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Returns to Education in Low and Middle-Income Countries: Evidence from the Living Standards and Measurement Surveys

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#### Returns to Education in Low and Middle-Income Countries: Evidence from the Living Standards and Measurement Surveys

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#### Abstract

While a large literature has investigated the returns to education in high-income countries, evidence on returns in less developed countries is relatively scarce. We pool 61 nationally representative household surveys conducted between 1985 and 2012 in order to address this evidence gap and to estimate average national and regional returns to education. We find a return of 6.5% in the pooled data, with lower returns in rural areas, higher returns for females, higher returns in the years prior to 2000, and lower rates of return in Asian countries compared to Africa, Latin America, and Eastern Europe. With respect to schooling levels, we find lowest returns for primary education, and highest returns to tertiary education, consistent with recent evidence from developed countries. Overall, returns to education in developing countries seem to be similar or lower than those in high-income countries with remarkably large amounts of heterogeneity across countries, time, and regions.

#### 1. Introduction

The return to education is one of the most common economic analyses with a rich history dating back to the late 1950s. While a few studies have tried to identify the returns to education in low- and middle-income countries (Psacharopoulos 1981, Psacharopoulos 1985, Psacharopoulos 1989, Psacharopoulos 1994, Psacharopoulos 1994, Psacharopoulos and Patrinos 2002), the large majority of more recent literature has focused on highincome settings (Card 2001). Returns to education in a developing country context may be different from those of high-income economies due to differing capital stock and capital investment, lower technological capacity, or more restricted schooling access (Psacharopoulos 1973, Kang 1993, Todaro 1989). In recent years, differences in capital stock and production technology have been declining due to an increasing rate of globalization and increasing rates of migration (Fischer 2003, Ghose 2004, UNCTAD 1999, World Bank 2001). At the same time, school enrollment, literacy, and other measures of human capital have increased dramatically (UNESCO 1999, World Bank 1982) following the incorporation of education in the Millenium Development Goals, but also based on the wide recognition of human capital investment as a critical strategy for promoting economic development (Schultz 1994, Romer 1989, (Nelson and Phelps 1966).

Relatively little recent systematic evidence is available on the returns to education in developing countries. While both Card (2001) and Duflo (2001) argue that returns to education are likely to be higher in developing than in industrialized countries, empirical evidence on the returns to education in developing countries is surprisingly scarce. Most existing evidence for developing countries is based on the work of George Psacharopolous and colleagues (Psacharopoulos 1981, Psacharopoulos 1985, Psacharopoulos 1989, Psacharopoulos 1994, Psacharopoulos 1994) and Psacharopolous and Patrinos (Psacharopoulos and Patrinos 2002, Patrinos and Psacharopoulos 2010), who summarize the literature on the returns to education from low- and middle-income countries up to the 1990s. A variety of different and not necessarily compatible empirical models and often non-representative data sources yield results which are difficult to compare to the estimated returns in developed countries (Bennell 1996, Psacharopoulos 1996, Psacharopoulos and Patrinos 2002). Other reviews assessing the estimated returns in developing countries is inconclusive or that the returns are overstated (Behrman and Birdsall 1987, Strauss and Thomas 1998)

One of the primary reasons why evidence on the returns to education is scare is the difficulty of collecting income data in low resource settings. Many household surveys in developing countries primarily rely on household asset ownership as proxy for socioeconomic status (Strauss and Thomas 1998). The most notable exception to this general strategy are the Living Standards and Measurement Study (LSMS) surveys run by the World Bank in collaboration with national governments and statistical offices.. LSMS are nationally representative household surveys with an explicit focus on income and household poverty (Grosh and Glewwe 1998). Even though specific surveys of the LSMS program have been used in previous studies (see e.g. Abbas and Foreman-Peck 2008, Angrist and Lavy 1997, Gertler and Glewwe 1992, Glewwe 1996, Hoddinott 1996,

Moll 1997, Schaffner 1997, Stelcner et al. 1989, Suarez-Berenguela 1988, van der Gaag and Vijverberg 1988, Vijverberg 1993), no study has tried to systematically evaluate the returns to education using these data sets which cover a wide range of low- and middle-income countries between 1985 and 2012.

In this paper, we use all 61 publicly available<sup>1</sup> and nationally representative LSMS surveys conducted between 1985 and 2012 containing individual income and education data in order to estimate the returns to education in 25 low to middle-income countries, as well as regional average estimates for Africa, Asia, Eastern Europe and Latin American.

Pooling of all countries and years of LSMS surveys, we find an estimated return to education of 6.5%, with highest returns of 8.0% per year of schooling in Latin America, returns of 6.7% in Africa, returns of 6.8% per year in Eastern Europe and returns of only 1.9% in Asia. We also find a gender gap in the returns to education in favor of females on average, we find a return of 7.2% for females and a return of only 5.9% for males. Stratifying by urban/rural classification of household residence, the results show that the returns to education are higher in urban areas than rural areas.<sup>2</sup> When we divide years of schooling into grades 1-6 (primary), grades 7-12 (secondary) and grades 13+ (tertiary) we find the largest returns to tertiary schooling. Specifically, primary education yields an average return of 4.9% per year of schooling completed, secondary education yields returns of 5.4% per year completed, and tertiary education yields returns of 6.5% per year completed. When we stratify the data by time period, we find returns of 7.3% for all surveys prior to the year 2000 and 6.1% for all surveys during and after the year 2000. These trends mask a substantial degree of heterogeneity across regions, with returns relatively stable at high levels in Africa and Latin America, further declining in Asia, and increasing substantially in Eastern European countries.

The overall estimate for the pooled sample of developing countries as well as the regional specific estimates are significantly below the 10-11% cited in the developing country literature (Psacharopoulos and Patrinos 2002). While our preferred specifications include urban/rural fixed effects and yield returns of 6.5%, alternative specifications consistent with previous analyses which exclude urban/rural fixed effects yield returns comparable to 7-8% estimates from the developed world (Card 2001).<sup>3</sup> In the most comprehensive study to date, Psacharopoulos and Patrinos (2002) summarize returns to education from 83 high and low-income countries from data covering the period 1958 to 1999, reporting return between 2.7% (Italy, 1987) to 28.8% (Jamaica, 1989) per year. Regionally, the highest returns to education were found in Latin America and Sub-Saharan Africa (12% and 11.7% respectively), with the returns in Asia countries 9.9% and the returns in Europe, the Middle East, North Africa and OECD countries less than 7.5%. In contrast, our results for the years including and prior to 1999 (7.3%) are higher than later returns

<sup>&</sup>lt;sup>1</sup> See Appendix Table 1 for details on the availability and inclusion/exclusion of LSMS surveys.

<sup>&</sup>lt;sup>2</sup> Note that not every LSMS survey contains information on urban/rural classification of household residence. Therefore, the sample sizes differ for urban/rural stratifications and the overall estimates do not average to the full sample.

<sup>&</sup>lt;sup>3</sup> The returns in developing countries are larger than 7-8% when an instrumental variable strategy is employed. IV estimates of the returns to education range from 8-15%.

(6.1%) but substantially less than Psacharopoulos and Patrinos (2002). The results presented in this paper suggests a similar geographical order (highest returns in Latin America and lowest in Asia), but lower returns overall.

With respect to the relative returns to schooling levels, our results look rather different from the ones presented in Psacharopoulos and Patrinos (2002), who find highest returns to primary education (18.9%), and lowest returns to tertiary education (10.8%), a result also found in Colclough, Kingdon and Patrinos (2009). Our results indicate that this gradient is the reverse, with highest returns to tertiary schooling. The patterns found in our analysis are however well aligned with more recent evidence highlighting the (non-monotonically) increasing returns to schooling across educational levels and years (Schultz 2004, Kingdon et. al. 2008)

The study builds on several previous papers analyzing individual LSMS surveys. Schaffner (1997) use the 1985 Peru LSMS survey to examine the employer size gap in the returns to education. For all employers, the returns to an additional year of school are 11%, and between 25-64% larger returns were observed for individuals working for larger employers.<sup>4</sup> Using 1985-87 LSMS surveys from Cote d'Ivoire, Vijverberg (1993) estimates the return to each year of school in primary, secondary and tertiary levels as well as years of apprenticeship and other work training and examines the male-female wage differential. Consistent with the results presented in this study, the authors find higher returns for females. Glewwe (1996) assesses schooling returns in Ghana and highlights ability and school quality as critical sources of bias in basic OLS regressions. Using the 1991 Moroccan LSMS survey, Angrist and Lavy (1997) exploit a national language instruction policy change to estimate the effect of French language skills on test scores and earnings in Morocco using the LSMS. Similar to the results found in this study, they find highest returns for tertiary schooling. Hoddinott (1996) finds that urban labor markets in Cote d'Ivoire between 1985-87 exhibit wage curves similar to developed countries. While returns to education are not estimated, the study finds that doubling urban unemployment causes wages to drop by 12%. Using LSMS data from South Africa, Moll (1997) demonstrates that despite segregation African educational systems create cognitive skills leading to improved labor market outcomes, a 3% increase from primary school, 9% increase from secondary, and a large 54% increase from tertiary education. The public-private wage differential is assessed using LSMS data from Peru (Stelcner et. al. 1989) and Cote d'Ivoire (van der Gaag and Vijverberg 1988). Juxtaposed, the studies demonstrate that context matters: while the results do not hold for all levels of education, higher levels of education are highly rewarded in the private sector labor market of Peru while the returns to education in the public sector generally exceed those in the private sector in Cote d'Ivoire.

This study contributes to the literature by providing a set of standardized estimates of the returns to education from comparable, representative household surveys across the developing world. While the literature has explored a large number of highly

<sup>&</sup>lt;sup>4</sup> The estimated 11% returns is smaller than the estimate of 17.8% produced by the current study, a difference produced by the more select sample in Schaffner (1997) and different wage equation specifications including employer size and industry indicators.

heterogeneous models, we used a basic OLS specification across the entire sample. Conceptually, the main weakness of this OLS approach is the lacking ability to control for a potentially large number of omitted variables, with innate ability most likely being the single most important variable of concern. If it is true that ability is positively correlated with education and independently leads to higher wages, OLS will systematically overestimate the true causal impact of education. A large number of studies have investigated this concern empirically, exploring a range of instruments including changes in schooling laws (Harmon and Walker 1995), proximity to college (Card 1995) and birth quarters (Angrist and Krueger 1991). Rather remarkably, most IV estimates appear to be larger than the corresponding OLS estimates, suggesting that OLS may underestimate the true returns to education. One reason why this is the case would be measurement error in education, or, alternatively, returns to education are highly heterogeneous and the parameters identified by the IV strategy are local average treatment effects (LATE) describing the returns to education of only the subsample for whom the IV induces changes in years of education (Imbens and Angrist 1994). The idiosyncratic gains to education for this subsample are plausibly higher than those unaffected by the IV and the estimated returns exceed the average treatment effects (Heckman 1997). The results presented in this paper represent estimated associations between schooling and labor market incomes conditional on age, experience and rural or urban residence, which may not fully reflect the marginal returns to education for specific populations or subpopulations of interest. By using a highly standardized model, we can identify differences in the relationship between education and income across population strata, differences across countries and regions, and differences across time.

The remainder of the paper is structured as follows. The present data and methodology in Section 2 and show the main results in Section 3; we conclude with a short summary and discussion in Section 4.

#### 2. Empirical Methodology 2.1 LSMS Data

The data used in this study stems from 61 Living Standard Measurement Study surveys covering 25 countries. Table 1 provides summary statistics for each survey, while appendix Table A1 provides an overview over the entire LSMS survey program coverage. The Living Standards Measurement Study (LSMS) program was established by the World Bank in the 1980s to improve the accuracy, timeliness and policy relevance of household survey data collected by government statistical offices in developing countries. Each survey is the result of collaboration between the World Bank and the statistical office of each nation, with data is made publicly available in most cases. The primary objective of LSMS is to collect data on various dimensions of household well-being to assess household welfare, to understand household behavior, and to potentially evaluate the effect of government policies (Grosh and Glewwe 1998). Typically, LSMS surveys are national surveys using multistage probability samples of households. The sample sizes typically range from 2,000-5,000 households (Scott et al. 2005). Table 1 lists the country and year of each of the 61 surveys included in the study and provides the number of individual level-observations with both education and earning data. Figure 1 displays

the geographic coverage of the LSMS surveys and the number of surveys per country included in the study. Extensive efforts were made to collect data from all LSMS surveys however the number of surveys included in this study is limited by four factors: first, some of the studies do not contain the relevant information, second, requests to local statistical offices housing the data did not receive any response, third, surveys included in the current study are limited to those available for free upon request, and fourth, the surveys are not nationally representative (see appendix Table A1 for details).

The standard LSMS survey consists of three questionnaires: a household questionnaire, a community questionnaire, and a price questionnaire. In addition to standard demographic information such as gender, age and educational attainment, household questionnaires in the surveys collect a wide range of income information (Grosh and Glewwe 1998). Commonly, surveys include income from primary and secondary occupations, number of hours worked, level of highest achieved education, and number of years within each level. The amount of information in each survey differs slightly with some collecting information on tertiary occupations, in-kind transfers, bonuses, benefits, and other information. For the purpose of this study, we define earnings as all income from the primary and secondary occupations, excluding benefits, in-kind transfers, and other potential compensations for labor not resulting from these occupations. Furthermore, we limit the analysis to workers with wage income and convert all earnings information into monthly measures. Limiting the analysis to wage and/or salary workers does not exclude agricultural workers or informal sector employees. However, this restriction does exclude farm or other business owners and the self-employed who do not report wages or salaries but report profits or revenues from their operations, which are not directly attributable to one single person reporting them.

Given that the definitions of primary, secondary and tertiary education differ widely across contexts we use the total number of years of education completed as primary measure of education.

The means and standard deviations of monthly earnings in US currency, years of education, gender, and age for each country and year represented in the LSMS surveys are shown in Table 1. Monthly earnings and average educational attainment were cross-checked against income and education data from the World Development Indicators; all surveys appear very close to the national averages of the respective time periods.<sup>5</sup>

### 2.2 Empirical Model

Following the standard in the literature, we model the effect of education on earnings with a standard Mincerian wage equation, where *Y* denotes, *S* denotes the years of schooling completed and *X* denotes potential experience (Heckman, Lochner et al. 2005).

