of public sector employment is higher in the lower end of the wage distribution (see, for example, Rees and Shah 1995; Disney and Gosling 1998; Blackaby and others (1999) for the United Kingdom; Moulton 1990; Blank 1994 for the United States; Lucifora and Meurs 2004 for the UK, Italy and France). On the other hand, evidence for Holland suggests a negative differential (VanOphem 1993).

Evidence for developing countries is thin. Skyt-Neilsen and Rosholm (2001) found a positive average public pay premium for Zambia; however, at the upper end of the conditional wage distribution the pay gap became negative for highly educated public sector workers. Finally, Hyder and Reilly (2005) find a sizable public-private sector differential in Pakistan, however, this differential was found to decline monotonically with movement up the conditional wage distribution.

The pattern of private versus public returns by quantile is explored in Table 5, which presents the pattern of returns for 12 countries (for which information exists) by sector of employment (public vs. private). In Vietnam, Thailand the Philippines and China, the profitability of an additional year of schooling for males 25-65 years declines, sometimes sharply, as one goes to higher levels of unobserved skills. However, returns in the small private sector in Vietnam clearly increase with higher unobserved skills, returns in the Thai private sector exhibit a slightly increasing pattern, while in the private sector of the Philippines and that of Colombia they decrease only slightly. The average 9th-1st quantile difference in public sector returns in Vietnam, Thailand, Philippines and Colombia (for which overall male returns are decreasing with quantiles) is -6.7 percentage points, compared to about 1.6 percentage points in the private sector.

On the other hand, returns in all countries for which an overall increasing pattern is observed exhibit an increasing pattern in both the private and public sectors (with the exception of Mexico where returns in the public sector are flat), and this pattern is more pronounced in the private sector (7 country average of 6.7 versus 3.2 percentage points in the private and public

sectors).

Based on the findings in this paper, as well as existing empirical evidence, one could hazard the generalization that in countries where the market forces of demand for and supply of skills are prevalent in the labor market, where pay and productivity are linked (that is mainly in developed countries), we expect to find increasing returns with quantiles. There the relationship between education/skills and ability is towards increasing earnings inequality. On the other hand, in most developing countries where market forces tend to be severely dampened by labor market rigidities, low tolerance for wage inequality, family connections, and the combination of distorting pay and/or employment policies of the public sector and a large presence of the public sector in the economy (in general, labor market distortions), returns are expected to decrease with quantiles, especially in the public sector (Vietnam, Thailand, Philippines and China), or both public and private sector (China).

Table 5: Pattern of Returns by Public-Private Employment- Males

Country	Overall Pattern of Returns	OLS Return (%)		90th-10th quantile difference (%)	
		Public	Private	Public	Private
China	Decreasing	10.4	*	-6.3	*
Philippines	Decreasing	10.8	10.8	-6.5	-1.4
Thailand	Decreasing	14.6	14.4	-7.4	1.4
Vietnam	Decreasing	7.9	7.2	-6.6	4.8
Mean of:	*Decreasing*	*10.9*	*10.8*	*-6.7*	*1.6*
Argentina	Increasing	10.2	11.1	6.3	4.8
Bolivia	Increasing	13.3	8.7	2.8	8.2
Brazil	Increasing	16.8	13.1	5.6	8.8
Chile	Increasing	13.7	11.2	3.4	7.6
Colombia	Increasing	9.5	9.9	1.4	7.3
Guatemala	Increasing	12.3	11.5	2.8	7.7
Mexico	Increasing	13.3	9.2	0.3	4.6
Venezuela	Increasing	11.2	8.8	2.8	4.8
Mean of:	*Increasing*	*12.5*	*10.4*	*3.2*	*6.7*

* Only 122 usable observations

Returns by Education Level. When years of schooling are used in the wage equation, this implies that the impact of one additional year of schooling on within-group earnings dispersion is the same, irrespectively of education level. Using education levels in the wage equation instead,

allows for further insight on differences across educational qualifications. Budria and Pereira (2005) used quantile regression analysis to estimate the returns to different education qualifications in nine European countries. They find that returns to education generally increase with quantiles and that education (especially tertiary) has a positive impact on within group dispersion.

Results on the male returns by education level and quantile are presented in Table 6. In all East Asian countries except Cambodia and China, the highest returns are observed for university qualifications. Likewise, in all Latin American countries except Colombia (males) and Bolivia, returns to university qualifications exceed all other levels. Returns to primary education (obtained using 2 years of forgone earnings for all countries), are generally lower compared to tertiary qualifications; exceptions are found only in the cases of Cambodia, (especially at the bottom of the earnings distribution), Mongolia (upper end of the distribution), China (middle section of the distribution), and Venezuela (but not by much).

These findings are of interest given similar recent findings, even from Africa. Existing literature based on empirical evidence from a large number of studies in both developed and developing countries implies an empirical tendency for private internal rates of return to education to decrease at higher levels of education. This was first observed by Becker (1964) for the United States (for other countries, see Psacharopoulos and Woodhall 1985; Psacharopoulos and Patrinos 2004). However, along with the frequently discussed evidence of an increase in the returns to college educated workers in the United States (see, for example, Katz and Autor 1999; Acemoglu 2002) and evidence of the same for a host of countries, such as Brazil, Chile, Colombia, Mexico, Korea, Taiwan (China), Indonesia, Thailand and China (Topel 1999; Schultz 2004). Schultz (2003) finds that evidence from recent representative surveys in Africa confirms the same regularity. It was found that in six African countries (Ghana, Cộte d'Ivoire, Kenya, South Africa, Nigeria and Burkina Faso) the wage gains associated with each year of higher education are relatively attractive by world standards at between 10 and 15 percent. Schultz (2003) finds it ironic that world leaders of higher education are reluctant to consider wage structures for policy purposes because they think that wage returns to higher education are low and that large returns to education are probably evidence of distorted labor markets.

Table 6: Returns by Education Level (%) (male wage earners, 25-65 years (dep. var: log monthly earnings)

