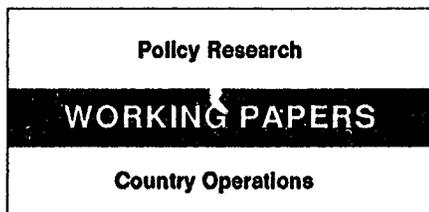


WPS 1014



Technical Department  
Latin America and the Caribbean  
The World Bank  
November 1992  
WPS 1014

# **Ethnicity, Education, and Earnings in Bolivia and Guatemala**

George Psacharopoulos

**Indigenous people will earn more if they get more schooling.**

Policy Research

**WORKING PAPERS**

Country Operations

WPS 1014

**This paper — a product of the Latin America and the Caribbean Technical Department — is part of a larger effort to document poverty conditions in the region. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Liliana Longo, room I4-187, extension 39244 (November 1992, 23 pages).**

Indigenous groups are often associated with poverty and so are low levels of education. Guatemala and Bolivia are the two Latin American countries in which the ethnic part of the population is proportionately greatest. And Bolivia is more “schooled” than Guatemala. So Psacharopoulos tried to determine how levels of ethnicity and education affect the level of worker earnings.

His investigation was based on data from household surveys in the two countries. He found that, other things being equal, indigenous people who acquire more human capital enjoy greater economic rewards than those who

acquire less. Just giving ethnic groups basic education is bound to improve their position.

This finding was supported by both within-country and cross-country evidence: Indigenous people fare better in Bolivia (where there is more education) than in Guatemala (where there is less).

One possible (although controversial) intervention is to provide schooling in the child’s first language. Such an intervention has been successfully implemented on a small scale in Guatemala. Bilingual programs also exist, on a small scale, in Bolivia.

**The Policy Research Working Paper Series disseminates the findings of work under way in the Bank. An objective of the series is to get these findings out quickly, even if presentations are less than fully polished. The findings, interpretations, and conclusions in these papers do not necessarily represent official Bank policy.**

# **Ethnicity, Education, and Earnings in Bolivia and Guatemala**

by  
**George Psacharopoulos\***

\* The World Bank, Washington, DC 20433. I am grateful to Shelton Davis and Philip Musgrove for commenting on an earlier draft of this paper.

## Table of Contents

<b>I.</b>	<b>Introduction</b>	<b>1</b>
<b>II.</b>	<b>Guatemala</b>	<b>2</b>
	<b>Sample Description</b>	<b>2</b>
	<b>The Determinants of Earnings</b>	<b>4</b>
<b>III.</b>	<b>Bolivia</b>	<b>11</b>
	<b>Sample Description</b>	<b>11</b>
	<b>The Determinants of Earnings</b>	<b>12</b>
<b>IV.</b>	<b>Comparative Lessons</b>	<b>17</b>
	<b>References</b>	<b>22</b>

## **I. Introduction**

Indigenous groups are often associated with poverty in a given country, and so is a low level of education. Guatemala and Bolivia are the two Latin American countries with the largest proportion of ethnic population. They also differ in terms of the overall educational attainment of the population -- Bolivia is more "schooled" than Guatemala. Hence it would be of interest to examine the respective roles of ethnicity and education in determining the level of worker earnings.

Human capital theory came to its forte in the early 1960s (e.g., see Schultz, 1961 and Becker, 1964). This theory offered an alternative explanation on why people's incomes differ, relative to dominant sociological or other theories at the time. If someone has more years of schooling or training, he/she will receive higher rewards later in life relative to a lesser schooled/trained person as a compensation/return to the past investment in human capital. This theory has been extensively tested over the last three decades, culminating in Mincer's (1974) classic book on the relationship between earnings, education and labor market experience in the United States. This theory has also been applied in more than 60 other countries, essentially using only two explanatory variables in the so-called "earnings generation function" -- the years of schooling of the individual, and his/her years of work experience in the labor market. In this paper, I expand the Mincerian human capital earnings function to include the ethnicity of the wage or salary earner.

The data on which this particular investigation is based come from Guatemala's and Bolivia's household surveys. The two countries were chosen because of the large ethnic population living there. Information on whether a person belongs to an "ethnic" category differs in the two countries because of the way this question was asked by the two respective surveys, as explained below. Anthropologists familiar with the two country settings are confident that the "indigenous" variable used here truly reflects the ethnicity of a particular persons. These are the people who, living in countries whose official language is Spanish, still speak among themselves in another idioma, wear a traditional dress, or identify themselves as being indigena.