<sup>&</sup>lt;sup>5</sup> Some of the World Bank estimates are likely based on the LSMS, making this comparison partially redundant.

$$Ln(Y) = \alpha + \rho S + \beta_1 X + \beta_2 X^2 + \varepsilon$$

As is common in the literature, we proxy potential experience X by a quadratic age term. The coefficient of interest is  $\rho$  which describes the percent change in earnings due to a one-year marginal change in attained schooling, S.

All models are estimated using OLS. As discussed in the introduction, the overall empirical literature on the bias of OLS estimates is ambiguous, most likely due to two competing sources of bias: positive ability and comparative advantage biases and attenuating measurement error bias. However, because measurement error in schooling is mean-regressive – individuals with the highest level of schooling cannot report positive errors and those with the lowest level of schooling cannot report negative errors – most of the literature concurs on the overall OLS bias being positive (Angrist and Krueger 1999, Card 2001, Griliches 1977). Unfortunately, methods to correct the bias in OLS are not easy to come by. The exclusion restrictions required for the validity of IV instrumental variable (IV) estimation are generally hard to satisfy (and even harder to prove); even if the instrument is valid, IV produces local average treatment effects (LATE), which may reflect non-representative effects with heterogeneous cost or return functions (Card 2001).

For multi-country studies like the ones presented here, identifying plausible instruments seem even more difficult. The only instrument which could potentially be applied across countries is birth quarter; however, data on birth dates is scarce and generally not very reliable in low-income countries.

Given these constraints, we use OLS in this paper to identify the associations the years of schooling and labor market incomes. The reported estimates should thus not be interpreted as the causal effect of (randomly) assigning one additional year of schooling to each individual, but rather as conditional association between educational attainment and income at the population level. As such, the reported coefficients do not directly provide information on returns to schooling per se, but simply describe the income differential observable across the schooling gradient, which reflects both the true causal effect of schooling and the effect of a range of personal and family traits predicting educational attainment as well as labor market outcomes.

The analysis begins by estimating the Mincerian wage equation separately by country and year. Subsequently, the data for each country and year are pooled in order to estimate overall returns to education for low- and middle-income countries. Additionally, we estimate the returns to education by subsample: male and female, urban and rural, and pre and post 2000. In order to compare the results of our study with a large subsample of the literature, we also estimate the returns to each level of schooling – primary, secondary and tertiary. Regional estimates provide a description of the geographic distribution of returns within the low- and middle-income countries of Africa, Asia, Eastern Europe and Latin America.

#### 3. Results

Tables 2, 3, 4, and 5 display the results of the Mincerian wage equation estimation for each survey (country and year) by geographical region.<sup>6</sup> Table 2 displays the results for African countries, namely Cote d' Ivoire, Ethiopia, Ghana, Malawi, Niger, Nigeria, South Africa, Tanzania, and Uganda. For African nations represented by LSMS surveys between the years 1985 and 2011, the regional pooled estimates give a return of 6.7%. The minimum estimated return to an additional year of education occurred in Cote d' Ivoire during the year 1988: 3.3%. Previous years of the LSMS in Cote d' Ivoire demonstrated returns between 5.1%, 7.4, and 6%. Ethiopia in 2011 exhibits the largest return to an additional year of education (12.5%), with similarly high rates for Malawi, South Africa and Uganda. Pooling all surveys for each country shows lowest returns for Ghana (4.7%) and highest rates for Ethiopia (12.5%).

Table 3 displays the returns to education for the Asian countries between 1991 and 2009. Pooling all countries and years of LSMS surveys in Asia yields an estimated return to education of only 1.9%. The largest return to education amongst these countries is seen in the Kyrgyz Republic during the year 1998: 9.7%. The smallest return to education occurs in Iraq 2006, where an additional year of education yields only a 0.7% increase in earnings, likely related to the 2006-07 civil war (Fearon 2007), the continually deteriorating quality of education (Buckland 2005), and the over 31,000 attacks on educational institutions between 2003 and 2008 (UNESCO 2010). Much of regional estimated return of 1.9% is due to Iraq.<sup>7</sup> If Iraq is excluded from the regional pooled sample the estimated returns increase to 3.4% but remains the smallest of all regions.

The returns to education for Eastern European countries during the years 1995-2007 are displayed in Table 4. The returns to education for these countries and years varies between 0.2% and 10.9%, though the majority of the estimates lie between 5% and 8.5%. Pooling all countries and years of LSMS surveys in Eastern Europe yields an estimated return to education of 6.8%. The smallest return to education for these countries and years was experienced in Bulgaria during the crisis year 1997.<sup>8</sup> The returns to an additional year of education in Bulgaria during the years 1995, 2001 and 2007 were 4.8%, 5.3%, and 4.9%, making the 0.2% return of 1997 a significant outlier. The largest estimated return occurred in Serbia 2007. The years 2000, 2002, 2003 and 2007 in Serbia depict consistently growing returns to education from 2% in 2000 to 7% in 2002, 9.4% in 2003 and 10.9% in 2007. This growth in the returns to education from 2000 to 2007 coincides with the ousting of former Yugoslav President Slobodan Milosevic in October

<sup>&</sup>lt;sup>6</sup> Note that the standard errors of each regression are clustered at the regional level within each survey.

<sup>&</sup>lt;sup>7</sup> The Iraq survey is very influential in the pooled estimates because of the size of the survey. Of the 13 surveys of Asian countries included in the pooled regional analysis, the over 18,000 observations in the Iraq survey composed 35% of the regional pooled sample.

<sup>&</sup>lt;sup>8</sup> The Bulgarian financial crisis of 1997 was characterized by hyperinflation exceeding 300%, a macroeconomic event potentially validating the temporary reduction in the estimated returns to education (Berlemann et al 2002).

2000 and the subsequent economic liberalization yielding dramatic growth in GDP per capita (IMF 2010).

Table 5 displays the returns to education for the following Latin American countries between 1985-2008: Brazil, Ecuador, Guatemala, Nicaragua, Panama and Peru. Generally, the returns to education for these countries and years are estimated between 6.5% and 11%, however the minimum is 0.2% and the maximum is 13.7% - both took place in Peru. Pooling all countries and years of LSMS surveys in Latin America yields an estimated return to education of 8%. The estimated returns to education in Peru consistently decrease from 13.7% in 1985 to 6.8% in 1991 and 0.2% in 1994.<sup>9</sup> Among Latin American countries, Panama exhibited the highest, consistent returns to education coinciding with GDP growth rates higher than those of all other Latin American countries (BTI 2012).

Figure 2 summarizes the survey-specific returns to education in a forest plot. The figure suggests that a high level of variation in returns to education in Africa, and also highlights the generally low returns in Asia. Returns to education in Eastern Europe are moderate and consistent across countries within the region. Latin America has relatively high returns in general and less variation than Africa. Despite geographic and temporal variation, the overall assertion that returns to education in low- and middle-income nations is not supported by the results.

Figure 3 graphs the average marginal effects for each year of school between 1 and 16 for the entire pooled sample.<sup>10</sup> Overall, there is an upward trend to the marginal returns by year of schooling. At times the marginal return drops close to zero and the confidence interval includes negative values but all estimated marginal returns are greater or equal to zero. The largest marginal returns are obtained by completion of tertiary education (16 years) and the completion of secondary education (12 years).

Table 6 displays the results for a pooled analysis of the returns to education. All 62 datasets are combined and the effect of education on earnings is estimated using over 260,000 observations. The first three columns show the results of the full, pooled sample regressions. The first column including quadratic age and gender covariates as well as survey fixed effects. The second adds an urban/rural fixed effect, and the third column adds province fixed effects. The specification of the first column is comparable to the majority of the literature while the subsequent columns control for endogenous

<sup>&</sup>lt;sup>9</sup> This temporal pattern may be related to the administrations of Presidents Alan Garcia and Alberto Fujimori. President Garcia, 1985-1990, vastly expanded public expenditures in previously neglected sectors and locations which decreased unemployment and increased GDP growth between 1985-1987. However, trade deficits lead to hyperinflation exceeding 7500% between 1988-1990 (Parodi 2000). The subsequent economic unrest led to the election of authoritarian President Alberto Fujimori, 1990-2000. Economic policy under President Fujimori began by drastically reduced inflation and relaxed price controls, each incurring significant short-term costs (as demonstrated in the reduced estimated returns of 1991 and 1994) (Sheahan 2001).

<sup>&</sup>lt;sup>10</sup> The years of school assessed is top coded at 16 because of the limited number of observed years of schooling exceeding 16 and the subsequently high variance in estimated returns. Estimation of these effects is performed with survey (country and year) fixed effects.

urban/rural residential sorting. The results indicate that the average return to an additional year of education in a low to middle-income country between 1985 and 2012 is 6.5%. Whereas previous studies suggest that the returns to education of developing countries exceeds those of developed countries because of underinvestment in education or illallocated educational subsidies, our results demonstrate that the returns of developing nations are similar or less than those of developed nations. Card (2001), Psacharopoulos and Patrinos (2002) and others demonstrate that the returns to education in the developed world are approximately 7%-8%. The first specification which does not account for endogenous residential sorting produces estimates consistent with the established range for developed countries. When an urban/rural fixed effect is included the estimated return drops below the levels common for estimates in developed economies. The upwards bias produced by the highly selective samples (non-representative and firm surveys) common to previous studies of developing countries is the most likely reason for the difference between our results and the previously published reviews (Psacharopoulos 1996, Bennell 1996, Psacharopoulos and Patrinos 2002). Furthermore, in contrast to previous results demonstrating higher returns for primary education in developing countries (Psacharopoulos and Patrinos 2002), the estimated returns to each level of education in Table 6 demonstrate that returns grow from 4.9% (primary) to 5.4% (secondary) and 6.5% (tertiary).

Table 7 shows how the returns to education vary by gender, urban/rural status, and time periods for the pooled sample of LSMS surveys. Note that in examining the differences in returns by gender that the analysis does not make any correction for selection into employment which is more common with women. As a result, the estimated returns to education for females may exhibit larger upward bias than the estimates for males, though previous research suggests that selection bias has little or no impact on estimates (Dearden 1998). The results of the preferred specification includes survey fixed effects. The difference between male and female returns to education for the entire pooled sample is 1.3 percentage points – 5.9% for males and 7.2% for females. The difference between urban and rural returns to education is 1.4 percentage points – 6.7% for urban residents and 5.3% for rural residents. The estimated return for the pooled sample of surveys collected during and prior to 1999 is 7.3% while the pooled sample of surveys collected after 1999 yield a 6.1% return.

Finally, Table 8 shows how the returns to education vary by gender, urban/rural status, level of education, and time periods by region for the pooled sample of LSMS surveys. In Africa, the full sample returns are 6.7% with larger returns going to females (7.2% for females to 6.2% for males), urban residents (8.1% for urban to 5.1% for rural), tertiary education (4.8% for primary, 5.2% for secondary, and 7.3% for tertiary years of education), and the years prior to 2000 (8.5% for pre-1999 and 6.4% for post-2000). The full sample returns are lower in Asia (1.9%), females have higher returns (2.8% to 1.3%), urban residents have slightly higher returns (1.9% to 1.7%), tertiary education yields the highest returns (1.3% compared to 0.9% and 1.7% in secondary and primary), and the years prior to 2000 yield the highest return (3.6% to 1.3%). Latin America has the highest regional returns (8.0%), higher female returns than male (8.5% and 7.6%), higher returns in urban areas (8.2% and 7.1%), growing returns from primary to tertiary levels

(6.6% primary, 6.7% secondary, and 8% tertiary), and relatively no difference between pre-1999 and post-2000 returns (8.1% and 7.9%). Eastern Europe exhibits similar patterns to the other regions in terms of gender, urban/rural, and educational level (6.8% full, 5.9% male, 8.3% female, 6.5% urban, 6.1% rural, 5.7% primary, 5.3% secondary, 6.3% tertiary) but display a significant contrast in the returns by time period: larger returns are seen in the time period in and after the year 2000 (3% pre-1999, 7.2% post-2000). This contrast in trends likely reflects relatively the low rates of returns in the post-communist transition years as well as increased demand for human capital with accelerated economic growth post 2000.

### 4. Conclusion

In this paper, we utilizes 61 nationally representative Living Standard and Measurement Study surveys conducted between 1985 and 2012 to estimate standard Mincerian wage equations across 25 low to middle-income countries. While we find consistently positive estimates as expected, we do not find evidence for higher average returns to schooling in developing countries as suggested in previous literature (Psacharopoulos and Patrinos 2002). On average, the results presented in this paper suggest that each year of completed schooling is associated with a 6.5% increase in income in developing countries. This aggregate return estimate masks a remarkably high degree of heterogeneity in the returns to education. On average, we find that rates of returns in South America are about twice those in Asia, and generally higher in rural areas and among females. Even within countries, some of the observed variations are rather remarkable, with nations like Peru and Bulgaria experiencing both rates close to zero and rates over 10 percent in specific survey years. While some of the more extreme variations in returns to education can likely be explained by macro-economic instability, further research will be needed to better understand both the cross-country and inter-temporal variations in the returns to schooling.

Overall, the results presented in this paper suggest that the returns to education in developing countries continue to be positive, but are likely lower on average today than observed in developed economies like the US; in many settings, and in particular in the Asia region, returns to education seem to have fallen below 5%. Given that the demand for human capital is unlikely to have declined over the past decades, this suggests that either the quality of education has fallen or that that increases in the supply of human capital have been more rapid than the concurrent increases in the demand (or both). With most developing country governments aggressively pursuing educational attainment goals further decreases in the returns to education over the coming years seem likely.