Mongolia 2002	OLS	Q10	Q25	Q50	Q75	Q90
Primary	11.0	-1.3	8.2	4.8	21.2	26.8
Lower secondary	7.5	9.4	13.7	8.8	5.1	4.9
Upper secondary general (vs. primary)	8.1*	9.7	12.3*	10.0	6.7*	5.0
Secondary vocational (vs. primary)	7.8*	10.2	11.3	8.3	6.6*	5.7
Tertiary (vs. upper sec. general)	8.8**	14.1**	9.2*	6.9*	5.2**	6.9*
Cambodia 2003-05						
Primary	100.1**	7.0**	298.7**	59.2	16.1**	16.7**
Lower Secondary	25.7**	8.3	28.3**	5.7	4.6**	4.6**
Upper secondary general (vs. primary)	32.0**	114.6**	21.3**	6.7	8.3**	12.0**
Secondary vocational (vs. primary)	39.2**	141.3**	26.4**	7.5	5.5**	18.2**
Tertiary (vs. upper secondary general)	17.5**	11.5**	8.1**	3.7	14.0**	20.0**
Vietnam 2001-02						
Primary	8.5	22.3	-0.6	1.0	7.1	1.4
Lower secondary	-2.3	-3.1	-2.1	4.3	-1.4	-2.7
Upper secondary general (vs. primary)	2.7**	2.3	2.6	5.9**	2.8	3.2
Secondary vocational (vs. primary)	4.7**	6.5	5.8	8.3**	2.9	2.6
Tertiary (vs. sec. general)	10.5**	14.7**	11.3**	8.7**	7.0*	7.7
Indonesia 2003						
Primary	8.4**	12.3**	9.7**	8.2**	7.5**	6.1**
Lower secondary	8.6**	8.1**	9.0**	8.6**	7.9**	8.8**
Upper secondary general (vs. primary)	10.7**	10.2**	10.7**	11.0**	10.6**	10.5**
Secondary vocational (vs. primary)	11.7**	10.2**	11.5**	12.4**	12.0**	11.8**
Tertiary (vs. sec. general)	13.6**	16.0**	14.8**	12.2**	11.3**	13.9**
Thailand 2002						
Lower primary	7.7**	14.3**	10.0**	7.2**	5.2**	1.1
Upper primary	12.0**	12.7**	12.0**	11.9**	12.5**	11.0**
Lower secondary (vs. upper primary)	14.3**	13.3**	12.7**	14.1**	15.2**	14.5**
Upper secondary general (vs upper pri)	11.5**	12.8**	11.8**	10.6**	11.0**	10.9**
Secondary vocational (vs upper pri)	13.4**	16.1**	14.4**	12.9**	11.7**	12.4**
Tertiary (vs. sec. general)	22.0**	30.9**	24.5**	19.2**	16.2**	18.5**
Philippines 1999						
Primary	16.0**	18.5**	19.8**	17.2**	14.2**	8.1**
Secondary general	7.5**	9.0**	9.0**	7.6**	5.9**	6.6**
Tertiary	19.8**	24.6**	19.7**	16.8**	18.5**	20.0**
China 2000						
Primary	21.1	3.7	14.6	22.7	25.5	-6.1
Lower secondary	4.4*	1.9	1.5	3.0*	1.9	15.2
Upper secondary general (vs. primary)	8.4**	4.4	4.9*	11.0**	6.9*	12.1
Secondary voc./ technical (vs. primary)	9.5**	9.9	9.6**	10.1**	7.9**	10.1
Tertiary (vs. upper secondary general)	9.8**	18.3*	14.3**	8.4**	8.0**	7.0*
Singapore 1998						
Primary	8.5**	4.9**	6.6**	8.3**	10.2**	16.2**
Upper secondary general	7.6**	5.4**	7.0**	7.5**	8.6**	9.5**
Secondary vocational (vs. primary)	8.3**	5.9**	8.6**	8.4**	10.6**	8.7**
Polytechnic (vs. secondary)	17.4**	20.0**	18.7**	17.8**	16.9**	15.7**
University (vs. upper secondary general)	23.7**	22.2**	23.5**	24.0**	24.0**	23.7**

Table 6 (cont'd): Returns by Education Level (%) (males, 25-65 years (dep. var: log monthly earnings)

Argentina 2003	OLS	Q10	Q25	Q50	Q75	Q90
Primary	8.3**	5.1	8.3**	10.9**	10.4**	11.0**
Secondary general	7.6**	6.9**	5.0**	7.3**	8.9**	9.2**
Secondary vocational (vs. primary)	8.9**	8.1**	6.7**	9.4**	9.4**	8.4**
Higher (non-university) (vs sec general)	11.6**	11.6**	9.2**	13.0**	11.2**	14.4**
University (vs. secondary general)	19.5**	17.3**	17.6**	20.1**	20.3**	21.7**
Chile 2003						
Primary	13.0**	11.6**	8.8**	8.3**	15.9**	20.1**
Secondary general	11.6**	7.9**	7.2**	10.8**	13.4**	16.4**
Secondary vocational (vs. primary)	17.6**	10.8**	12.0**	17.6**	21.8**	24.2**
University (vs. secondary general)	24.4**	19.9**	23.7**	25.3**	26.8**	28.2**
Colombia 2003						
Primary	13.2**	17.1**	11.8**	9.3**	13.3**	15.8**
Secondary	7.5**	7.0**	5.8**	6.8**	8.8**	9.5**
Higher technical (vs. secondary)	8.1**	5.1**	5.5**	11.0**	11.3**	9.6**
University (vs. secondary)	16.1**	12.4**	18.7**	21.6**	23.1**	24.1**
Guatemala 2000						
Primary	5.2	6.5*	6.2*	8.0**	7.9	-6.1
Secondary	11.3**	7.4**	9.5**	12.3**	13.7**	14.2**
University	21.2**	18.5**	22.0**	21.0**	20.2**	23.5**
Venezuela 2002						
Primary	18.6**	19.5**	18.9**	18.4**	19.0**	20.9**
Secondary	6.6**	4.8**	5.8**	5.4**	7.4**	8.7**
Higher technical (vs. secondary)	13.5**	10.4**	13.8**	16.4**	15.7**	11.0**
University (vs. secondary)	14.7**	9.1**	12.4**	16.7**	17.5**	17.5**
Mexico 2002						
Primary	12.4**	10.3**	10.4**	11.1**	11.4**	14.0**
Lower Secondary	8.6**	10.0**	7.1**	7.4**	7.7**	9.1**
Upper Secondary (vs. primary)	12.0**	7.6**	9.7**	10.7**	14.5**	17.6**
University (vs. upper secondary)	17.5**	18.1**	19.0**	19.3**	16.3**	13.7**
Bolivia 2002						
Primary	14.2*	14.5	8.5	11.6**	21.5**	25.9**
Secondary	4.3**	3.7	3.1*	3.9**	4.8**	4.9**
Higher technical (vs. secondary)	25.0**	19.7**	24.7**	27.4**	28.5**	24.2**
University (vs. secondary)	22.0**	11.2**	17.2**	23.4**	27.0**	30.4**
Brazil 2001						
Primary	12.4**	10.0**	14.4**	12.8**	10.3**	3.6**
Lower secondary	6.3**	2.8**	3.6**	4.7**	6.8**	8.4**
Upper Secondary (vs. primary)	6.9**	4.7**	5.3**	7.0**	8.8**	10.3**
University (vs. upper secondary)	28.0**	24.7**	27.4**	28.6**	30.0**	30.6**

* indicates significance at the 5% level; ** indicates significance at the 1% level

Looking at the pattern of returns by quantile, in East Asian countries (where returns to schooling were earlier found to decline by quantile), the pattern of returns at the primary and secondary level is mixed, while quantile returns at the tertiary level are generally decreasing (see Figures 3 and 4). Only for Singapore returns increase at all levels. A consistent finding, however, is that returns to university education decline through the 75th quantile and subsequently rebound at the highest quantile. In Latin America, generally speaking, returns exhibit an increasing pattern within every education level. Exceptions are fount in the case of primary education in Guatemala, Brazil and Colombia and tertiary education in Mexico.