In what follows, sections II and III present the situation in each particular country, and section IV provides some lessons drawn from the comparative analysis.

## II. Guatemala

Sample Description. The data come from the Encuesta Nacional Socio-Demografica (ENSD) conducted in 1989 by the Instituto Nacional de Estadistica. The survey covered about 11,000 households in all parts of the country, urban and rural. From these households, we focus here on about 12,000 persons who reported positive earnings from employment. The reason we focused on wage and salary earners is in order to be able to superimpose ethnicity to the well tried human capital theory on the determinants of individual earnings. We are specifically

interested in the effect of differential educational attainment on earnings, given ethnicity, as a potential policy instrument for boosting individual earnings capacity. Non-employment income, such as from interest and rents, relates to previous wealth accumulation and is beyond this investigation.

The survey questionnaire included the question: "*¿Es indigena?*". The answer to this question classified an individual into two mutually exclusive ethnic groups. If affirmative, it gave a value of 1 to the indigenous dummy variable, and 0 otherwise. Being indigenous is a combination of speaking one of the many non-Spanish languages (e.g., Quiche, Cakchiquel or Mam), dressing in a traditional way, or simply belonging to a socio-cultural group that links to pre-colonial ancestors. (See Whetten, 1961).

Nearly 30 percent of the sample declared themselves indigenous. The sample representativeness of indigenous people corresponds well to the one obtained from independent demographic censuses of the population. (See Stephen and Wearne, 1987). Table 1 presents the rest of the variables used in this analysis. Average earnings in the sample were 236 Quetzals per month (about US\$87 at the official exchange rate). Indigenous workers earned less than one half the income of non-indigenous ones. And indigenous people are three times as likely to belong to the bottom quintile of the income distribution.

The level of educational attainment of the two ethnic groups differs dramatically. The indigenous workers have only 1.6 mean years of schooling, relative to 5.0 years of schooling

for non-indigenous group. In terms of actual levels attained, nearly 60 percent of the indigenous group have not completed primary education, whereas only one quarter of the non-indigenous group belong to this category. A scant 0.5 percent of the indigenous group have had higher education experience, whereas 6.0 percent of the non-indigenous group do so. (See Nyrop, 1983, for an analysis of the country's appalling state of educational development).

The prevalence of self-employed is double among the indigenous group, and this group is four times less likely to be in the public sector of the economy. There are no major differences between the two groups in terms of age, gender, hours worked and potential labor market experience (defined in the Mincerian way as age, minus years of schooling, minus compulsory schooling starting age of 7). (See Mincer 1974).

The Determinants of Earnings. Mean earnings by educational level are neatly ordered as in any other country in the world. Education helps increase the earnings of all groups in the population, whether indigenous or not. But how much of the raw differences presented in the lower panel of Table 1 survive after controlling for other characteristics of the worker? There exist other investigations of earnings differentials in Guatemala, but none to the best of my knowledge has included the ethnic dimension, e.g., see Sumner (1981), Terrel (1989) and Arends (1992).

Table 2 presents a series of alternative specifications of an earnings function fitted to this data set. The first function is the basic Mincerian one (see Mincer 1974) that has been fitted in many other countries, including Latin America (e.g., see Kugler and Psacharopoulos, 1989),

$$\ln Y = a + b S + c EX + d EX^2 + e \ln W$$

where Y stands for the earnings of the individual, S his/her number of years of schooling, EX for the number of years of labor force experience and W the number of hours worked per week.

The coefficient on years of schooling (b) in this semi-log specification can be interpreted as the average private rate of return to one extra year of schooling regardless of the level of education it refers to. This is because the partial derivative of the function with respect to S,

$$b = \frac{\partial \ln Y}{\partial S}$$

corresponds to an approximate definition of the rate of return to investment in schooling. (For an elaboration on this point see Psacharopoulos, 1973).

The 15.1 percent rate of return for Guatemala is on the high side by World and Latin American standards, and this has to be attributed to the extremely low level of educational attainment of the population (3.9 years of schooling). Like every other investment, education is subject the law of diminishing returns. (See Psacharopoulos, 1989).