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Octo         Upper         1980         2.538         393.10         1962.46         3.11         2.24         0.24         30.24         10.25         0.25           Colo         1987         2.165         57.16         197.65         197.65         0.33.0         15.33         0.53         0.53         0.53         0.55         0.50         3.40         15.32         0.50         3.44         19.48         0.33         0.55         0.50         0.40         2.41.4         19.48         0.33         0.55         0.50         0.44         19.44         19.48         0.35         0.33         0.55         0.46         0.49         2.41.4         19.48         0.35         0.33         0.43         12.33         0.43         12.35         0.55         0.43         2.29         19.10         0.23         0.43         12.35         0.55         0.43         12.43         0.43         2.34         0.33         0.43         12.35         0.56         0.56         0.56         0.53         1.77         0.44         2.56         1.43         0.43         0.43         0.43         0.43         12.35         0.56         1.76         0.33         0.57         0.44         2.56         1.43	Africa	4005	0000	a.a. 17			6.07			45.00		
Coho Dynamin         1997         2198         217.65         197.260         31.65         5.28         0.50         32.70         15.30         0.35           Elforgia         2011         667         27.68         32.34         2.16         32.34         0.50         22.47         17.82         0.10           Ghana         2005         102657         14.05         56.47         4.46         5.03         0.49         22.14         19.44         0.35           Mainer         2010         10257         14.05         56.47         4.46         5.03         0.49         22.11         10.35         10.27           Nigela         2010         45.37         0.27         12.37         0.25         10.10         0.24	Cote Divoire	1985	2333	349.17	889.48 1569.90	3.11	5.27	0.50	33.06	15.96	0.29	
Cole Dynam         1986         2164         174.63         1465.98         3.16         5.22         0.50         3.46.9         16.23         0.33           Chana         2005         10666         27.83         139.70         4.56         5.40         0.49         24.14         19.45         0.35           Ghana         2005         10667         14.46         5.51         4.76         3.38         0.43         21.11         0.35         0.33           Makan         2010         3427         10.02         13.51.15         4.75         3.38         0.43         21.11         13.35         0.31           Sterith Afka         1933         6556         30.04         451.06         63.3         4.77         0.44         25.66         14.37         0.43           Sterith Afka         271.23         5.38         3.65         0.43         2.216         10.10         0.34           Uganda         2005         1465         37.64         25.56         4.42         0.44         25.26         16.67         0.23           Uganda         2005         17.05         13.27         25.26         4.43         0.44         25.26         16.33         3.56	Cote Divoire	1987	2196	505.05 671.85	1917.60	3.52	5.28	0.49	33.70	15.00	0.26	
Emogram         2011         667         2.76         32.34         2.16         3.23         0.50         2.437         17.82         0.10           Gham         2006         10267         14.05         55.47         4.46         5.38         0.49         24.14         13.11         0.13           Main         2010         51.422         10.201         13.11         13.11         0.13         0.14         0.14         0.12         0.14         0.13         0.14         0.13	Cote Divoire	1988	2150	474.63	1465.99	3.16	5.22	0.50	34.49	16.28	0.33	
Okana Chan20061066517.43319.704.965.400.492.41419.480.35Makwi2010345210.02135.114.753.380.442.41913.210.18Neprin2011312123.2820201.993.810.442.001.9210.31Neprin2012447453.54103.655.125.760.492.001.9.70.27 <td>Ethiopia</td> <td>2011</td> <td>667</td> <td>2.78</td> <td>32.34</td> <td>2.16</td> <td>3.23</td> <td>0.50</td> <td>24.87</td> <td>17.82</td> <td>0.10</td>	Ethiopia	2011	667	2.78	32.34	2.16	3.23	0.50	24.87	17.82	0.10	
Oham         2060         10267         14.05         55.47         4.46         5.03         0.49         2.19         2.015         0.28           Nager         2010         3.422         10.22         13.11         4.75         3.88         0.48         2.19         1.3.11         0.18           Nager         2010         4.57         5.3.4         1.5.5         5.57         6.48         2.0.28         0.38           South Atkin         2903         6.65         3.0.04         4.51.05         5.33         4.77         0.48         2.265         1.8.7.3         0.35         1.3.5         0.3.5           Tanzania         2006         162.1         2.4.26         6.04.42         5.40         4.23         0.48         2.23.21         1.9.7         0.48           Uganda         2006         1640         1.24.4         2.77         4.33         4.77         0.49         2.3.64         1.6.7         0.22           Uganda         2006         1648         25.5         3.18         0.46         2.3.55         1.3.18         0.46         2.3.55         1.3.3         0.50           Uganda         2001         1.23.5         0.55         3.5.5	Ghana	2005	10686	27.83	319.70	4.96	5.40	0.49	24.14	19.48	0.35	
Maleri         2010         34.22         10.02         135.11         4.75         3.98         0.49         2.119         18.31         0.16           Nger         2011         45.02         2.32.4         203.001         19.93         3.67         0.49         2.019         18.23         0.38           Nger         2012         445.0         95.44         10.45         5.92         5.67         0.40         2.25         10.7         0.73           Sorth After         1993         5.55         30.04         451.06         5.33         3.55         0.49         2.258         11.07         0.43           Tanzania         2006         1521         2.24         6.64.24         5.46         4.23         0.48         2.228         13.00         0.29           Uganda         2010         17.20         17.34         9.37         4.33         0.44         2.354         14.57         10.03         0.50           Uganda         2010         17.20         17.24         9.77         4.39         0.41         2.354         13.03         0.60           Uganda         2010         15.25         17.12         9.52         4.55         0.50         4.53 </td <td>Ghana</td> <td>2008</td> <td>10267</td> <td>14.05</td> <td>55.47</td> <td>4.46</td> <td>5.03</td> <td>0.49</td> <td>24.91</td> <td>20.85</td> <td>0.28</td>	Ghana	2008	10267	14.05	55.47	4.46	5.03	0.49	24.91	20.85	0.28	
Niger         2011         5120         32.35         208.09         1.59         3.67         0.449         20.09         18.25         0.23           Name         2010         4537         85.41         10.05         5.39         5.57         0.49         23.92         10.07         0.23           Name         Akan         2004         4537         85.8         0.44         23.92         10.17         0.43           Tanzania         2006         182.1         2.426         604.42         5.40         4.23         0.44         2.232         19.17         0.46           Uganda         2005         1845         67.63         197.97         4.33         4.27         0.49         2.234         16.67         0.22           Uganda         2005         1840         67.63         197.97         4.33         4.27         0.49         2.234         16.67         0.22           Uganda         2005         1840         67.63         197.97         4.33         0.47         0.32         2.244         16.33         0.50           Krygz         1993         285.5         3.12         9.55         3.18         0.46         0.32         2.44	Malawi	2010	3432	10.02	135.11	4.75	3.98	0.49	21.19	18.31	0.18	
Nigensi         2010         4431         99.45         1204.51         5.94         5.97         0.49         23.92         19.01         0.23           Tunzanis         2034         626         5.06         677.723         6.33         4.67         0.49         22.82         19.17         0.43           Tunzanis         2006         1221         22.82         604.4         5.66         4.23         0.44         22.82         19.17         0.43           Tunzanis         2010         2739         39.39         646.24         5.66         4.23         0.44         22.85         17.51         0.24           Uganda         2009         1540         13.48         251.24         4.177         4.39         0.49         2.407         17.99         0.22           Aia         206         1259         5.06         4221         5.32         4.65         0.40         2.285         17.56         0.63           Kyngyz         1996         1289         5.56         9.36         3.66         3.64         4.90         0.49         2.54         19.22         0.30           Kyngyz         1996         1289         3.552         9.31         5.63	Niger	2011	5120	32.35	208.09	1.99	3.67	0.49	20.09	18.25	0.38	
night         JJZ         4U2         53.50         LDS.50         5.12         5.70         D.54         L2.55         L2.51         L2.51 <thl2.51< th=""> <thl2.51< th=""> <thl2.51< t<="" td=""><td>Nigeria</td><td>2010</td><td>4637</td><td>59.43</td><td>1204.51</td><td>5.99</td><td>5.67</td><td>0.49</td><td>26.92</td><td>19.01</td><td>0.29</td></thl2.51<></thl2.51<></thl2.51<>	Nigeria	2010	4637	59.43	1204.51	5.99	5.67	0.49	26.92	19.01	0.29	
Data ania         D204	Nigena South Africa	2012	4024	35.04	451.09	6.12	5.76 A 77	0.50	12.07	10.27	0.27	
Interains         2008         12/2         24/26         64/42         54/0         4/23         0.44         22/26         19/7         0.44           Uganda         2005         1445         67/63         197/97         4/93         4/27         0.44         22.84         16.67         0.26           Uganda         2005         1445         67/63         197.97         4/93         0.44         20.95         17.51         0.24           Uganda         2010         1280         12.39         126.49         5.05         4.46         0.49         2.107         17.99         0.22           Asia         Asia         1905         2166         287.44         9.63         0.50         4.53         0.47         8.22         18.39         0.50           Itaq         2005         1283         3.56         9.46         3.50         5.52         0.44         2.54         19.32         0.30           Kyngyz         1997         6139         2.25         9.97         3.66         4.59         0.19         2.54         19.32         0.26           Kyngyz         1996         1112         3.52         9.22         3.66         4.49         0.57	Tanzania	2004	926	5.08	401.00	538	4.77	0.48	20.00	18.75	0.45	
Tanzania         2010         2739         39.33         64.624         5.56         4.23         0.44         22.83         19.09         2.23           Uganda         2009         1540         13.44         251.24         4.77         4.39         0.44         23.54         16.67         0.24           Uganda         2009         1540         13.44         251.24         4.77         4.39         0.44         23.54         16.30         0.50           Arats         A         21.33         26.65         12.48         13.66         4.56         0.50         22.54         19.03         0.50           Krigyz         1935         26.65         12.86         31.12         9.86         31.80         0.46         36.59         17.56         0.63           Krigyz         1936         6103         39.86         29.46         6.33         52.52         0.167         27.33         14.73         0.62           Krigyz         1939         24.26         6.53         22.138         8.54         3.54         0.56         0.46         23.02         16.16         0.30           Topician         1939         24.25         66.53         2.21         38	Tanzania	2004	1821	24.26	604.42	5.40	4.23	0.48	22.82	19.17	0.48	
Uganda2005184667 63197 974.934.270.492.26416.670.26Uganda2010126012.39126.495.054.460.4924.0717.990.22Asia	Tanzania	2010	2739	39.93	646.24	5.56	4.23	0.48	22.83	19.09	0.29	
Uganda Uganda200915.6013.8025.12.44.774.390.4923.9517.510.24Aseta Inteq12.5912.8912.8912.845.054.460.4924.0717.990.22Asia Krigyz193521.65287.3493.61.78.924.190.7722.5419.030.50Krigyz1938286512.6631.129.663.180.663.694.900.4922.5720.460.50Krigyz193669020.8623.466.335.030.1922.4119.320.26Pakthan199169020.8623.466.335.130.16727.1314.730.62Tajketan20075.0723.1417.308.324.660.4430.2717.200.23Tajketan20075.0723.469.13.144.174.700.5125.1917.400.44Tajketan20075.0723.4613.543.534.550.4925.2919.600.29Torot Lesie20011111174.51913.144.174.700.5125.1917.400.44Abania2002206757.4610.853.530.563.85713.370.38Abania2002206757.4610.1659.853.530.563.85713.370.38Abania200539.6717.38 <t< td=""><td>Uganda</td><td>2005</td><td>1845</td><td>67.63</td><td>197.97</td><td>4.93</td><td>4.27</td><td>0.49</td><td>23.64</td><td>16.67</td><td>0.26</td></t<>	Uganda	2005	1845	67.63	197.97	4.93	4.27	0.49	23.64	16.67	0.26	
Uganda2010128012.8912.895.054.460.4924.0717.990.22AsiaAstendajan19622156287.34936.176.924.160.4732.5419.030.50Iraq2006189375.0642.215.924.850.5022.8118.390.65Krgpz199612.8531.129.653.180.463.652.5419.320.30Krgpz199612.853.853.868.964.900.492.7920.480.32Krgpz1997681825.652.8408.305.030.172.4.3119.320.22Krgpz199892.03.862.8408.305.030.172.4.3119.320.23Krgpz199892.03.862.8409.323.080.460.3077.7200.23Tajketan200366332.2408.534.560.460.3007.7700.23Tajketan2007118217.65666.373.925.220.512.8618.550.50EasterZ7.764.250.563.8713.370.38Abania200310583.6112.4207.754.250.513.4921.100.47Toro Lesto2001118117.459.653.530.563.8713.370.38Abania20022028 </td <td>Uganda</td> <td>2009</td> <td>1540</td> <td>13.48</td> <td>251.24</td> <td>4.77</td> <td>4.39</td> <td>0.49</td> <td>23.95</td> <td>17.51</td> <td>0.24</td>	Uganda	2009	1540	13.48	251.24	4.77	4.39	0.49	23.95	17.51	0.24	
Asia         Azerbajan         1995         2156         287.34         936.17         6.92         4.19         0.47         32.54         19.03         0.50           Krigyz         1993         2855         12.85         31.12         9.68         31.80         0.46         38.35         17.86         0.63           Krigyz         1996         1639         35.85         33.86         8.96         4.90         0.49         2.5.71         2.0.46         0.32           Krigyz         1997         6818         2.6.6         2.8.46         9.31         5.03         0.49         2.5.41         19.32         0.26           Pakstan         1991         1412         3.6.22         9.7.4         3.68         4.59         0.67         2.1.31         1.7.7         0.23           Tajistan         2007         6817         2.4.61         9.32         3.66         0.46         3.60         1.6.7         0.33         1.6.5         0.60         1.6.5         0.60         1.6.5         0.61         1.6.5         0.61         1.6.5         0.61         1.6.5         0.61         1.6.5         0.61         1.6.5         0.61         1.6.5         0.61         1.6.5 <t< td=""><td>Uganda</td><td>2010</td><td>1260</td><td>12.39</td><td>126.49</td><td>5.05</td><td>4.46</td><td>0.49</td><td>24.07</td><td>17.99</td><td>0.22</td></t<>	Uganda	2010	1260	12.39	126.49	5.05	4.46	0.49	24.07	17.99	0.22	
Asia         Astronagian         1995         2156         287.34         936.17         8.92         4.19         0.47         32.54         19.03         0.50           Iraq         2006         18937         5.06         42.21         5.92         4.85         0.50         22.81         18.39         0.65           Kyrgyz         1996         1633         35.88         38.66         8.96         4.90         0.49         25.79         20.46         0.32           Kyrgyz         1997         6318         26.65         24.00         8.30         0.69         0.49         25.41         13.32         0.30           Kyrgyz         1998         202         38.65         28.40         9.31         5.03         0.19         24.41         13.32         0.26           Taglotstan         1999         2425         66.53         22.13         8.54         3.84         0.48         2.022         18.65         0.30           Timot Lesto         2007         1812         17.65         66.677         3.22         0.51         26.19         7.40         0.44           Timot Lesto         2002         1065         36.19         12.42.0         7.75 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