Figure 3: 9th to 1st Decile Difference in Returns to Education across Southeast Asia
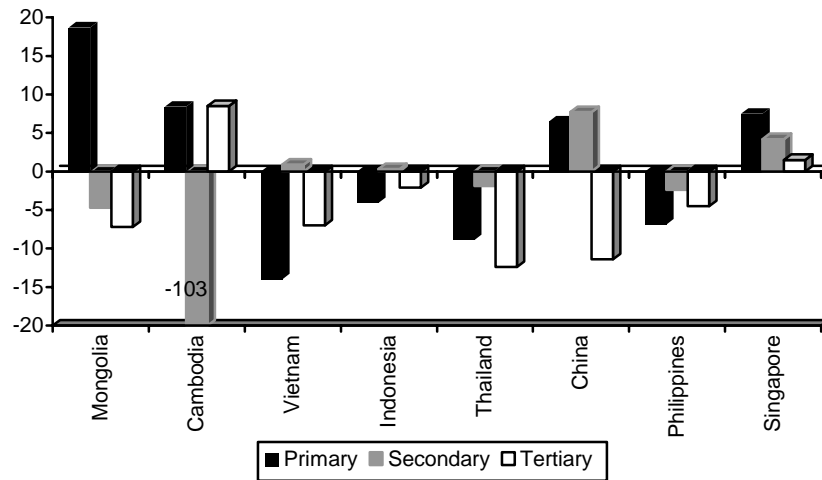
Figure 4: 9th to 1st Decile Difference in Returns to Education across Latin America
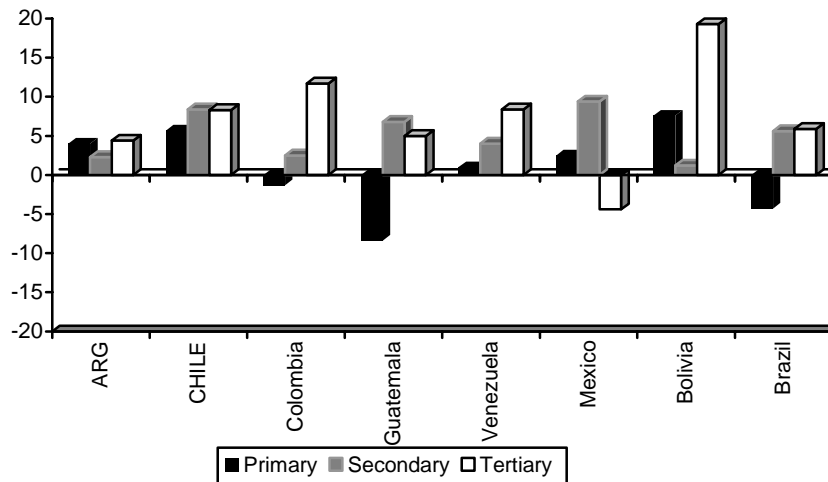
Conclusion

This study investigates the pattern of returns across a mix of East Asian and Latin American countries by first conducting a systematic examination of the returns to education along the conditional distribution of the dependent variable, as well as examining the pattern of returns within education levels for each country. It also investigates the existence of a relationship between a country's development stage (and in particular its labor market development) and the pattern of returns to education along the earnings distribution.

We find evidence that returns by and large decrease with quantiles in low-income countries (in our case the East Asian countries under study). Returns decrease with quantiles in the cases of Mongolia, Cambodia, Vietnam, Indonesia, Thailand and the Philippines, while exhibiting a clearly opposite (increasing) pattern in the case of Singapore, a high-income country. For the group of Latin American countries under study, on the other hand, the results are less homogeneous. The expectation for countries such as Argentina and Chile is that the pattern of returns would have been similar to that of high-income countries – and this is confirmed. For the rest a mixed pattern was expected.

Such differences in the documented pattern of returns between countries in different development stages could be due to (a) more job mobility in developed countries allowing individuals to improve their position by changing jobs; (b) scarcity of skills; (c) differential exposure to market forces and the link between pay and productivity; or (d) differential access to quality education or distribution of quality outcomes.

It was also found that in almost all countries returns to university qualifications exceed all other levels. An interesting finding from comparing secondary general and secondary vocational/technical qualifications is that, for the countries for which a direct comparison between general and vocational/technical qualifications can be made, the return to vocational/technical qualifications exceeds the return to secondary general qualifications, and the difference in certain counties is substantial. Of course, these are private returns and we do not take into account the often substantial public costs associated with this type of schooling.

The results in this study show quite well the danger in relying on average returns for policy purposes. Our contribution is that we consider cases where the OECD pattern may not apply. The idea is that if returns are higher at the top end of the earnings distribution than at the bottom end (as is the case for OECD countries and, based on our findings, other high and middle income countries), then education tends to increase earnings inequality, since education is a better investment for the better off. On the other hand, if skills and education are substitutes, then the least skilled will benefit more from education and education tends to reduce earnings inequality.

Future research priorities need to include the link to the quality of schooling. In addition, to verify if the patterns observed here are robust, it would make sense to look at patterns over time. In addition, our knowledge base would benefit from observations from more low-income countries and estimates from other regions.

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Annex 1: Summary Statistics

Mongolia

Working sample: 25-65 years	All	Male	Female
Education			
- Years of schooling	9.36	9.39	9.24
- Employed	9.58	9.49	10.18
- Not in LF/unemployed	8.75	9.05	7.75
- % with less than primary	2.76	2.32	5.23
- % with primary completed	10.81	10.13	14.55
- % with secondary (or some sec)	58.38	60.06	46.14
- % with higher (or some higher)	28.06	26.95	34.09
Labor Force Participation (%)			
- Employed	74.15	76.48	61.36
- Employed with secondary education	76.19	77.56	66.20
- Out of LF/unemployed	25.85	13.52	38.64
- Not in LF/unemployed with sec. education	23.81	22.44	33.80
- Share of wage employment	N/A	N/A	N/A
- Share of self-employment	N/A	N/A	N/A
- Share of unpaid employment	N/A	N/A	N/A
Sectoral Composition (%)			
- Primary	33.73	35.08	24.44
- Industry	13.63	14.00	11.11
- Services	52.64	50.92	64.45

Source: Living Standards Measurement Survey 2002

Cambodia

Working sample: 25-65 years	All	Male	Female
Education			
- Years of schooling	4.08	5.27	3.11
- Employed for wages	6.53	7.41	4.97
- Self-Employed/Employers	3.85	4.41	3.00
- Employed in family business	2.99	5.21	2.60
- Out of LF/unemployed	3.81	6.23	3.39
- % with less than primary	37.03	34.80	38.84
- % with primary	19.18	25.70	13.88
- % with lower secondary	8.14	11.43	5.46
- % with upper secondary (general)	3.64	5.95	1.77
- % with secondary vocational	0.90	1.29	0.54
- % with tertiary	1.00	1.68	0.38
Labor Force Participation (%)			
- Employed	84.40	92.55	77.77
- Employed with secondary education	89.22	91.92	82.00
- Share of wage employment	17.73	25.00	11.72
- Share of self-employed/employers	47.76	63.64	34.64
- Share of unpaid employment	27.10	8.91	42.14
- Out if LF/unemployed	7.41	2.45	11.51
- With secondary education:			
- Share of wage employment	59.37	62.52	50.70
- Share of self-employment	23.39	24.78	19.58
- Share of unpaid employment	9.32	7.24	15.03
- Out of LF/unemployed	7.92	5.46	14.69
Sectoral Composition (%)			
- Primary	56.14	53.61	58.60
- Industry	10.94	11.78	10.11
- Other	32.92	34.61	31.29