Activity         1930         1037         20.37         20.37         20.37         20.37         20.30         20.30           KYB2         1936         1639         35.66         3162         366         3168         0.46         22.81         110.36         0.33           KYB2         1936         1639         32.65         3162         366         316         0.49         22.84         119.32         0.30           KYB2         1936         920         30.86         24.46         3.31         5.63         0.19         22.84         119.22         0.23           Tajjetstan         1999         2425         66.53         221.34         8.44         3.44         0.49         30.27         17.20         0.23           Tajjetstan         2007         6307         29.11         17.309         8.32         4.65         0.48         29.02         18.16         0.30           Timor Lestic         2001         1111         174.51         913.14         4.17         4.70         0.51         25.19         17.40         0.44           Timor Lestic         2001         1112         17.65         6.53         3.53         0.56         35.57 <td< td=""><td>Asia</td><td>1005</td><td>2466</td><td>207 24</td><td>026 17</td><td>0.02</td><td>4 10</td><td>0.47</td><td>22.54</td><td>10.02</td><td>0.50</td></td<>	Asia	1005	2466	207 24	026 17	0.02	4 10	0.47	22.54	10.02	0.50	
int         1993         265         112         9 65         318         0 46         35.65         17 56         0.63           Krgp:         1997         6191         25.65         39.66         15.65         409         0.46         35.65         0.03           Krgp:         1997         6911         25.65         20.46         0.32         11.32         0.25           Krgp:         1991         412         38.95         97.4         3.81         4.03         0.67         21.31         13.32         0.25           Tipistan         1991         4112         38.92         21.38         64.4         3.84         0.46         3.39.07         17.70         0.23           Tipistan         2003         6633         2.2.40         62.33         9.82         3.66         0.48         3.39.07         17.70         0.33           Tipistan         2003         217.5         9.13.14         4.17         4.70         0.51         28.19         17.40         0.44           Timor Lestic         2001         111.2         17.51         9.53         3.53         0.56         3.57         1.3.37         1.3.37         1.3.38           Abania	Azerbaijan Irao	2006	∠106 18937	∠07.34 5.06	930.17	6.92 5.92	4.19	0.47	32.04 22.81	19.03	0.50	
Kringsz         1996         1639         35.58         39.66         3.86         4.90         0.49         22.79         20.48         0.32           Kringsz         1996         920         30.86         28.46         9.31         5.63         0.19         25.41         19.92         0.30           Kringsz         1996         2425         66.53         221.38         6.84         4.99         0.49         30.27         17.20         0.23           Tajkistan         2007         6367         22.40         60.23         9.92         3.06         0.48         33.59         16.77         0.30           Tajkistan         2007         6367         25.11         17.30         0.52         4.65         0.46         33.59         16.77         0.30           Tigkistan         2007         1112         17.55         685.7         3.92         5.2         0.51         2.58         13.65         0.57           Abania         2003         1066         36.19         124.20         7.75         4.25         0.51         31.44         21.57         0.45           Bosnia         2001         1116         166.43         196.45         6.65         4.40<	Kvmvz	1993	2855	12 85	31 12	9.65	3.18	0.46	36.95	17.56	0.63	
Kring         1997         6818         26.66         28.40         8.30         5.52         0.49         25.84         19.92         0.30           Kring         1991         1412         36.82         99.74         3.68         4.50         0.67         21.33         14.73         0.62           Tajkistan         1991         1412         36.82         99.74         3.68         4.50         0.67         21.33         14.73         0.62           Tajkistan         2003         5633         22.40         61.23         9.92         3.08         0.48         3.390         16.77         0.30           Timot Leste         2007         6307         29.11         17.09         8.32         4.66         0.46         3.39         16.77         0.30           Timot Leste         2001         1111         174.51         91.14         4.17         4.70         0.51         26.19         17.40         0.44           Abanta         2002         2087         57.46         10.185         9.65         3.53         0.56         38.57         3.1.37         0.38           Abanta         2005         3948         178.10         20.252         10.00 <th< td=""><td>Kyngyz</td><td>1996</td><td>1639</td><td>35.58</td><td>39.66</td><td>8.96</td><td>4.90</td><td>0.49</td><td>26.79</td><td>20.48</td><td>0.32</td></th<>	Kyngyz	1996	1639	35.58	39.66	8.96	4.90	0.49	26.79	20.48	0.32	
Kyrgyz         1998         920         30.86         28.46         9.31         5.03         0.19         25.41         19.32         0.26           Paktstan         1999         2425         66.53         22.138         8.54         3.44         0.49         30.27         17.20         0.23           Tajkistan         2007         6307         29.11         17.30         8.32         4.66         0.46         33.90         16.7         0.30           Tajkistan         2007         6307         29.11         17.30         8.32         4.66         0.46         3.39         19.06         0.29           Timor Leste         2001         1111         174.51         913.14         4.17         4.70         0.51         2.86         18.55         0.56           Castern         2002         2087         57.46         101.85         9.55         3.53         0.56         38.57         1.3.37         0.38           Abania         2005         394.8         178.10         220.52         10.00         324         0.51         3.45         0.46           Bostia         2001         4185         164.45         8.65         4.40         0.48         3.	Kyngyz	1997	6818	26.66	28.40	8.30	5.52	0.49	25.84	19.92	0.30	
Paketain1991141236.8299.743.684.590.6721.3314.730.62Tajkstan2003568322.4060.239.923.080.4633.9016.770.23Tajkstan200523.272.46288.478.534.560.4825.9819.050.29Tajkstan200521252.46288.478.534.550.4925.9819.050.29Tamor Leste20071182176.56686.373.925.220.512.6818.550.50Eatern Europe	Kyrgyz	1998	920	30.86	28.46	9.31	5.03	0.19	25.41	19.32	0.26	
Tajkistan         1999         2425         66 53         221 38         8.54         3.84         0.49         30.27         17.20         0.23           Tajkistan         2007         6307         23.11         173.09         8.32         4.66         0.48         23.00         16.77         0.30           Tajkistan         2007         6307         23.11         173.09         8.32         4.66         0.48         23.00         16.77         0.30           Tajkistan         2007         1182         176.56         686.37         3.92         5.2         0.51         22.66         18.55         0.50           Eastern Europe	Pakistan	1991	1412	36.92	99.74	3.68	4.59	0.67	21.33	14.73	0.62	
Tajitésian         2003         5683         22.40         60.23         9.92         3.08         0.48         33.90         16.77         0.30           Tajitésian         2009         2125         24.62         88.47         8.53         4.55         0.49         25.98         19.05         0.29           Timor Leste         2007         1182         176.56         686.37         3.92         5.22         0.51         22.86         18.55         0.50           Eastern Europe         No         Abania         2002         2087         57.46         101.85         9.65         3.53         0.56         38.57         13.37         0.38           Abania         2002         2087         57.46         101.85         9.65         3.53         0.56         38.57         13.37         0.38           Abania         2002         2087         57.46         101.85         9.65         3.40         0.48         37.78         21.56         0.45           Bostia         2001         4185         168.43         196.45         8.65         4.40         0.48         37.54         21.56         0.64           Bostia         2002         2238         171.33	Tajikistan	1999	2425	66.53	221.38	8.54	3.84	0.49	30.27	17.20	0.23	
Bajesian         2007         6-307         22,11         173.09         8.32         4.8b         0.48         2.902         18.16         0.30           Timor Leste         2001         1111         174.51         913.14         4.17         4.70         0.51         25.98         19.05         0.29           Timor Leste         2007         1182         176.56         686.37         3.92         5.20         0.51         22.86         18.55         0.50           Eastern Europe         -	Tajikistan	2003	5683	22.40	60.23	9.92	3.08	0.48	33.90	16.77	0.30	
Biglesian         2003         2123         24.62         66.7         6.33         4.35         0.49         23.36         19.03         0.23           Timor Leste         2001         1111         176.56         686.37         3.92         5.22         0.51         22.86         18.55         0.50           Eastern Europe	lajikistan Tajikistan	2007	6307	29.11	173.09	8.32	4.66	0.48	29.02	18.16	0.30	
Initiation         2007         111         174.51         510.44         4.17         4.18         1.17         4.18         1.17         4.18         1.17         4.18         1.17         4.18         1.17         1.17         1.17         1.17         1.17         1.17         1.18         1.17         1.18         1.17         1.18         1.17         1.18         1.17         1.13         1.18         1.17         1.13         1.18         1.17         1.13         1.18         1.17         1.13         1.18         1.17         1.13         1.18         1.17         1.13	Timor Leste	2009	2125	24.02	00.4/	0.00	4.55	0.49	20.90	17.40	0.29	
Eastern Europe         Eastern Europe         Eastern Europe         Eastern Europe           Abania         2002         2067         57.46         101.85         9.65         3.53         0.56         38.57         13.37         0.38           Abania         2003         1058         36.19         124.20         7.75         4.25         0.51         31.49         21.10         0.47           Abania         2001         4185         168.43         196.45         8.65         4.40         0.48         37.78         21.58         0.46           Bosnia         2001         2188         75.04         55.19         9.21         4.39         0.48         40.33         22.35         0.67           Bulgaria         1997         1791         11.74         8.18         9.17         4.43         0.48         40.33         22.35         0.67           Bulgaria         2007         4793         208.99         364.10         10.43         5.83         0.48         43.30         22.19         0.71           Serbia         2000         2259         66.94         43.36         8.77         3.88         4.80         0.48         47.10         18.88         0.52 </td <td>Timor Leste</td> <td>2007</td> <td>1182</td> <td>176.56</td> <td>686.37</td> <td>3.92</td> <td>5.22</td> <td>0.51</td> <td>22.15</td> <td>18.55</td> <td>0.50</td>	Timor Leste	2007	1182	176.56	686.37	3.92	5.22	0.51	22.15	18.55	0.50	
Estern EuropeAbania2002208757.46101.859.653.620.6534.4921.100.47Abania2003108836.19124.207.754.250.5131.4921.100.47Abania20053948178.10220.5210.003.240.5939.6212.570.45Bosnia20022238170.47201.768.284.370.4837.5421.670.68Bulgaria1997179111.748.189.174.430.4840.3322.350.67Bulgaria20074793208.9936.649.284.500.4849.2922.380.66Bulgaria2007279368.99433.368.573.880.4943.0018.480.66Serbia2002651414.178122.738.884.800.4943.0018.480.52Serbia20032542189.51154.129.254.000.4847.7018.880.52Serbia20032542189.51154.129.254.000.4847.7018.840.52Serbia20032542189.51154.129.254.000.4847.7018.840.52Serbia200351.44163.3176.77.504.630.5025.9119.910.53Eucador199445952.39790.79 <t< td=""><td></td><td>2001</td><td></td><td></td><td>000.01</td><td>0.02</td><td>0.22</td><td>0.01</td><td>11.00</td><td>10.00</td><td>0.00</td></t<>		2001			000.01	0.02	0.22	0.01	11.00	10.00	0.00	
Abania       2002       2087       57.46       101.85       9.65       3.53       0.56       38.67       13.37       0.38         Abania       2003       1058       38.19       124.20       7.75       4.25       0.51       31.49       21.10       0.47         Abania       2005       3948       178.10       220.52       10.00       3.24       0.59       39.62       12.57       0.45         Bosnia       2002       2238       170.47       201.76       8.28       4.40       0.48       37.54       21.67       0.68         Bulgaria       1997       1791       11.74       8.18       9.17       4.43       0.48       40.37       22.38       0.67         Bulgaria       2001       2083       171.38       96.04       9.28       4.50       0.48       39.29       22.38       0.67         Serbia       2000       2259       66.90       433.36       8.57       3.88       0.48       0.30       22.14       0.53         Serbia       2002       65.14       14.17.8       122.73       8.88       4.80       0.49       4.00       4.84       0.50       25.33       19.81       0.52	Eastern Europe											
Abania       2003       1058       36.19       124.20       7.75       4.25       0.51       31.49       21.10       0.47         Bosnia       2005       3948       178.10       22052       10.00       3.24       0.59       39.62       12.57       0.45         Bosnia       2001       4185       168.43       196.45       8.65       4.40       0.48       37.78       21.58       0.46         Bugaria       1995       2188       75.04       55.19       9.21       4.33       0.48       40.57       22.16       0.54         Bugaria       1997       1791       11.74       8.18       9.17       4.43       0.48       40.57       22.18       0.56         Bugaria       2001       2263       66.90       433.36       8.57       3.88       0.49       34.00       18.44       0.66         Serbia       2002       2514       141.78       122.73       8.88       8.80       0.49       34.00       18.48       0.52         Serbia       2002       2514       141.78       122.73       8.88       4.76       0.48       27.91       19.91       0.75         Serbia       2002       2	Albania	2002	2087	57.46	101.85	9.65	3.53	0.56	38.57	13.37	0.38	
Abania       2005       3948       178.10       220.52       10.00       3.24       0.59       39.62       1.2.77       0.45         Bosnia       2002       2238       170.47       201.76       8.28       4.37       0.48       37.78       21.58       0.46         Bulgaria       1995       2188       75.04       55.19       9.21       4.39       0.48       40.33       22.35       0.67         Bulgaria       1997       1791       11.74       8.18       9.17       4.43       0.48       40.33       22.38       0.66         Bulgaria       2007       4793       208.99       364.10       10.43       5.83       0.48       43.30       22.19       0.71         Serbia       2000       2259       66.90       433.36       8.57       3.88       0.49       4.00       18.48       0.66         Serbia       2002       6514       141.78       122.73       8.84       4.80       0.49       4.09       4.09       4.09       4.09       4.057       18.86       0.52         Serbia       2007       5172       378.29       280.16       8.45       4.78       0.48       47.10       18.60	Albania	2003	1058	36.19	124.20	7.75	4.25	0.51	31.49	21.10	0.47	
Bosnia         2001         4165         168.43         196.45         8.50         4.40         0.48         37.76         21.38         0.48           Bulgaria         1995         2138         75.04         55.19         9.21         4.39         0.48         40.33         22.35         0.67           Bulgaria         1997         1791         11.74         8.18         9.17         4.43         0.48         40.57         22.38         0.66           Bulgaria         2001         2083         171.38         96.04         9.28         4.50         0.48         3.30         22.19         0.71           Serbia         2000         2259         66.90         433.36         8.57         3.88         0.49         40.04         2.04         0.53           Serbia         2002         2514         141.73         122.73         8.84         4.80         0.48         47.70         18.88         0.52           Serbia         2003         2542         189.51         154.12         9.25         4.00         0.48         47.70         18.88         0.52           Serbia         2007         57         7.57         4.73         0.50         24.62	Albania	2005	3948	178.10	220.52	10.00	3.24	0.59	39.62	12.57	0.45	
Dosina       2002       22.83       170.71       201.76       3.23       4.37       0.46       3.74       21.10       0.66         Bulgaria       1995       1791       11.74       8.18       9.17       4.43       0.48       40.35       22.16       0.54         Bulgaria       2001       2083       171.38       96.04       9.28       4.50       0.48       39.29       22.38       0.66         Bulgaria       2007       4793       208.99       364.10       10.43       5.83       0.48       43.30       22.19       0.71         Serbia       2000       2259       66.90       433.36       8.57       3.88       0.49       34.00       18.48       0.66         Serbia       2002       6514       141.78       122.73       8.88       4.80       0.49       40.94       22.04       0.53         Serbia       2007       5172       378.29       280.16       8.45       4.78       0.48       42.11       22.15       0.52         Serbia       2007       5172       378.29       280.16       8.45       4.78       0.48       42.11       22.15       0.52         Ecuador       1997	Bosnia	2001	4185	168.43	196.45	8.65	4.40	0.48	37.78	21.58	0.46	
Dargania       1997       1781       11.7       4.43       0.48       40.57       22.16       0.54         Bulgaria       2001       2083       171.38       96.04       9.28       4.50       0.48       39.29       22.38       0.66         Bulgaria       2007       4793       208.99       364.10       10.43       5.83       0.48       43.30       22.19       0.71         Serbia       2000       2259       66.90       433.36       8.57       3.88       0.49       34.00       18.48       0.66         Serbia       2002       6514       141.78       122.73       8.88       4.80       0.49       40.94       22.04       0.53         Serbia       2007       5172       378.29       280.16       8.45       4.78       0.48       47.10       18.88       0.52         Serbia       2007       5172       378.29       280.16       8.45       4.73       0.48       42.11       22.16       0.53         Ecuador       1997       6818       652.92       1553.14       6.03       5.08       0.48       27.91       19.91       0.75         Ecuador       1994       4959       52.39	Bukania	2002	2230	75.04	201.76	0.20 9.21	4.37	0.46	37.34	21.67	0.60	
Bulgaria         2001         2083         171.38         96.04         9.28         4.50         0.48         39.29         22.38         0.66           Bulgaria         2007         4793         208.99         364.10         10.43         5.83         0.48         43.30         22.19         0.71           Serbia         2002         6514         141.78         122.73         8.88         4.80         0.49         40.94         22.04         0.53           Serbia         2003         2542         189.51         154.12         9.25         4.00         0.48         47.70         18.88         0.52           Serbia         2003         2542         189.51         154.12         9.25         4.00         0.48         47.70         18.88         0.52           Serbia         2007         5172         378.29         280.16         8.45         4.78         0.48         42.11         22.14         0.53           Serbia         2007         1997         681.6         62.39         790.79         7.57         4.73         0.50         24.62         19.01         0.65           Ecuador         1995         5164         52.33         1093.91         <	Bulgaria	1997	1791	11.74	8.18	9.17	4.43	0.48	40.57	22.16	0.54	
Bugaria20074793208.99364.1010.435.830.4843.3022.190.71Serbia2000225966.90433.368.573.880.4934.0018.480.66Serbia20026514141.78122.738.884.800.4940.9422.040.53Serbia20032542189.51154.129.254.000.4847.7018.880.52Serbia20075172378.29280.168.454.780.4842.1122.150.52Latin AmericaBrazi19976818652.921553.146.035.080.4827.9119.910.75Ecuador1994495952.39790.797.574.730.5024.6219.010.65Ecuador1998549931.45174.127.604.620.5025.9119.990.53Ecuador1998649931.45174.127.604.680.5025.9920.150.54Ecuador1998695.77906.278.225.340.5127.4218.830.74Guatemala2000490141.902068.944.440.4926.7918.600.44Guatemala2000490141.902068.944.440.4927.9220.900.53Ecuador1998602734.30133.816.004.730.497.66	Bulgaria	2001	2083	171.38	96.04	9.28	4.50	0.48	39.29	22.38	0.66	
Serbia2000225966.90433.368.573.880.4934.0018.480.66Serbia20026514141.78122.738.884.800.4940.9422.040.53Serbia20032542189.51154.129.254.000.4847.7018.880.52Serbia20075172378.29280.168.454.780.4842.1122.150.52Latin AmericaErrazi19976818652.921553.146.035.080.4827.9119.910.75Ecuador1994495952.39790.797.574.730.5024.6219.010.65Ecuador1998549931.45174.127.604.620.5025.9119.990.53Ecuador1998549931.45174.127.604.680.5025.9920.150.54Ecuador1998549931.45174.127.604.680.5025.9920.150.54Ecuador20061397621.1898.777.504.800.4927.2920.900.53Ecuador2009199569.57906.278.225.340.5127.4218.830.74Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1998602734.30 <td>Bulgaria</td> <td>2007</td> <td>4793</td> <td>208.99</td> <td>364.10</td> <td>10.43</td> <td>5.83</td> <td>0.48</td> <td>43.30</td> <td>22.19</td> <td>0.71</td>	Bulgaria	2007	4793	208.99	364.10	10.43	5.83	0.48	43.30	22.19	0.71	
Serbia20026514141.78122.738.884.800.4940.9422.040.53Serbia20032542189.51154.129.254.000.4847.7018.880.52Serbia20075172378.29280.168.454.780.4842.1122.150.52Latin America <t< td=""><td>Serbia</td><td>2000</td><td>2259</td><td>66.90</td><td>433.36</td><td>8.57</td><td>3.88</td><td>0.49</td><td>34.00</td><td>18.48</td><td>0.66</td></t<>	Serbia	2000	2259	66.90	433.36	8.57	3.88	0.49	34.00	18.48	0.66	
Serbia20032542189.51154.129.254.000.4847.7018.880.52Serbia20075172378.29280.168.454.780.4842.1122.150.52Latin AmericaBrazil19976818652.921553.146.035.080.4827.9119.910.75Ecuador1994495952.39790.797.574.730.5024.6219.010.65Ecuador1995516452.331093.917.204.600.5025.0319.630.53Ecuador1998549931.45174.127.604.620.5025.9119.990.53Ecuador1999621727.87676.777.504.880.4927.2920.900.53Ecuador20061397621.189.6278.225.340.5127.4218.830.74Guatemala2000490141.902068.944.494.440.4926.7918.600.44Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1998602734.30133.816.004.730.4923.6219.170.53Panama2001665534.77136.756.584.830.4923.6219.170.53Panama2000490141.902068.94	Serbia	2002	6514	141.78	122.73	8.88	4.80	0.49	40.94	22.04	0.53	
Serba20075172378.29280.168.454.780.4842.1122.150.52Latin AmericaBrazil19976818652.921553.146.035.080.4827.9119.910.75Ecuador1994495952.39790.797.574.730.5024.6219.010.65Ecuador1995516452.331093.917.204.600.5025.0319.630.53Ecuador1998549931.45174.127.604.620.5025.9119.990.53Ecuador1999621727.87676.777.504.680.5025.9920.150.54Ecuador20061397621.1898.777.504.800.4927.2920.900.53Ecuador2009129569.57906.278.225.340.5127.4218.830.74Guatemala2000490141.90206.8944.494.440.4926.7918.600.44Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1998602734.30133.816.004.730.4970.6618.240.52Nicaragua2001665534.77136.756.584.830.4923.6219.170.53Panama20038760115.06371.80 <t< td=""><td>Serbia</td><td>2003</td><td>2542</td><td>189.51</td><td>154.12</td><td>9.25</td><td>4.00</td><td>0.48</td><td>47.70</td><td>18.88</td><td>0.52</td></t<>	Serbia	2003	2542	189.51	154.12	9.25	4.00	0.48	47.70	18.88	0.52	
Latin AmericaBrazil19976818652.921553.146.035.080.4827.9119.910.75Ecuador1994495952.39790.797.574.730.5024.6219.010.65Ecuador1995516452.331093.917.204.600.5025.0319.630.53Ecuador1998549931.45174.127.604.620.5025.9119.990.53Ecuador1998621727.87676.777.504.680.5025.9920.150.54Ecuador20061397621.1898.777.504.800.4927.2920.900.53Ecuador2009129569.57906.278.225.340.5127.4218.830.74Guatemala2000490141.902068.944.494.440.4926.7918.600.44Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1993517625.67113.315.274.250.4921.8818.620.56Nicaragua19977179124.55486.167.565.440.5127.4520.700.46Panama20038760115.0637.1807.925.430.5027.6020.780.50Panama200310342181.73 <t< td=""><td>Serbia</td><td>2007</td><td>5172</td><td>378.29</td><td>280.16</td><td>8.45</td><td>4.78</td><td>0.48</td><td>42.11</td><td>22.15</td><td>0.52</td></t<>	Serbia	2007	5172	378.29	280.16	8.45	4.78	0.48	42.11	22.15	0.52	
Brazil19976818652.921553.146.035.080.4827.9119.910.75Ecuador1994495952.39790.797.574.730.5024.6219.010.65Ecuador1995516452.331093.917.204.600.5025.0319.630.53Ecuador1998549931.45174.127.604.620.5025.9119.990.53Ecuador1999621727.87676.777.504.680.5025.9920.150.54Ecuador20061397621.1898.777.504.680.5127.4218.830.74Guatemala2009129569.57906.278.225.340.5127.4218.800.44Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1998602734.30133.816.004.730.4970.6618.240.52Nicaragua2001665534.77136.756.584.830.4923.6219.170.53Panama19977179124.55486.167.565.440.5127.4520.700.46Panama20038760115.06371.807.925.430.5027.6020.780.50Panama200810342181.73582.638.445.520.	Latin America											
Ecuador1994495952.39790.797.574.730.5024.6219.010.65Ecuador1995516452.331093.917.204.600.5025.0319.630.53Ecuador1998549931.45174.127.604.620.5025.9119.990.53Ecuador1999621727.87676.777.504.680.5025.9920.150.54Ecuador20061397621.1898.777.504.800.4927.2920.900.53Ecuador2009129569.57906.278.225.340.5127.4218.830.74Guatemala2000490141.902068.944.494.440.4926.7918.600.44Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1998602734.30133.816.004.730.4970.6618.240.52Nicaragua2001665534.77136.756.584.830.4923.6219.170.53Panama19977179124.55486.167.565.440.5127.4520.700.46Panama200810342181.73582.638.445.520.5129.3121.360.50Panama200810342181.73582.638.445.520	Brazil	1997	6818	652.92	1553.14	6.03	5.08	0.48	27.91	19.91	0.75	
Ecuador1995516452.331093.917.204.600.5025.0319.630.53Ecuador1998549931.45174.127.604.620.5025.9119.990.53Ecuador1999621727.87676.777.504.680.5025.9920.150.54Ecuador20061397621.1898.777.504.800.4927.2920.900.53Ecuador2009129569.57906.278.225.340.5127.4218.830.74Guatemala2000490141.902068.944.494.440.4925.7918.600.44Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1998602734.30133.816.004.730.4970.6618.240.52Nicaragua2001665534.77136.756.584.830.4923.6219.170.53Panama19977179124.55486.167.565.440.5127.4520.700.46Panama200810342181.73582.638.445.520.5129.3121.360.50Panama200810342181.73582.638.445.520.5129.3121.360.50Peru1985159958.46132.196.214.750.47	Ecuador	1994	4959	52.39	790.79	7.57	4.73	0.50	24.62	19.01	0.65	
Ecuador1998549931.45174.127.604.620.5025.9119.990.53Ecuador1999621727.87676.777.504.680.5025.9920.150.54Ecuador20061397621.1898.777.504.800.4927.2920.900.53Ecuador2009129569.57906.278.225.340.5127.4218.830.74Guatemala2000490141.902068.944.494.440.4925.7918.600.44Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1998602734.30133.816.004.730.4970.6618.240.52Nicaragua19977179124.55486.167.565.440.5127.4520.700.46Panama19977179124.55486.167.565.440.5127.4520.700.46Panama200810342181.73582.638.445.520.5129.3121.360.50Peru1985159958.46132.196.214.750.4737.0615.580.42Peru1991364258.39135.306.774.260.4929.7818.570.47Peru1994560347.8383.517.014.550.49 <td< td=""><td>Ecuador</td><td>1995</td><td>5164</td><td>52.33</td><td>1093.91</td><td>7.20</td><td>4.60</td><td>0.50</td><td>25.03</td><td>19.63</td><td>0.53</td></td<>	Ecuador	1995	5164	52.33	1093.91	7.20	4.60	0.50	25.03	19.63	0.53	
Ecuador1999621727.87676.777.504.680.5025.9920.150.54Ecuador20061397621.1898.777.504.800.4927.2920.900.53Ecuador2009129569.57906.278.225.340.5127.4218.830.74Guatemala2000490141.902068.944.494.440.4926.7918.600.44Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1998602734.30133.816.004.730.4970.6618.240.52Nicaragua2001665534.77136.756.584.830.4923.6219.170.53Panama19977179124.55486.167.565.440.5127.4520.700.46Panama20038760115.06371.807.925.430.5027.6020.780.50Panama200810342181.73582.638.445.520.5129.3121.360.50Peru1985159958.46132.196.214.750.4737.0615.580.42Peru1991364258.39135.306.774.260.4929.7818.570.47Peru1994560347.8383.517.014.550.49	Ecuador	1998	5499	31.45	174.12	7.60	4.62	0.50	25.91	19.99	0.53	
Ecuador20061397621.1898.777.504.800.4927.2920.900.53Ecuador2009129569.57906.278.225.340.5127.4218.830.74Guatemala2000490141.902068.944.494.440.4926.7918.600.44Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1998602734.30133.816.004.730.4970.6618.240.52Nicaragua2001665534.77136.756.584.830.4923.6219.170.53Panama19977179124.55486.167.565.440.5127.4520.700.46Panama20038760115.06371.807.925.430.5027.6020.780.50Panama200810342181.73582.638.445.520.5129.3121.360.50Peru1985159958.46132.196.214.750.4737.0615.580.42Peru1991364258.39135.306.774.260.4929.7818.570.47Peru1994560347.8383.517.014.550.4929.7818.570.47	Ecuador	1999	6217	27.87	676.77	7.50	4.68	0.50	25.99	20.15	0.54	
Ecuador2009129569.57906.278.225.340.5127.4218.830.74Guatemala2000490141.902068.944.494.440.4926.7918.600.44Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1998602734.30133.816.004.730.4970.6618.240.52Nicaragua2001665534.77136.756.584.830.4923.6219.170.53Panama19977179124.55486.167.565.440.5127.4520.700.46Panama20038760115.06371.807.925.430.5027.6020.780.50Panama200810342181.73582.638.445.520.5129.3121.360.50Peru1985159958.46132.196.214.750.4737.0615.580.42Peru1991364258.39135.306.774.260.4929.7818.570.47Peru1994560347.8383.517.014.550.4929.7818.570.47	Ecuador	2006	13976	21.18	98.77	7.50	4.80	0.49	27.29	20.90	0.53	
Coulamental2000450141.50206.544.494.440.4926.7918.600.44Nicaragua1993517625.67113.315.274.250.4921.8818.520.56Nicaragua1998602734.30133.816.004.730.4970.6618.240.52Nicaragua2001665534.77136.756.584.830.4923.6219.170.53Panama19977179124.55486.167.565.440.5127.4520.700.46Panama20038760115.06371.807.925.430.5027.6020.780.50Panama200810342181.73582.638.445.520.5129.3121.360.50Peru1985159958.46132.196.214.750.4737.0615.580.42Peru1991364258.39135.306.774.260.4929.7818.570.47Peru1994560347.8383.517.014.550.4925.6220.280.29	Ecuador	2009	1295	69.57	906.27	8.22	5.34	0.51	27.42	18.83	0.74	
Incaragua1995517025.07113.515.274.250.4921.6018.520.56Nicaragua1998602734.30133.816.004.730.4970.6618.240.52Nicaragua2001665534.77136.756.584.830.4923.6219.170.53Panama19977179124.55486.167.565.440.5127.4520.700.46Panama20038760115.06371.807.925.430.5027.6020.780.50Panama200810342181.73582.638.445.520.5129.3121.360.50Peru1985159958.46132.196.214.750.4737.0615.580.42Peru1991364258.39135.306.774.260.4929.7818.570.47Peru1994560347.8383.517.014.550.4925.6220.280.29	Suatemata	2000	4901	41.90	∠U08.94 113.21	4.49 5.07	4.44	0.49	∠o./9 21 00	10.60	0.44	
Nicaragua2001655534.77136.756.584.830.4923.6219.170.53Panama19977179124.55486.167.565.440.5127.4520.700.46Panama20038760115.06371.807.925.430.5027.6020.780.50Panama200810342181.73582.638.445.520.5129.3121.360.50Peru1985159958.46132.196.214.750.4737.0615.580.42Peru1991364258.39135.306.774.260.4929.7818.570.47Peru1994560347.8383.517.014.550.4925.6220.280.29	Nicaragua	1998	6027	23.07 34.30	133.81	5.27	4.25	0.49	∠1.00 70.66	18.52	0.50	
Panama19977179124.55486.167.565.440.5127.4520.700.46Panama20038760115.06371.807.925.430.5027.6020.780.50Panama200810342181.73582.638.445.520.5129.3121.360.50Peru1985159958.46132.196.214.750.4737.0615.580.42Peru1991364258.39135.306.774.260.4929.7818.570.47Peru1994560347.8383.517.014.550.4925.6220.280.29	Nicaragua	2001	6655	34.77	136.75	6.58	4.83	0.49	23.62	19.17	0.53	
Panama20038760115.06371.807.925.430.5027.6020.780.50Panama200810342181.73582.638.445.520.5129.3121.360.50Peru1985159958.46132.196.214.750.4737.0615.580.42Peru1991364258.39135.306.774.260.4929.7818.570.47Peru1994560347.8383.517.014.550.4925.6220.280.29	Panama	1997	7179	124.55	486.16	7.56	5.44	0.51	27.45	20.70	0.46	
Panama200810342181.73582.638.445.520.5129.3121.360.50Peru1985159958.46132.196.214.750.4737.0615.580.42Peru1991364258.39135.306.774.260.4929.7818.570.47Peru1994560347.8383.517.014.550.4925.6220.280.29	Panama	2003	8760	115.06	371.80	7.92	5.43	0.50	27.60	20.78	0.50	
Peru         1985         1599         58.46         132.19         6.21         4.75         0.47         37.06         15.58         0.42           Peru         1991         3642         58.39         135.30         6.77         4.26         0.49         29.78         18.57         0.47           Peru         1994         5603         47.83         83.51         7.01         4.55         0.49         25.62         20.28         0.29	Panama	2008	10342	181.73	582.63	8.44	5.52	0.51	29.31	21.36	0.50	
Peru         1991         3642         58.39         135.30         6.77         4.26         0.49         29.78         18.57         0.47           Peru         1994         5603         47.83         83.51         7.01         4.55         0.49         25.62         20.28         0.29	Peru	1985	1599	58.46	132.19	6.21	4.75	0.47	37.06	15.58	0.42	
Peru 1994 5603 47.83 83.51 7.01 4.55 0.49 25.62 20.28 0.29	Peru	1991	3642	58.39	135.30	6.77	4.26	0.49	29.78	18.57	0.47	
	Peru	1994	5603	47.83	83.51	7.01	4.55	0.49	25.62	20.28	0.29	