Source: Socioeconomic Survey of Households 2003-05

Vietnam

Working sample: 25-65 years	All	Male	Female
Education			
- Years of schooling	8.77	9.00	8.51
- Employed for wages	10.78	10.90	10.30
- Employed in agriculture	8.07	8.20	7.92
- Employed in family business	8.73	9.02	8.48
- % with no education	2.17	2.00	2.35
- % with primary completed	35.79	33.72	38.01
- % with lower secondary completed	36.34	35.90	36.82
- % with upper secondary completed	11.74	12.78	10.62
- % with secondary technical completed	8.20	8.82	7.53
- % with tertiary (or some)	5.76	6.89	4.67
Labor Force Participation (%)			
- Employed	92.17	94.81	89.74
- Employed with secondary general education	91.55	92.79	89.94
- Employed with secondary technical educ	93.37	94.19	92.33
- Out of LF/unemployed	7.83	5.19	10.26
- Share of wage employment	35.76	46.30	25.52
- Share of self-employed/unpaid employment	64.24	53.70	74.48
- With secondary general education:			
- Share of wage employment	31.03	36.14	24.45
- Share of self-employment/unpaid employ.	58.23	54.14	63.49
- Out of LF/unemployed	10.74	9.72	12.06
- With secondary technical education:			
- Share of wage employment	57.38	56.61	58.35
- Share of self-employment/unpaid employ.	34.33	35.74	32.56
- Out of LF/unemployed	8.29	7.65	9.09
Sectoral Composition (%)			
- Primary	57.04	56.37	57.69
- Family business	26.14	22.64	29.54
- Other	16.82	20.99	12.77

Source: Survey of Households 2001-02

Indonesia

Working sample: 25-65 years	All	Male	Female
Education			
- Years of schooling	7.20	7.84	6.57
- Employed for wages	10.19	10.21	10.11
- Self-employed	6.49	6.76	5.65
- Out of the LF/unemployed	7.01	8.64	6.82
- % less than primary	27.57	22.01	33.05
- % with primary completed	32.80	32.43	33.15
- % with lower secondary completed	14.86	16.09	13.66
- % with upper secondary completed	14.46	16.98	11.99
- % with upper secondary technical completed	4.96	6.16	3.79
- % with tertiary (or some)	5.34	6.34	4.35
Labor Force Participation (%)			
- Employed	71.42	94.04	49.20
- Employed with secondary general education	68.45	91.15	36.85
- Employed with secondary technical educ	77.76	92.86	53.62
- Out of LF/unemployed	28.58	5.96	50.80
- Share of wage employment	19.20	28.25	10.31
- Share of self-employed	40.91	62.24	19.95
- Share of unpaid employment	11.31	3.54	18.93
- With secondary general education:			
- Share of wage employment			
- Share of self-employment/unpaid employ.	33.85	45.75	17.28
- Out of LF/unemployed	34.60	45.40	19.57
- With secondary technical education:	31.55	8.85	63.15
- Share of wage employment	47.84	55.41	35.76
- Share of self-employment/unpaid employ.	29.91	37.46	17.86
- Out of LF/unemployed	22.25	7.13	46.38
Sectoral Composition (%)			
- Primary	51.14	50.07	53.08
- Industry	12.88	14.59	9.67
- Services/Sales/Trade	35.98	35.34	37.24

Source: Susenas 2003

Thailand

Working sample: 25-65 years	All	Male	Female
Education			
- Years of schooling	7.10	7.50	6.75
- Employed	7.28	7.52	7.04
- Employed for wages	9.18	9.02	9.38
- Self-employed/employer	5.88	5.97	5.74
- Unpaid family worker	5.73	7.35	5.28
- Out of LF/unemployed	5.75	6.54	5.57
- % with less than primary	7.29	5.33	8.97
- % with lower primary completed	40.76	37.66	43.41
- % with upper primary completed	16.44	16.81	16.12
- % with lower secondary completed	9.42	11.43	7.70
- % with voc/technical completed	7.48	9.31	5.91
- % with upper secondary completed	5.76	6.85	4.83
- % with university (or some)	10.41	10.00	10.75
Labor Force Participation (%)			
- Employed	85.16	92.76	78.66
- Employed with second. general education	86.90	93.76	78.58
- Employed with second. technical education	87.32	92.03	81.00
- Out of LF/unemployed	14.84	7.24	21.34
- Share of wage employed	43.35	47.02	39.65
- Share of self-employed/employers	36.11	44.13	28.02
- Unpaid employment	20.50	8.85	32.25
- With secondary general education:			
- Share of wage employment	47.01	52.34	40.53
- Share of self-employed/employers	27.11	31.12	22.25
- Share of unpaid employment	12.78	10.29	15.80
- Out of LF/unemployed	13.01	6.25	21.42
- With secondary technical education:			
- Share of wage employment	57.76	62.18	51.81
- Share of self-employed/employers	20.82	22.88	18.05
- Share of unpaid employment	8.74	6.97	11.13
- Out of LF/unemployed	12.68	7.97	19.01
Sectoral Composition (%)			
- Primary	30.91	34.25	28.05
- Industry	14.87	17.88	12.31
- Services/sales/Trade	54.22	47.87	59.64

Source: Socioeconomic Survey 2002

Philippines

Working sample: 25-65 years	All	Male	Female
Education			
- Years of schooling	9.62	9.51	9.72
- Employed	9.73	9.38	10.29
- Employed for wages	11.55	10.72	13.19
- Self-employed/Employers	8.36	7.98	9.06
- Unpaid/family employees	7.94	9.18	7.46
- Out of LF/Unemployed	9.31	10.61	9.03
- % with less than primary	22.58	23.18	21.97
- % with primary completed	30.07	29.43	30.55
- % with secondary completed	21.65	23.06	20.29
- % with university (or some)	25.71	24.16	27.19
Labor Force Participation (%)			
- Employed	72.10	89.90	54.90
- Employed with secondary education	69.22	88.95	47.77
- Out of LF/unemployed	27.90	10.10	45.10
- Share of wage employment	32.47	43.97	21.34
- Share of self-employed/employers	30.34	40.06	20.94
- Share of unpaid/family employment	37.18	15.97	57.71
With secondary education			
- Share of wage employment	34.15	50.52	16.36
- Share of self-employed/employers	27.37	32.30	22.02
- Share of unpaid/family employment	38.47	17.18	61.62
Sectoral Composition (%)			
- Agriculture/Mining	41.20	44.90	35.10
- Industry	34.50	34.80	34.10
- Services/Trade	22.70	18.10	30.00
- Other	1.60	2.20	0.80