Summary Statistics

								Returne to Edu.	cation for Countri	iee, Yeere: Afric	Ţ								
		Cote d	'Ivoire		Ethlopia	Q ha	Па	Melawi	Niger	NIg	nta	South Africa		Tanzania			Uganda		Africa
	1985	1986	1987	1988	2011	2005	2008	2010	2011	2010	2012	1993	2004	2008	2010	2005	2009	2010	Pooled
Achieved years of Education	0.051		0.080.0	0.033	0.125***	0.057		0.122***	0,085***	0.048	0.085***	0.107	0.058"	0.086***		0.118***	0.122***	0.1 20	0.087
	(0.018)	(0.018)	(0.021)	(0.023)	(0.021)	(0.008)	(0.005)	(0,008)	(2 00.0)	(0.012)	(800'0)	(0000)	(0.027)	(0.015)	(800'0)	(800"0)	(0.007)	0.008	(0.010)
Age	0.131***	0.120***	0.104***	0.108***		0.088***	0.051***	0.084***	0,082***	0:080	P00'0-	0.070	0,088***	0.085***	0.088***	0.084***	0,088***		0.078***
	(0.012)	(0.018)	(0.022)	(800:0)	(0.053)	(0.005)	(0.005)	(0.002)	(0.010)	(100.0)	(200.0)	(200.0)	(0.034)	(0.018)	(01010)	(800010)	(0.024)	0.007	(0.005)
Age^2					-0.002	-0'00'0-		•••• J00'0•			000"0-	-0.001						-0.00.0-	-0.001
	(000)	(000)	(0000)	(0000)	(0.001)	(000'0)	(0.00.0)	(0000)	(0000)	(000))	(0000)	(000010)	(0000'0)	(0000)	(0000)	(0000)	(0000)	00010	(000'0)
Male	1,858***	1.987***		1.825***	-0.223*	0.353***	0.258***	0.08 (***	1.286***	0.839***	0.828***	0,418***		0.478***	0.478***		0.423***	0.443**	0.844***
	(0.103)	(0.201)	(0.188)	(0.187)	(0.133)	(0.018)	(0.048)	(0:030)	(0.210)	(00.080)	(0.062)	(0.088)	(880'0)	(0.158)	(860'0)	(0.142)	(0.105)	0.178)	(0.142)
Urban	0.847	-0.588	-0.780		0.288**	0.371***	0.408***	0,308***	0.815***	0.248***	0.187	0.573	0.786***	0.288~	0.251***	0.418***	0.378***		0.287**
	(0.131)	(080'0)	(0.104)	(0.123)	(0.128)	(0.083)	(0.098)	(0.032)	(0.102)	(00.088)	(0.124)	(0.152)	(0.120)	(0110)	(180.0)	(0.018)	(0.148)	(0.107)	(0.108)
Constant	8,338***	8,413***	7.258***	7.288***	2.548**	10.824***	10,833***	8.453***	8.784***	8.821***	8.887***	3.501	080'2	8.813***	8.810***	8,487***	8.134***	9.582***	3.815***
	(0.245)	(0.338)	(0404)	(0.350)	(1.100)	(0.145)	(0.131)	(0.110)	(0.248)	(0.145)	(0.214)	(0.215)	(0.480)	(0.410)	(0.185)	(0.180)	(0.311)	(0.180)	(0.218)
Number of obs (N):	2,318	2,282	2,184	2,153	804	10,585	10,117	3,330	5,120	414	3,860	8,517	78	1,821	2,738	1,845	1,538	1,280	63,782
R-squared	0.348	0,383	0.342	0.348	0.233	0.184	¥80'0	0.383	0.423	0.187	0.205	0.434	0.287	0.058	0.231	0,403	0.327	0.358	0,885
Notes: Standard errors are clu	stered at the re	gional level with	in each survey	All estimates in	olude regional fixed	i effects. Pooled	estimates includ	e survey (country a	nd year) fixed effe	cts. Significance	values: *** p<0.0	01, ** p<0.06, * p<0.							

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	Azerbaljan	Iraq		KYT	ZVC		Pakletan		Tajik	etan		Timor	to	Asla
	1995	2006	1993	1996	1997	1998	1991	1999	2003	2007	2009	2001	2007	Pooled
Achieved years of Education	0,039***	***200'0	0.035***	0.081***	0.024***	***260.0	***020.0	***890'0	0.010	0.016*	0.049***	0.048*	0.047	0.019**
	(0.003)	(0.002)	(0.007)	(0.019)	(0:004)	(0.020)	(0000)	(0.022)	(0.016)	(0000)	(0.014)	(0.027)	(0.029)	(0.007)
Age	0.029**	0.030***	0.058***	0.049***	0.010**	0.004**	0,093***	0,039***	0.036***	0.043***	0.056***	0.049***	0.009	0,029***
	(0.011)	(0.005)	(0.006)	(0.010)	(0.005)	(0.002)	(0:009)	(600'0)	(0:005)	(0.012)	(800.0)	(0.002)	(0.091)	(0.010)
Age^2	++ 000'0-	-0.000***	-0.001***	-0.001***	-0.000	+0.00.0-	-0.001***	*** 000'0-	+++ 0000'0-	-0.001***	-0.001 ***	-0.001 ***	0.000	**000.0-
	(000'0)	(0000)	(0:000)	(000)	(0000)	(0000)	(0000)	(0000.0)	(0000)	(000'0)	(000:0)	(000)	(0.001)	(000'0)
Male	0,812***	0.266***	0.401***	0.231***	0.064 ***	***660'0	0.360**	0.569***	0.336***	0.907***	0,815***	0.316***	0.505	0.427***
	(0.045)	(0.021)	(0.063)	(0.031)	(0.024)	(0.031)	(0.163)	(0,046)	(0/0/0)	(0.112)	(0.206)	(0.048)	(0.314)	(0.104)
Urben	0,472***	-0.016	-0.259**	0.830***	0.669***	0.606***	0.129***	0.655***	0.204	0.436**	0.425***	0.710*	-0.638*	0.271**
	(0.133)	(0.025)	(0.131)	(0.190)	(0.172)	(0.134)	(0.028)	(0.208)	(0.128)	(0.195)	(0.130)	(0.407)	(0.376)	(0.126)
Constant	4 459***	9.369***	2.649***	3.415***	5.004***	4.581***	5.101***	1.936***	3.579***	3,400***	3.266***	2.797***	4.767***	8,988,***
	(0.202)	(0.104)	(0.118)	(0.406)	(0.172)	(0.363)	(0.185)	(0.289)	(0.242)	(0.472)	(0.106)	(0.148)	(1.517)	(0.237)
Number of obs (N);	2,156	16,446	2,855	1,612	5,205	96 <b>2</b>	1,387	2,364	5,665	6,082	2,062	1,067	476	52,853
R-squared	0.194	0.039	0.166	0.379	0.212	0.263	0.379	0.224	0.053	0.189	0.247	0,140	0.030	0.669

		Albania		Bot	nia		Bul	jaria			Ser	bla		Eastern Europe
	2002	2003	2005	2001	2002	1995	1997	2001	2007	2000	2002	2003	2007	Pooled
Achleved years of Education	0.051***	0.053***	***070.0	0.085***	0.077***	0.048***	0.002	0.053***	0.049***	0.020***	***070.0	0.094***	0.109***	0.068***
	(0.019)	(0.015)	(0.006)	(0.020)	(0.020)	(0.004)	(0003)	(0.005)	(0.004)	(20:00)	(0.006)	(0.008)	(0.009)	(200.0)
Age	0.015***	0.036***	0.051***	0.023***	0.025***	0.047***	-0.001	0.046***	0.065***	-0.015	0.045***	0.053***	0.050***	0.043***
	(0.005)	(0.010)	(0.017)	(0.008)	(0.002)	(0.008)	(900:0)	(0.005)	(0.010)	(0.021)	(0.006)	(0.004)	(800.0)	(0.007)
Age^2	-0.000-**	-0.000***	-0.001***	-0.000-++	-0.000-	-0.001***	0.000	-0.001***	-0.001***	0.00	-0.001***	-0.001***	-0.001***	-0.001***
	(0000.0)	(0000)	(000.0)	(0000.0)	(000.0)	(000.0)	(0000)	(000.0)	(000.0)	(000:0)	(000'0)	(000.0)	(000.0)	(000.0)
Male	0.370***	0.354***	0.560***	0.186***	0.171***	0.370***	0.349***	0.305***	0.346***	0.482***	0.251***	0.278***	0.211***	0.301***
	(0.032)	(0.035)	(0:050)	(0.036)	(0.036)	(0.028)	(0.025)	(0:030)	(0.018)	(0.083)	(0.028)	(0.019)	(0.021)	(0.035)
Urban	0.149*	0.147**	0.395***	-0.111	-0.068***	0.131***	-0.100*	0.122***	0.206***	-0.058	0.140***	0.087***	0.161***	0.105**
	(20.0)	(0.057)	(0.140)	(260.0)	(0.014)	(0.035)	(0.054)	(0.047)	(0:039)	(060.0)	(0.024)	(0.032)	(0.027)	(0.048)
Constant	8,494***	8.031***	7.467***	4.227***	4.227***	6.629***	9.567***	3.958***	4.309***	5.709***	7.023***	6.739***	7.235***	7.932***
	(0.191)	(0.243)	(0.478)	(0.001)	(0.118)	(0.156)	(0.127)	(0.162)	(0.157)	(0.322)	(0.145)	(0.126)	(0.210)	(0.194)
Number of obs (N):	2,064	1,044	3,661	4,109	2,198	2,188	1,790	2,083	4,793	2,192	6,514	2,542	4,975	40,858
R-squared	0.190	0.209	0.291	0.150	0.126	0.185	0.069	0.178	0.279	0.058	0.211	0.250	0.284	0.878

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	Brazil			Ecua	dor			Guatemala		Nicaragua			Panama			Peru		Latin America
	1897	1994	1885	1868	1999	2006	2009	2000	1993	<b>8</b> 6	2001	1881	2003	2008	1985	1991	1894	Pooled
Achieved years of Education	0.111***	0.083***	0.066**	0.078***	0,066"**	0.062***	0.010	0.093***		0.073***	0.072***	0.112***	0.107***	0.106***	0,137	0.068***	0,002	0.080
	(10000)	(0,006)	(0.028)	(600010)	(1000)	(600:0)	(0.015)	(0.012)	(900)	(100,0)	(0004)	(6000)	(80010)	(80010)	(0.012)	(0003)	(0:005)	(900:0)
Age	0.130***	0.032***	0.160***	0.050***	0.060***	0.058***	0.071***	0.068***	0.084***	0.055***	0.050***	0.102***	0.129***	0.103***	0.098	0.061	00010	0.059***
	(0000)	(200.0)	(0.051)	(900:0)	(10:004)	(600.0)	(01010)	(900:0)	(9000)	(0.006)	(0000)	(6000)	(60010)	(0.012)	(0.014)	(0.005)	(0.002)	(0.014)
Age^2	-0.001		-0.003			-0.001	-0.001	-0.001***	-0.001	-0.001***	0000-	-0.001	-0.001***	-0.001	-0.001***	-0.001	0000-	-0.001***
	(0000)	(0000)	(10010)	(000)	(00010)	(000'0)	(0000)	(00000)	(0000)	(0000)	(00010)	(000)	(0000)	(00010)	(0000)	(000)	(000)	(0000)
Male	0.634***	0.686***	0.533**	0.776		0.873***	0.364***	0.617***	0.233"	0.346***	0.318***	0,463***	0.401	0,456***	0.461***	0.341***	-0.043***	0.630***
	(0:030)	(0.047)	(0.231)	(0.113)	(0.138)	(1:20:0)	(260.0)	(0.068)	(0:025)	(0.062)	(0.035)	(0.027)	(0:063)	(0.056)	(0.102)	(0.027)	(0.011)	(0.073)
Urban	0.434***	0.321***	0.396*	0.640***	0.337	0,466***	0.220**	0.556***	0.548***	0.329***	0.298***	0.576***	0.470	0.585***	0.777	0.360***	-0.225***	0.439***
	(0.119)	(0.110)	(0.204)	(0.135)	(0.227)	(1:00.0)	(0.106)	(00:093)	(0.061)	(00.099)	(01050)	(960'0)	(0.056)	(0.119)	(0.183)	(0.026)	(01040)	(0.027)
Constant		9,955***	8.557***	10,412***	10.599***	11.506***	12.174***	3,503***	3,965***	4.417***	4,851***	1.250***	0.774***	1.324***	2.291	2.052***	4.360***	11.566***
	(0.152)	(06010)	(0.336)	(0.170)	(0.036)	(0.146)	(0 287)	(0.195)	(0.105)	(0.085)	(0.130)	(0.061)	(0.227)	(0.223)	(0.151)	(00,108)	(01040)	(0 398)
Number of obs (N);	6,616	4,468	226	5,221	5,846	13,266	1,173	4,737	4,888	5,603	6,076	7,179	2,672	1,776	1484	3,404	5,603	103,812
R-equared	01403	0.233	0.322	0.295	0.212	0.262	0.050	0.198	0.299	0.249	0 234	0.378	0.361	0,336	0,445	0.241	0.013	0.924
Notes: Standard errore are clus	tered at the region	tal level within e	ach eurvey. Al	estimates Inclu	ide regional fixe	sd effecte. Pool	ed estimates inc	lude survey (count	y and year) fixe	id effecte. Signif	cance valuee 🚥	* p<0.01, ** p<0	06, † p<0.1					

Tables 4 (Eastern Europe) – 5 (Latin America)

		All Levels		By E	<b>ducational</b> Lo	evel
	Survey FE	Survey FE	Survey and Province FE	Survey FE	Survey FE	Survey and Province FE
Achieved years of Education	0 075***	0 065***	0 065***			
· · · · · · · · · · · · · · · · · · ·	(0.008)	(0.007)	(0.007)			
Years of Primary School	(,	()	()	0.057***	0.049***	0.050***
2				(0.008)	(0.008)	(0.007)
Years of Secondary School				0.064***	0.054***	0.055***
-				(0.007)	(0.006)	(0.006)
Years of Tertiary School				0.075***	0.065***	0.065***
				(0.008)	(0.007)	(0.007)
Age	0.052***	0.050***	0.050***	0.052***	0.050***	0.050***
	(0.009)	(800.0)	(0.008)	(0.009)	(0.008)	(0.008)
Age^2	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Male	0.477***	0.501***	0.501***	0.484***	0.507***	0.507***
	(0.051)	<b>(0.0</b> 51)	<b>(0</b> .051)	(0.050)	(0.050)	<b>(0</b> . <b>0</b> 51)
Urban		0.324***	0.314***		0.322***	0.313***
		(0.042)	(0.040)		<b>(0.04</b> 1)	(0.039)
Constant	8.696***	8.607***	8.634***	8.723***	8.633***	8.656***
	(0.212)	(0.205)	(0.228)	(0.208)	(0.202)	(0.224)
Number of obs (N):	264,000	261,285	257, <b>044</b>	264,000	261,285	257, <b>044</b>
R-squared	0.894	0.897	0.896	0.894	0.897	0.896

## Table 6 (Pooled: Years of Education and Levels of Education)

Returns to Education, All Countries and Years Pooled

Notes: Standard errors are clustered at regional level within each survey. Significance values: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Table 7 (Pooled: Gender, Urban/Rural, Pre 1999 and Post 2000)

	Retu	rns to Educatio	on, All Countrie	s and Years Po	oled		
	Fu	Male	Female	Urban	Rural	Pre-1999	Post-2000
Achieved years of Education	0.065***	0.059***	0.072***	0.067***	0.053***	0.073***	0.061***
	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.010)	(0.009)
Age	0.050***	0.057***	0.040***	0.063***	0.040***	0.042***	0.060***
	(0.008)	(0.007)	(0.010)	(0.009)	(0.007)	(0.015)	(0.004)
Age <sup>4</sup> 2	-0.001***	-0.001***	-0.000***	-0.001***	-0.000***	-0.000***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Male	0.501***			0.494***	0.539***	0.548***	0.474***
	(0.051)			(0.039)	(0.069)	(0.091)	(0.061)
Urban	0.324***	0.322***	0.330***			0.324***	0.324***
	(0.042)	(0.041)	(0.048)			(0.085)	(0.044)
Constant	8.607***	9.610***	7.934***	8.024***	9.318***	5.691***	7.941***
	(0.205)	(0.180)	(0.216)	(0.217)	(0.190)	(0.407)	(0.202)
Number of obs (N):	261,285	164,113	97,172	135,515	125,770	95,613	165,672
R-squared	0.897	0.902	0.895	0.904	0.896	0.891	0.895

Notes: Included (not displayed) in each regression are survey (country-year) fixed effects. Standard errors are clustered at the regional level within each survey. Significance values: \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1

Full         Male         Female         Urban         Rural         Vars of Primary         Vars of Secondary         Vars of Tartiary           Region:         Full         Male         Female         Urban         Rural         Condary         Tartiary         Secondary         Tartiary         Post-2000           Region:         0.067***         0.082***         0.072***         0.081***         0.064***         0.073***         0.065***         0.064***           Arrica         0.067***         0.073***         0.064***         0.073***         0.064***         0.064***           Arrica         0.067***         0.061***         0.061***         0.064***         0.064****         0.064****         0.064****           Asia         0.019**         0.010**         0.011**         0.001***         0.001***         0.001***         0.001****         0.006****         0.013***         0.006*****         0.010******         0.001**********************************	Full         Male         Female         Urban         Years of Primary         Years of Secondary         Years of Tertiary           Reg/on:         Full         Male         Female         Urban         Rural         Years of Education         Years of Education         Years of Education         Years of Education         Years of Education           Africa         0.067 <sup>++-</sup> 0.062 <sup>++-</sup> 0.072 <sup>++-</sup> 0.061 <sup>++-</sup> 0.073 <sup>++-</sup> 0.073 <sup>++-</sup> 0.073 <sup>++-</sup> Africa         0.010 <sup>++-</sup> 0.010 <sup>++-</sup> 0.010 <sup>++</sup> 0.071 <sup>++-</sup> 0.073 <sup>++</sup> 0.073 <sup>++</sup> 0.073 <sup>++</sup> Asia         0.019 <sup>++</sup> 0.013 <sup>+</sup> 0.011 <sup>+</sup> 0.011 <sup>+</sup> 0.073 <sup>++</sup> 0.073 <sup>++</sup> Asia         0.019 <sup>+</sup> 0.018 <sup>+</sup>											
Region:         Africa         0.067***         0.072***         0.071***         0.0657***         0.0657***         0.0657***         0.0657***         0.0667***         0.0667***         0.0667***         0.0667***         0.0667***         0.0664***         0.0667***         0.0664	Region:         Africa         0.067***         0.082***         0.072***         0.061***         0.052***         0.073***           Africa         0.010)         (0.008)         (0.011)         (0.010)         (0.009)         (0.017)         (0.010)         (0.009)           Asia         0.019**         0.013**         0.028***         0.018***         0.052***         0.073***         0.017***         0.005         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.007)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.005)         (0.007)         (0.005)         (0.005)         (0.005)         (0.005)<		In:	Male	Female	Urban	Rural	Years of Primary Education	Years of Secondary Education	Years of Tertlary Education	Pre-1999	Post-2000
Africa         0.067**         0.072**         0.071**         0.048**         0.052**         0.085**         0.064**           Africa         (0.010)         (0.008)         (0.011)         (0.010)         (0.018)         (0.010)         (0.016)         (0.010)           Asia         (0.010)         (0.008)         (0.011)         (0.010)         (0.018)         (0.010)         (0.016)         (0.010)           Asia         (0.010)         (0.008)         (0.011)         (0.011)         (0.010)         (0.016)         (0.010)           Asia         (0.007)         (0.007)         (0.008)         (0.017*         0.017*         0.036**         0.036**         0.013**           Eastern Europe         0.068**         0.068**         0.066**         0.067**         0.067**         0.036**         0.075**         0.036**         0.075**           Eastern Europe         0.068**         0.066**         0.067**         0.066**         0.067**         0.066**         0.075**         0.036**         0.075**           (0.007)         (0.008)         (0.009)         (0.016)         (0.007)         (0.006)         (0.016)         (0.016)         (0.026           (11 America         0.006***         0.066***	Africa         0.067***         0.072***         0.071***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.073***         0.071****         0.017****         0.017****         0.017****         0.077****         0.017*****         0.077****         0.077*****         0.077******         0.077*******         0.077*********         0.077************         0.077********************         0.077**********************************	Region:										
Asia         (0.010)         (0.008)         (0.011)         (0.013)         (0.016)         (0.013)         (0.014)         (0.013)         (0.013)         (0.013)         (0.013)         (0.013)         (0.013)         (0.013)         (0.014)         (0.013)         (0.013)         (0.013)         (0.014)         (0.014)         (0.013)         (0.014)         (0.014)         (0.014)         (0.016)         (	Asia         (0.010)         (0.008)         (0.011)         (0.011)         (0.010)         (0.009)           Asia         0.013*         0.013*         0.028***         0.018***         0.017**         0.009         0.017**         0.009         0.017**         0.009         0.017**         0.009         0.017**         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.009         0.017***         0.006         0.017***         0.006         0.017***         0.005         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.007)         (0.006)         (0.007)         (0.007)         (0.006)         (0.007)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007) <td>Africa 0.0</td> <td></td> <td>0.062***</td> <td>0.072***</td> <td>0.081***</td> <td>0.051***</td> <td>0.048***</td> <td>0.052***</td> <td>0.073***</td> <td>0.085***</td> <td>0.064***</td>	Africa 0.0		0.062***	0.072***	0.081***	0.051***	0.048***	0.052***	0.073***	0.085***	0.064***
Asia         0.019**         0.013*         0.028***         0.018***         0.017***         0.036**         0.036***         0.013**           (0.007)         (0.007)         (0.007)         (0.005)         (0.005)         (0.016)         (0.016)         (0.004)           Eastern Europe         0.068***         0.063***         0.066***         0.066***         0.066***         0.067***         0.066***         0.030         (0.004)         (0.004)         (0.004)         (0.004)         (0.004)         (0.004)         (0.005)         (0.016)         (0.006)         (0.006)         (0.007)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.007)         (0.007)         (0.007)         (0.007)         (0.007)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.007)         (0.007)         (0.007)         (0.007)         (0.007)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.006)         (0.007)         (0.007)         (0.007)         (0.007) <t< td=""><td>Asia         0.013*         0.028**         0.018**         0.017**         0.013*         0.009         0.017**           Eastern Europe         (0.007)         (0.007)         (0.005)         (0.005)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.006)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.0</td><td>0)</td><td>.010)</td><td>(0.008)</td><td>(0.010)</td><td>(0.011)</td><td>(0.008)</td><td>(0.011)</td><td>(0.010)</td><td>(600.0)</td><td>(0.018)</td><td>(0.010)</td></t<>	Asia         0.013*         0.028**         0.018**         0.017**         0.013*         0.009         0.017**           Eastern Europe         (0.007)         (0.007)         (0.005)         (0.005)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.006)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.006)         (0.007)         (0.0	0)	.010)	(0.008)	(0.010)	(0.011)	(0.008)	(0.011)	(0.010)	(600.0)	(0.018)	(0.010)
(0.007)         (0.007)         (0.005)         (0.005)         (0.016)         (0.016)         (0.016)         (0.016)         (0.016)         (0.016)         (0.016)         (0.016)         (0.016)         (0.016)         (0.016)         (0.012)         (0.005)         (0.016)         (0.012)         (0.007)         (0.005)         (0.016)         (0.001) <t< td=""><td>(0.007)       (0.007)       (0.008)       (0.005)       (0.005)       (0.006)         Eastern Europe       0.068***       0.059***       0.083***       0.065***       0.061***       0.057***       0.065       (0.006)         (0.007)       (0.007)       (0.005)       (0.006)       (0.006)       (0.006)       (0.007)         Latin America       0.080***       0.076***       0.085***       0.082***       0.066***       0.066***       0.066***       0.066***       0.067)         Latin America       0.080***       0.071***       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066**</td><td>Asia 0.1</td><td>019**</td><td>0.013*</td><td>0.028***</td><td>0.018***</td><td>0.017**</td><td>0.013*</td><td>0.009</td><td>0.017***</td><td>0.036**</td><td>0.013***</td></t<>	(0.007)       (0.007)       (0.008)       (0.005)       (0.005)       (0.006)         Eastern Europe       0.068***       0.059***       0.083***       0.065***       0.061***       0.057***       0.065       (0.006)         (0.007)       (0.007)       (0.005)       (0.006)       (0.006)       (0.006)       (0.007)         Latin America       0.080***       0.076***       0.085***       0.082***       0.066***       0.066***       0.066***       0.066***       0.067)         Latin America       0.080***       0.071***       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066****       0.066**	Asia 0.1	019**	0.013*	0.028***	0.018***	0.017**	0.013*	0.009	0.017***	0.036**	0.013***
Eastern Europe         0.068***         0.053***         0.063***         0.063***         0.030         0.072***           (0.007)         (0.006)         (0.011)         (0.006)         (0.006)         (0.007)         (0.022)         (0.008)           Latin America         0.080***         0.085***         0.082***         0.066***         0.066***         0.067***         0.022)         (0.008)           Latin America         0.080***         0.076***         0.082***         0.071***         0.066***         0.067***         0.081***         0.075***           (0.006)         (0.010)         (0.011)         (0.008)         (0.005)         (0.006)         (0.009)         (0.006)         (0.009)         (0.006)	Eastern Europe         0.068***         0.063***         0.065***         0.065***         0.063***         0.063***           (0.007)         (0.006)         (0.011)         (0.008)         (0.006)         (0.007)         (0.007)           Latin America         0.080***         0.085***         0.082***         0.082***         0.086***         0.066***         0.066***         0.060*           Latin America         0.080***         0.085***         0.082***         0.082***         0.086***         0.086***         0.080***           (0.006)         (0.004)         (0.011)         (0.008)         (0.005)         (0.006)         (0.006)	0)	(200)	(0.007)	(0.008)	(2001)	(0.008)	(0.007)	(0.005)	(0.006)	(0.016)	(0.004)
(0.007)         (0.006)         (0.008)         (0.009)         (0.016)         (0.007)         (0.022)         (0.008)           Latin America         0.080***         0.075***         0.082***         0.071***         0.066***         0.080***         0.081***         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.075         0.0755         0.0755         0.0755	(0.005) (0.007) (0.006) (0.011) (0.008) (0.009) (0.016) (0.005) (0.007) Latin America 0.080*** 0.075*** 0.085*** 0.082*** 0.071*** 0.065*** 0.067*** 0.080*** (0.006) (0.004) (0.010) (0.004) (0.011) (0.008) (0.005) (0.006)	Eastern Europe 0.0	168***	0.059***	0.083***	0.065***	0.061***	0.057***	0.053***	0.063***	0.030	0.072***
Latin America 0.080*** 0.076*** 0.085*** 0.082*** 0.071*** 0.066*** 0.067*** 0.087*** 0.081*** 0.079*** (0.006) (0.004) (0.001) (0.004) (0.011) (0.008) (0.005) (0.006) (0.009) (0.007)	Latin America 0.080*** 0.076*** 0.085*** 0.082*** 0.071*** 0.066*** 0.067*** 0.080*** (0.006) (0.004) (0.010) (0.004) (0.011) (0.008) (0.005) (0.005)	0)	(200)	(0.006)	(0.011)	(0.008)	(00.00)	(0.016)	(0.006)	(0.007)	(0.022)	(0.008)
(0.006) (0.004) (0.010) (0.004) (0.011) (0.008) (0.005) (0.006) (0.009) (0.007)	(0.006) (0.004) (0.010) (0.004) (0.011) (0.008) (0.005) (0.006)	Latin America 0.0	180***	0.076***	0.085***	0.082***	0.071***	0.066***	0.067***	0.080***	0.081***	0.079***
		0)	(900)	(0.004)	(0.010)	(0.004)	(0.011)	(0.008)	(0.005)	(0,006)	(0.009)	(200.0)