Source: Annual Poverty Indicator Survey 1999

China

Working sample: 25-65 years	All	Male	Female
Education			
- Years of schooling	10.12	10.14	10.10
- Employed	10.15	10.17	10.12
- Employed for wages	11.25	11.27	11.21
- Self-employed/Employers	7.75	8.01	7.28
- Other employed	8.76	8.78	8.78
- Out of LF/Unemployed	9.10	9.22	8.96
- % with less than primary	8.28	7.44	8.67
- % with primary completed	11.42	11.68	10.96
- % with lower secondary completed	32.39	33.78	30.37
- % with upper secondary completed	21.41	20.24	23.25
- % with sec. technical/vocational	12.61	11.46	14.36
- % with university completed	14.20	15.40	12.39
Labor Force Participation (%)			
- Employed	97.46	97.60	97.25
- Employed with secondary general ed.	97.51	98.15	96.68
- Employed with secondary voc./technical	98.59	98.68	98.47
- Share of wage employment	61.77	60.57	63.60
- Share of self-employed/employers	19.91	21.35	17.87
- Share of other employed	18.32	18.08	18.53
With secondary general education:			
- Share of wage employment	69.01	69.85	67.92
- Share of self-employed/employers	13.02	15.07	10.38
- Share of other employed	17.97	15.08	21.17
With secondary voc./technical:			
- Share of wage employment	87.72	85.71	90.08
- Share of self-employed/employers	3.16	3.90	2.29
- Share of other employed	9.12	10.39	7.63
Sectoral Composition (%)			
- Agriculture/Fishing	12.00	13.25	10.22
- Other	88.00	86.75	89.78

Source: Economic, Population, Nutrition and Health Survey 2000

Singapore

Working sample: 25-65 years	All	Male	Female
Education (fully employed for wages)			
- Years of schooling	9.96	10.06	9.85
- % with less than primary	22.22	22.85	21.55
- % with primary completed	14.06	15.42	12.64
- % with secondary completed	30.38	26.34	34.64
- % with pre-university	9.41	7.07	11.88
- % with polytechnic diploma	11.23	14.10	8.22
- % with university completed	12.51	14.22	11.06
Labor Force Participation (%)			
- Employed			
- With secondary general education	74.3	84.9	61.6
- With secondary voc./technical	88.1	94.2	71.0
- Out of the LF			
- With secondary general education	23.7	13.2	36.2
- With secondary voc./technical	9.8	3.5	27.4
- Unemployed			
- With secondary general education	2.0	1.9	2.2
- With secondary voc./technical	2.1	2.3	1.6
Sectoral Composition (%)			
- Agriculture/Mining	4.05	3.58	4.55
- Industry	32.77	39.36	25.85
- Services/Sales/Trade	63.17	57.06	69.59

Source: Labor Force Survey 1998

Argentina

Working sample: 25-65 years	All	Male	Female
- Years of schooling	9.76	9.71	9.80
- Employed	10.19	9.90	10.58
- Employed for wages	10.25	9.95	10.58
- Self-employed/Employers	9.99	9.79	10.52
- Unpaid employees	10.90	10.40	11.04
- Out of LF/unemployed	18.04	18.02	20.03
- % with less than primary	11.28	11.17	10.95
- % with primary completed	41.81	42.69	41.02
- % with secondary completed	17.69	15.89	19.28
- % with sec. technical (or some)	5.68	9.11	2.63
- % with higher non-university	8.61	4.88	11.90
- % with university (or some)	15.43	16.75	14.26
- Employed	64.28	78.37	51.80
- With Sec. education	64.52	81.30	52.26
- With Sec. technical education	76.54	83.31	59.44
- Out of LF/unemployed	35.82	21.62	48.20
- Share of wage employment	73.64	67.64	81.68
- Share of self-employed/employers	25.44	32.00	16.66
- Share of unpaid employment	0.91	0.36	1.66
- With Second. education:			
- Share of wage employment	49.36	58.56	42.63
- Share of self-employment/employer	14.48	22.64	8.52
- Share of unpaid employment	0.69	0.10	1.11
- Out of the LF/unemployed	35.47	18.70	47.74
- With Second. technical education:			
- Share of wage employment	54.21	57.39	46.18
- Share of self-employment/employer	21.64	25.76	11.24
- Share of unpaid employment	0.68	0.16	2.01
- Out of the LF/unemployed	23.47	16.69	40.57
Sectoral Composition (%) - Primary	2.67	4.11	0.69
- Industry	20.10	29.65	7.02
- Services/Sales/Trade	76.18	65.61	90.64

Source: *Encuesta Permanente a Hogares* 2003

Chile

Working sample: 25-65 years	All	Male	Female
- Years of schooling	9.36	9.00	10.12
- Employed	9.34	8.96	10.26
- Employed for wages	9.86	9.28	11.25
- Self-employed/Employer	8.48	8.29	8.99
- Unpaid employees	8.54	10.40	8.11
- Out of LF	18.93	11.87	9.45
- % with primary incomplete	26.27	29.17	20.29
- % with primary completed	29.55	31.33	25.86
- % with secondary general completed	17.61	20.30	24.14
- % with sec. technical (or some)	15.79	10.28	15.07
- % with university (or some)	10.44	8.60	14.29
- Employed	88.00	92.39	78.93
- With second. education	87.62	92.65	79.37
- With second. technical education	88.73	92.42	83.52
- Out of LF/unemployed	12.00	7.61	21.07
- Share of wage employment	63.90	67.16	57.17
- Share of self-employed/employers	28.46	30.73	23.76
- Share of unpaid employment	7.64	2.11	19.06
- With Second. education:			
- Share of wage employment	59.04	64.34	50.35
- Share of self-employment/employer	21.57	24.09	17.45
- Share of unpaid employment	7.00	0.42	11.57
- Out of the LF/unemployed	12.39	11.06	20.63
- With Second. technical education:			
- Share of wage employment	65.77	66.05	65.36
- Share of self-employment/employer	18.49	22.26	13.17
- Share of unpaid employment	4.47	4.11	4.99
- Out of the LF/unemployed	11.27	7.58	16.48
Sectoral Composition (%) - Primary	28.41	35.82	13.08
- Industry	13.25	15.18	9.27
- Services/Sales/Trade	58.24	48.91	77.54

Source: *Encuesta de Caracterización Socioeconómica National 2003*

Colombia

Working sample: 25-65 years	All	Male	Female
Education			
- Years of schooling	8.98	9.06	8.91
- Employed for wages	11.14	10.48	11.94
- Self-employed/Employer	7.75	7.69	7.82
- Other	8.08	8.66	7.79
- % with less than primary	23.74	24.09	23.46
- % with primary complete	34.83	34.37	35.22
- % with secondary general complete	21.41	21.54	21.31
- % with higher technical complete	6.79	6.00	7.45
- % with university (or more)	13.22	14.00	12.56
Labor Force Participation (%)			
- Employed (% of LF)	71.21	86.46	58.30
- Employed with second. general education	72.61	86.00	61.28
- Employed with higher technical education	77.42	87.22	70.76
- Share of wage employment	47.60	48.78	46.14
- Share of self-employed	39.48	40.69	37.97
- Other	12.92	10.53	15.89
- With secondary general education:			
- Share of wage employment	52.58	53.22	51.82
- Share of self-employed	41.41	43.27	39.18
- Other	6.01	3.51	9.00
- With higher technical education:			
- Share of wage employment	60.62	57.71	64.91
- Share of self-employed	32.91	37.51	29.07
- Other	6.47	4.78	6.02
Sectoral Composition (%)			
- Primary	22.34	26.18	17.52
- Industry	47.99	54.65	39.80
- Services/Sales/Trade	29.67	19.31	42.68

Source: *Encuesta de Calidad de Vida* 2003

Guatemala

Working sample: 25-65 years	All	Male	Female
Education			
- Years of schooling	4.13	4.79	3.56
- Employed for wages	7.84	7.37	8.94
- Self-employed	4.48	3.68	3.18
- Out of the LF/unemployed	2.29	2.24	2.39
- % with less than primary	40.52	32.31	47.75
- % with primary complete	39.21	44.59	34.47
- % with secondary complete	15.79	17.29	14.47
- % with university complete	4.48	5.81	3.30
Labor Force Participation (%)			
- Employed	69.28	94.27	47.26
- Employed with secondary education	78.82	93.03	64.20
- Out of LF/unemployed	30.72	5.73	52.74
- Share of wage employment	48.72	53.61	40.14
- Share of self-employed	44.16	42.81	46.54
- Share of unpaid employment/other	7.12	3.58	13.32
With secondary education:			
- Share of wage employment	62.73	65.60	58.46
- Share of self-employment	29.88	29.44	30.54
- Share of unpaid employment/other	6.13	4.96	7.88

Source: *ENVCOVI* 2000

Venezuela

Working sample: 25-65 years	All	Male	Female
Education			
- Years of schooling	8.15	7.98	8.31
- Employed for wages	9.18	8.47	10.13
- Self-employed/Employer	7.44	7.31	7.64
- Other	7.07	7.14	7.03
- % with less than primary	7.31	7.17	7.45
- % with primary complete	55.12	57.25	53.12
- % with secondary general complete	19.72	19.34	20.07
- % with higher technical complete	6.01	5.45	6.53
- % with university complete	11.35	10.13	12.50
Labor Force Participation (%)			
- Employed	79.79	94.60	65.83
- Employed with second. general education	83.27	96.40	71.34
- Employed with higher technical education	88.96	94.69	84.44
- Out of LF/Unemployed	20.21	5.40	34.17
- Share of wage employment	60.67	60.36	61.10
- Share of self-employed/employer	37.39	38.60	35.76
- Share of unpaid employment	1.94	1.04	3.15
With secondary general education:			
- Shares of wage employment	51.17	58.40	44.60
- Share of self-employed/employers	30.57	37.27	24.48
- Share of unpaid employment	1.53	0.73	2.27
- Not in LF/unemployed	16.73	3.60	28.66
With higher technical education:			
- Shares of wage employment	67.10	66.35	67.70
- Share of self-employed/employers	21.07	26.97	16.42
- Share of unpaid employment	0.78	1.36	0.32
- Not in LF/unemployed	11.04	5.31	15.56
Sectoral Composition (%)			
- Primary	9.65	14.32	2.13
- Industry	20.37	27.61	10.95
- Services	69.98	58.08	86.92

Source: *Encuesta de Hogares por Muestro* 2002

Mexico (Employed)

Working sample: 25-65 years	All	Male	Female
Education			
- Years of schooling	8.21	7.86	8.94
- Employed for wages	8.77	8.58	9.10
- Self-employed/Employer	6.34	6.23	6.79
- Other	4.31	4.30	4.36
- % with less than primary	24.03	26.63	18.65
- % with primary complete	22.79	24.11	20.07
- % with lower secondary complete	27.62	26.25	30.46
- % with upper secondary complete	15.04	13.78	17.66
- % with tertiary complete	10.51	9.22	13.16
Labor Force Participation (%)			
- Share of wage employment	86.32	81.60	95.92
- Share of self-employed/employers	2.81	3.38	1.65
- Other	10.87	15.01	2.43
With upper secondary education:			
- Share of wage employment	93.86	91.45	98.05
- Share of self-employed/employers	1.52	1.70	1.20
- Other	4.62	6.85	0.75
With upper secondary education:	96.81	95.42	98.90
- Share of wage employment	2.12	2.79	1.10
- Share of self-employed/employers	1.08	1.79	0.00
- Other			
Sectoral Composition (%)			
- Primary	11.70	16.26	2.41
- Industry	31.12	36.50	20.19
- Services/Sales/Trade	57.18	47.24	77.40

Source: Encuesta Nacional de Ingresos y Gastos de los Hogares (ENIGH) 2002

Bolivia

Working sample: 25-65 years	All	Male	Female
- Years of schooling	6.94	7.87	6.07
- Employed for wages	10.34	9.82	11.53
- Self-employed/Employer	6.04	6.37	5.48
- Other	5.57	8.67	4.94
- % with less than primary	12.97	5.52	20.05
- % with primary complete	51.20	52.82	49.67
- % with secondary general complete	20.41	24.41	16.61
- % with higher technical complete	6.64	6.64	6.64
- % with university complete	8.76	10.59	7.02
- Employed	80.00	93.20	67.45
- Employed with second. general education	80.27	92.99	62.50
- Employed with higher technical education	85.45	93.90	77.42
- Out of LF/unemployed	20.00	6.80	32.55
- Share of wage employment	24.74	35.27	14.74
- Share of self-employed/employers	40.91	52.68	29.72
- Share of unpaid employment	14.34	5.25	22.98
-Out of LF/unemployed	20.00	6.80	32.55
With secondary general education:			
- Share of wage employment	31.77	40.40	19.72
- Share of self-employed/employers	40.11	46.22	31.57
- Share of unpaid employment	8.39	6.36	11.21
- Not in the LF/unemployed	19.73	7.01	37.50
With higher technical education:			
- Share of wage employment	67.77	71.86	63.87
- Share of self-employed/employers	15.04	21.36	9.03
- Share of unpaid employment	2.64	0.68	4.52
- Not in the LF/unemployed	14.55	6.10	22.58
Sectoral Composition (%)			
- Primary	N/A	N/A	N/A
- Industry	N/A	N/A	N/A
- Services/Sales/Trade	N/A	N/A	N/A