Table 8 (Pooled: Regional Returns for full sample, by gender, by urban/rural, by educational level and by time period)



Figure 1 (Geographic Coverage of LSMS surveys included in the study)

								%
region,	country	year					ES (95% CI),	Weight,
		1005		1			5 00 (4 00 0 50)	0.00
Africa	Cote D'ivoire,	1985,					5.09 (1.62, 8.56),	0.99,
Africa	Cote D'ivoire,	1986,					7.38 (3.60, 11.17),	0.96,
Africa	Cote D'ivoire,	1987,			-		5.98 (1.87, 10.09),	0.93,
Africa	Cote D'ivoire,	1988,		1			3.35 (-1.18, 7.87),	0.92,
Africa	Ethiopia,	2011,		i —			12.47 (8.35, 16.59)	0.26,
Africa	Ghana,	2005,					5.72 (4.57, 6.87)	4.50,
Africa,	Ghana,	2008,		1	_		3.66 (2.74, 4.59)	4.31,
Africa,	Malawi,	2010,		1			12.17 (10.64, 13.70)	1.42,
Africa,	Niger	2011,	-	_ <b>→</b>			8.54 (7.23, 9.85),	2.18,
Africa	Nigeria,	2010,					4.65 (2.25, 7.04)	1.88,
Africa	Nigeria,	2012,		-			6.46 (4.69, 8.22)	1.66,
Africa	South Africa,	1993,			<b></b>		10.74 (9.50, 11.99),	2.77,
Africa	Tanzania	2004,		•			5.93 (0.58, 11.28),	0.08,
Africa,	Tanzania	2008,		<b>†</b> ●			6.93 (4.06, 9.79)	0.78,
Africa,	Tanzania	2010,		1			9.82 (8.13, 11.51),	1.17,
Africa	Uganda,	2005,		1	<b></b>		11.60 (9.76, 13.45),	0.79,
Africa,	Uganda,	2009,			<b></b>		12.15 (10.69, 13.61),	0.66,
Africa,	Uganda	2010,		1	<b></b>		12.04 (10.90, 13.17),	0.54
Asia,	Azerbaijan,	1995,	<b></b>	1			3.86 (3.27, 4.44),	0.92,
Asia,	China,	1995,	<b>_</b>	+			4.19 (1.75, 6.62)	0.54,
Asia,	Iraq,	2006,	<b>-</b>	1			0.68 (0.24, 1.12)	7.85,
Asia	Kyrgyz	1993,	<b></b>	1			3.48 (2.04, 4.93)	1.22,
Asia,	Kyrqyz,	1996,		+ +			8.06 (4.32, 11.79)	0.69,
Asia	Kyrayz.	1997.	<b></b>	1			2.43 (1.65, 3.22)	2,22
Asia	Kyrayz.	1998.	-				9.74 (5.81, 13.67).	0.37.
Asia	Pakistan	1991	_				6.95 (5.39, 8.51)	0.59
Asia	Tajikistan	1999		1			6 83 (2 42 11 24)	1 01
Αsia	Tajikistan	2003					0.99 (-2 10 4 08)	2 41
Asia	Tajikistan	2007		1			1.64 (-0.02, 3.30)	2.59
Asia	Tajikistan	2007					4 99 (2 09 7 69)	0.99
Asia,	Tajikislari, Timor Looto	2009,		1	_		4.00 (2.00, 7.00),	0.00
Asia,	Timor Leste	2001,		1			4.67 ( 1.02, 10.27)	0.40
Asia,	Albania	2007					4.07 (-1.02, 10.37),	0.20,
E. Europe,	Albania,	2002,					5.10 (1.44, 8.76),	0.66,
E. Europe,	Albania,	2003,					5.31 (2.30, 8.33),	0.44,
E. Europe,	Albania,	2005,		1			7.03 (5.85, 8.21)	1.56,
E. Europe,	Bosnia,	2001,					8.45 (4.57, 12.34)	1.75,
E. Europe,	Bosnia,	2002,					7.72 (3.82, 11.61)	0.94,
E. Europe,	Bulgaria	1995,	_ <b></b>	1			4.76 (3.89, 5.62),	0.93,
E. Europe,	Bulgaria,	1997,	<b>}</b>	1			0.22 (–0.44, 0.88),	0.76,
E. Europe,	Bulgaria	2001,		-			5.31 (4.38, 6.25)	0.89,
E. Europe,	Bulgaria	2007,	_ <b>_</b>	1			4.85 (4.01, 5.70)	2.04,
E. Europe,	Serbia	2000,	<b></b>	1			2.00 (0.58, 3.41),	0.93,
E. Europe,	Serbia,	2002,	,				7.03 (5.77, 8.29)	2.77,
E. Europe,	Serbia,	2003,		¦+			9.37 (7.71, 11.03),	1.08,
E. Europe,	Serbia,	2007,		; –	<b></b>		10.88 (9.14, 12.62),	2.12,
L. America,	Brazil	1997,		i.	<b></b>		11.12 (10.41, 11.84),	2.90,
L. America,	Ecuador,	1994,		I —	_		9.35 (8.15, 10.54),	1.90,
L. America,	Ecuador,	1995,					6.56 (1.05, 12.08),	0.10,
L. America	Ecuador,	1998,		<b></b>			7.78 (7.27, 8.29)	2.22,
L. America,	Ecuador,	1999,	, I	- <b>-</b>			6.63 (5.75, 7.50)	2.49
L. America.	Ecuador.	2006	-	÷			6.21 (5.63, 6.78)	5,65
L America	Ecuador	2009	<b>_</b>	i.			1.04 (=1.92, 4.00)	0.50
L America	Guatemala	2000		·			9.35 (7.07, 11, 63)	2.02
L. America	Nicaraqua	1993					6.91 (5.72, 8.10)	2.08
L. America,	Nicaragua	1008	-				7 26 (5 90, 8 61)	2.00
L. America,	Nicaragua	2001					7.20 (5.30, 6.01)	2.50
L. America,	Nical ayua,	2001,		1			11 16 (10 51 11 90)	2.08
L. America,	Panama,	1997		1	-		10,79 (0,00, 10,05)	3.00,
L. America,	Panama,	2003,					10.73 (9.22, 12.25),	1.14,
L America	Panama,	2008,		: -	<b></b>		10.56 (8.91, 12.20),	U./0,
L. America,	Peru,	1985,					13.69 (11.29, 16.10)	0.62,
L. America,	Peru,	1991,	-				6.78 (6.13, 7.43),	1.45,
L. America,	Peru,	1994, 🗕	<b></b>	1			0.16 (–0.76, 1.08),	2.38,
Overall (I-squ	ared = 97.5%, p =	0.000),		Ŷ			6.22 (6.00, 6.44),	100.00,
				1				
		-1 0	) 5		10	15	20	

Figure 3 (Marginal Year Increases in Returns to Education)



## Appendix: Table 1

			Data Sets in the LSN	IS Archive by Region and Country
	Start Year	End Year	Inclusion	Exclusion and Reason
Africa				
Cote D'ivoire	1985	1988	1985, 86, 87, 88	
Ethiopia	2011	2011	2011	
Ghana	1987	2008	2005_08	Not freely distributed (1987-88-91-98)
Malawi	2004	2010	2010	Local organization distributing data could not be contacted (2004)
Morocco	1991	1991	None	Not available from local distributing organization (1991)
Niger	2011	2011	2011	
Nigeria	2010	2012	2010 12	
South Africa	1993	1993	1993	
Tanzania	1991	2010	2004 08 10	Not nationally representative (1991)
Uganda	2005	2010	2005, 09, 10	
Asia				
Azerbaijan	1995	1995	1995	
China	1995	1995	None	Not nationally representative (1995)
India	1997	1997	None	Not nationally representative (1997)
Iraq	2006	2006	2006	
Kazakhstan	1996	1996	None	Local organization distributing data could not be contacted (1996)
Kvravz	1993	1998	1993, 96, 97, 98	5 5 7 7
Nepal	1996	2010	None	Local organization distributing data could not be contacted (1996, 2003, 10)
Pakistan	1991	1991	1991	3 3 ( , , ,
Taiikistan	1999	2009	1999, 2003, 07, 09	
Timor Leste	2001	2007	2001, 07	
Eastern Europe				
Albania	1996	2012	2002, 03, 05	Local organization distributing data could not be contacted (1996, 2008, 12)
Armenia	1996	1996	None	Local organization distributing data could not be contacted (1996)
Bosnia	2001	2004	2001, 02	Missing income/education data (2003, 04)
Bulgaria	1995	2007	1995, 97, 2001, 07	Untranslated (2003)
Romania	1994	1994	None	Local organization distributing data could not be contacted (1994)
Serbia	2000	2007	2000, 02, 03, 07	
Latin America				
Brazi	1997	1997	1997	
Ecuador	1994	2009	1994, 95, 98, 99, 2006, 09	
Guatemala	2000	2000	2000	
Guyana	1992	1992	None	Local organization distributing data could not be contacted (1992)
Jamaica	1988	2000	None	Not freely distributed (1988, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 2000)
Nicaragua	1993	2005	1993, 98, 2001	Missing income/education data (2005)
Panama	1997	2008	1997, 2003, 08	
Peru	1985	1994	1985, 91, 94	Not nationally representative (1990)