Source: *MECOVI* 2002

Brazil

Working sample: 25-65 years	All	Male	Female
- Years of schooling	6.40	6.25	6.54
- Employed for wages	7.88	6.91	9.57
- Self-employed/Employer	6.19	5.80	7.11
- Other	4.04	3.66	4.09
- % with less than primary	52.42	53.23	51.68
- % with primary complete	16.40	16.73	16.11
- % with lower secondary complete	5.40	5.61	5.21
- % with upper secondary complete	17.82	16.95	18.61
- % with university complete	7.26	6.71	7.76
Labor Force Participation (%)			
- Employed	67.05	83.17	52.45
- Employed with lower secondary education	64.86	81.15	48.99
- Employed with upper secondary education	73.10	86.05	62.42
- Out of LF/unemployed	32.95	16.83	47.55
- Share of wage employment	53.76	58.94	46.64
- Share of self-employed/employers	31.45	38.00	22.45
- Share of unpaid/household employment	11.70	1.95	25.11
- Other	3.08	1.11	5.79
With lower secondary education:			
- Share of wage employment	55.48	59.96	48.26
- Share of self-employed/employers	36.02	38.65	31.78
- Share of unpaid/household employment	7.52	0.99	18.03
- Other	0.98	0.39	1.93
With upper secondary education:			
- Share of wage employment	67.80	66.89	68.82
- Share of self-employed/employers	27.37	32.01	22.16
- Share of unpaid/household employment	4.42	0.90	8.37
- Other	0.41	0.20	0.65
Sectoral Composition (%)			
- Agriculture	16.78	19.03	13.68
- Other	83.22	80.97	86.32

Source: *PNAD* 2001

Annex 2: Returns to Additional Year of Schooling (male wage earners, 25-65 years, dep var: log hourly wage)

Country/N	Variable	OLS	Q10	Q25	Q50	Q75	Q90
Mongolia 2002	Education	0.085**	0.111**	0.094**	0.084**	0.063**	0.066**
		(9.6)	(7.0)	(8.8)	(6.8)	(4.1)	(4.2)
	Experience	-0.011	-0.016	0.000	-0.009	-0.017	0.000
		(1.0)	(1.1)	(0.0)	(0.6)	(1.3)	(0.0)
	Experience ^{2}	0.0002	0.0001	-0.0001	0.0002	0.0003	-0.0001
		(0.8)	(0.5)	(0.2)	(0.7)	(1.2)	(0.3)
	Constant	9.35**	8.29**	8.69**	9.30**	10.09**	10.33**
N=1,190	Adj. R^2/Pseudo R^2	0.076	0.065	0.051	0.045	0.032	0.032
Cambodia 2003-05	Education	0.383**	0.568**	0.603**	0.133**	0.083**	0.122**
		(27.7)	(4.1)	(54.2)	(9.7)	(9.8)	(13.1)
	Experience	0.057*	0.090*	0.124**	0.005	-0.014	0.031*
		(2.5)	(1.8)	(5.3)	(0.4)	(1.1)	(2.3)
	Experience ^{2}	-0.0005	-0.0003	-0.001**	-0.000	0.0002	-0.003
		(1.2)	(0.4)	(4.6)	(0.1)	(1.0)	(1.2)
	Constant	1.09**	-5.64	-3.36	5.19**	6.57**	6.28**
N=3,040	Adj. R^2/Pseudo R^2	0.215	0.040	0.267	0.036	0.028	0.049
Vietnam 2001-02	Education	0.072**	0.104**	0.077**	0.064**	0.058**	0.060**
		(26.4)	(16.6)	(21.4)	(21.1)	(22.7)	(10.6)
	Experience	0.028**	0.045**	0.032**	0.035**	0.021**	0.005
		(7.5)	(9.2)	(7.0)	(7.9)	(3.9)	(0.8)
	Experience ^{2}	-0.0006**	-0.001**	-0.0007**	-0.0007**	-0.0004**	0.000
		(7.5)	(9.3)	(6.2)	(6.5)	(3.2)	(0.1)
	Constant	0.26**	-0.97**	-0.23**	0.27**	0.81**	1.29**
N=6,204	Adj. R^2/Pseudo R^2	0.113	0.103	0.076	0.063	0.050	0.041
Indonesia 2003	Education	0.114**	0.117**	0.121**	0.116**	0.108**	0.108**
		(151.1)	(75.2)	(141.7)	(179.5)	(109.2)	(75.1)
	Experience	0.055**	0.064**	0.061**	0.056**	0.046**	0.041**
		(52.9)	(34.8)	(48.5)	(53.7)	(39.1)	(30.0)
	Experience ^{2}	-0.0007**	-0.0009**	-0.0008**	-0.0007**	-0.0006**	-0.0005**
		(36.3)	(23.6)	(33.6)	(35.9)	(22.8)	(17.0)
	Constant	6.33**	5.49**	5.84**	6.31**	6.83**	7.20**
N=58,392	R^2/Pseudo R^2	0.299	0.122	0.165	0.210	0.212	0.166
Thailand 2002	Education	0.152**	0.189**	0.166**	0.142**	0.130**	0.136**
		(97.8)	(49.1)	(69.2)	(114.1)	(83.1)	(43.1)
	Experience	0.074**	0.090**	0.084**	0.072**	0.061**	0.058**
		(32.1)	(13.6)	(27.3)	(32.9)	(15.5)	(12.4)
	Experience ^{2}	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**	-0.0006**
		(24.0)	(11.4)	(20.3)	(22.0)	(9.6)	(6.3)
	Constant	6.20**	4.82**	5.60**	6.41**	6.97**	7.23**
N=13,030	R^2/Pseudo R^2	0.450	0.221	0.255	0.301	0.321	0.294
Philippines 1999	Education	0.116**	0.140**	0.130**	0.111**	0.103**	0.107**
		(76.1)	(40.2)	(65.7)	(73.3)	(57.8)	(48.2)
	Experience	0.037**	0.043**	0.048**	0.038**	0.028**	0.030**
		(16.5)	(8.6)	(12.4)	(14.3)	(13.0)	(8.7)
	Experience ^{2}	-0.0005**	-0.0006**	-0.0007**	-0.0005**	-0.0003**	-0.0003**
		(11.7)	(6.5)	(10.0)	(10.0)	(8.2)	(4.1)
	Constant	2.04**	0.83**	1.43**	2.19**	2.73**	2.95**
N=12,998	R^2/Pseudo R^2	0.304	0.133	0.170	0.183	0.208	0.225
China 2000	Education	0.121**	0.145**	0.129**	0.134**	0.086**	0.098**
		(8.5)	(8.2)	(5.8)	(8.0)	(3.6)	(4.3)
	Experience	-0.006	0.055	0.011	0.020	-0.042	-0.048
		(0.3)	(1.7)	(0.4)	(0.7)	(1.4)	(1.3)
	Experience ^{2}	0.0003	-0.0007	0.0001	-0.0001	0.0009	0.001*
		(1.1)	(1.1)	(0.2)	(0.2)	(1.5)	(1.5)
	Constant	-1.86**	-3.99**	-2.86**	-2.41**	-0.30	0.12
N=532	R^2/Pseudo R^2	0.116	0.109	0.090	0.076	0.043	0.042
Singapore 1998	Education	0.119**	0.094**	0.112**	0.117**	0.123**	0.137**
		(46.0)	(16.3)	(25.8)	(35.7)	(27.9)	(42.9)
	Experience	0.038**	0.013**	0.028**	0.037**	0.054**	0.060**
		(12.3)	(2.9)	(9.4)	(15.7)	(13.6)	(9.3)
	Experience ^{2}	-0.0005**	-0.0002**	-0.0004**	-0.0005**	-0.0007**	-0.0007**
		(9.1)	(2.4)	(6.6)	(13.7)	(8.4)	(6.2)
	Constant	0.73**	0.80**	0.64**	0.74**	0.72**	0.72**
N=3,326	R^2/Pseudo R^2	0.454	0.201	0.255	0.284	0.291	0.290

Annex 2 (cont'd): Returns to Additional Year of Schooling (males, 25-65 years, dep var: log hourly wage)

Country/N	Variable	OLS	Q10	Q25	Q50	Q75	Q90
Argentina 2003	Education	0.110**	0.090**	0.090**	0.109**	0.122**	0.132**
		(41.5)	(16.4)	(28.7)	(28.6)	(35.3)	(27.8)
	Experience	0.041**	0.034**	0.037**	0.042**	0.049**	0.043**
		(13.0)	(5.2)	(10.3)	(10.4)	(11.0)	(7.1)
	Experience ^{2}	-0.0004**	-0.0003**	-0.0004**	-0.0004**	-0.0005**	-0.0004**
		(7.5)	(2.9)	(6.3)	(5.9)	(7.2)	(4.3)
	Constant	-0.75**	-1.20**	-0.85**	-0.74**	-0.60**	-0.22*
N=5,923	R^2/Pseudo R^2	0.234	0.065	0.077	0.131	0.165	0.180
Chile 2003	Education	0.120**	0.076**	0.078**	0.105**	0.131**	0.146**
		(120.6)	(41.6)	(56.4)	(76.7)	(85.2)	(77.7)
	Experience	0.006**	0.004*	0.004**	0.005**	0.007**	0.008**
		(5.2)	(2.1)	(3.9)	(3.8)	(4.8)	(3.0)
	Experience ^{2}	0.0001**	0.000	0.0001**	0.0001**	0.0001**	0.008**
		(4.9)	(0.7)	(2.7)	(5.7)	(4.9)	(3.0)
	Constant	5.35**	5.24**	5.46**	5.47**	5.55**	5.76**
N=31,632	R^2/Pseudo R^2	0.334	0.082	0.095	0.156	0.234	0.281
Colombia 2003	Education	0.105	0.089	0.098	0.115	0.133	0.144
		(39.5)	(17.9)	(29.4)	(61.9)	(72.9)	(50.0)
	Experience	0.028	0.021	0.017	0.031	0.037	0.029
		(4.7)	(3.2)	(3.3)	(8.1)	(6.6)	(3.5)
	Experience ^{2}	-0.0002	-0.0002	-0.0001	-0.0003	-0.0003	-0.0001
		(2.2)	(2.0)	(0.9)	(3.6)	(3.1)	(0.7)
	Constant	7.632	7.280	7.538	7.487	7.596	7.929
N=6,114	R^2/Pseudo R^2	0.207	0.086	0.141	0.245	0.313	0.296
Guatemala 2000	Education	0.126**	0.095**	0.110**	0.128**	0.130**	0.148**
		(31.7)	(13.3)	(18.0)	(32.8)	(30.4)	(21.5)
	Experience	0.026**	0.034**	0.042**	0.028**	0.024**	0.021*
		(4.2)	(3.8)	(6.2)	(4.7)	(3.0)	(2.1)
	Experience ^{2}	-0.0002*	-0.0004**	-0.0005**	-0.0003*	-0.0002	-0.0001
		(2.0)	(3.1)	(4.9)	(2.4)	(1.3)	(0.6)
	Constant	0.55**	-0.06	0.08	0.49**	0.91**	1.16**
N=2,038	R^2/Pseudo R^2	0.365	0.122	0.181	0.259	0.303	0.279
Venezuela 2002	Education	0.099**	0.080**	0.086**	0.096**	0.106**	0.113**
		(45.5)	(18.0)	(33.5)	(39.6)	(47.0)	(35.6)
	Experience	0.025**	0.022**	0.023**	0.025**	0.026**	0.027**
		(8.5)	(4.7)	(7.5)	(6.0)	(7.7)	(5.0)
	Experience ^{2}	-0.0003**	-0.0003**	-0.0003**	-0.0003**	-0.0003**	-0.0003**
		(5.8)	(3.6)	(5.4)	(3.9)	(5.1)	(3.6)
	Constant	7.34**	6.92**	7.15**	7.35**	7.59**	7.87**
N=5,779	R^2/Pseudo R^2	0.281	0.100	0.122	0.148	0.201	0.206
Mexico 2002	Education	0.113**	0.099**	0.100**	0.110**	0.119**	0.122**
		(56.5)	(22.3)	(34.6)	(35.5)	(49.6)	(46.2)
	Experience	0.036**	0.030**	0.031**	0.033**	0.041**	0.041**
		(12.9)	(5.4)	(10.2)	(13.0)	(13.9)	(9.3)
	Experience ^{2}	-0.0004**	-0.0004**	-0.0004**	-0.0004**	-0.0004**	-0.0004**
		(8.9)	(4.0)	(7.3)	(7.7)	(8.3)	(5.5)
	Constant	1.29**	0.81**	1.123**	1.36**	1.54**	1.831**
N=7,329	R^2/Pseudo R^2	0.329	0.109	0.134	0.182	0.245	0.270
Bolivia 2002	Education	0.103**	0.066**	0.083**	0.099**	0.116**	0.128**
		(21.7)	(7.8)	(12.2)	(14.1)	(24.3)	(22.8)
	Experience	0.032**	0.041**	0.031**	0.032**	0.031**	0.033**
		(4.7)	(3.0)	(4.0)	(3.1)	(3.4)	(3.2)
	Experience ^{2}	-0.0004**	-0.0007*	-0.0004**	-0.0004*	-0.0003	-0.0003
		(2.9)	(2.5)	(3.2)	(2.3)	(1.8)	(1.7)
	Constant	-0.01	-0.50**	-0.19	0.05	0.29*	0.55**
N=1,550	R^2/Pseudo R^2	0.250	0.053	0.085	0.158	0.234	0.231
Brazil 2001	Education	0.157**	0.124**	0.137**	0.157**	0.177**	0.189*
		(181.1)	(63.8)	(84.8)	(0.141)	(120.5)	(102.9)
	Experience	0.051*	0.037**	0.044**	0.053**	0.057**	0.056**
		(38.1)	(13.3)	(21.7)	(33.2)	(28.8)	(24.7)
	Experience ^{2}	-0.0006**	-0.0004**	-0.0005**	-0.0006**	-0.0006**	-0.0005**
		(24.9)	(8.9)	(14.7)	(24.3)	(17.7)	(15.0)
	Constant	-1.25**	-1.54**	-1.40**	-1.28**	-1.08**	-0.76**
N=40,644	R^2/Pseudo R^2	-	0.151	0.181	0.205	0.217	0.178

* indicates significance at the 5% level; ** 1% level