The second function in Table 2 introduces the indigenous variable, controlling also for gender. Other things being equal, males earn approximately 30 percent more than females, and indigenous people 46 percent less than non-indigenous. The significance for this result is that even if indigenous people had the same educational level as the non-indigenous group, they would still earn about one half that of non-indigenous. Why? Could the ethnic group be discriminated against in the labor market? Or could the ethnic group have been discriminated against before entering the labor market, e.g. by receiving less or inferior quality education relative to the non-indigenous group? Alas, we cannot test such hypotheses with the data in hand.

The last two earnings functions in Table 3 are fitted within the two ethnic sub-samples. There are two findings worth noticing. First, the human capital earnings function for the indigenous group has one third the explanatory power of the function for the non-indigenous group. This means that there are several other factors, beyond human capital, that determine the earnings of the indigenous group, relative to the non-indigenous group. Second, and most important for policy purposes, the rate of return of investing in the education of the indigenous group is of the order of 12 percent, which makes it an attractive yield. Although this is two percentage points lower than the rate of return for the non-indigenous group, it is reassuring to know that education does have an effect in boosting their earnings, in spite of any possible prior or current labor market discrimination against this group.

Given the secular improvement of educational development in all parts of the world, it

is of interest to see how such attainment differs among different age cohorts in Guatemala. Table 3 shows that, indeed, the level of education of both ethnic groups has improved considerably during the last decades. And during such improvement, the relative position of the indigenous group has marked considerable gains as well. Whereas indigenous people born in the 1930s had a fivefold educational disadvantage relative to non-indigenous, the cohort born in the 1970s has only a disadvantage of a factor of two.

In order to take into account such a cohort effect, and in order to answer a more policy-oriented, expansion-at-the-margin question, the second function in Table 2 was fitted again within those aged less than 40, and again for those aged less than 30. (See Table 4). Although the rate of return continues to be of the same order of magnitude as in the analysis using the whole sample (of the order of 13 - 14 percent), the "disadvantage coefficient" of being indigenous drops in the successive cohorts (from 46 percent in the whole sample, to 42 percent among those aged less than 40, and to 38 percent among those less than 30).

Although the absolute disadvantage of the earnings position of the indigenous group is still substantial, this finding should be very welcome from the policy viewpoint, in the sense that education helps this minority group to improve its relative as well as absolute economic status.

Table 1. Mean Characteristics by Ethnic Group, Guatemala 1989

Characteristic	Indigenous	Non-indigenous	Entire Sample
<b>Educational Attainment (%) <u>1/</u></b>			
- No education	59	24	35
- Primary	38	50	47
- Secondary	3	20	15
- Higher	0.5	6.0	4.3
Years of Schooling	1.6	5.0	3.9
Labor Earnings (Q/month)	121	287	236
Bottom 20% of Inc. Distr.(%)	38	12	20
Male (%)	80	71	74
Age	38	36	37
Experience (Years)	29	24	26
Hours Worked/Week	46	46	46
<b>Economic Sector (%)</b>			
- Private	36	55	49
- Public	3	12	9
- Self-employed	60	32	41
<b>Earnings (Quetzal/month)</b>			
- No Education	95	154	124
- Primary	144	230	209
- Secondary	276	402	394
- Higher	543	898	887
- Overall	121	287	236
<b>Number of Observations</b>	<b>3,843</b>	<b>8,658</b>	<b>12,501</b>

1/ Includes dropouts of the respective level.

Table 2. Human Capital Earnings Functions by Ethnicity, Guatemala

Variable	Entire Sample		Indigenous	Non-indigenous
	Basic	Extended		
Years of Schooling	.151	.133	.116	.137
Experience	.037	.035	.018	.040
Experience <sup>2</sup>	-.0004	-.0004	-.0002	-.0005
Hours Worked (log)	.475	.354	.355	.358
Indigenous		-.463		
Male		.307	.283	.321
Constant	1.999	2.481	2.331	2.370
R <sup>2</sup>	.338	.387	.124	.369
N	12,141	12,141	3,776	8,365

Notes: Dependent variable is the natural Logarithm of earnings from employment. All coefficients are statistically significant at the 1% level or better.

Table 3. Educational Attainment Among Ethnic Groups by Age, Guatemala

Age Group	Years of Schooling		Non-indigenous Education Advantage Ratio
	Non-indigenous	Indigenous	
16 - 20	5.07	2.67	1.90
21 - 30	6.33	2.38	2.66
31 - 40	5.42	1.51	3.59
41 - 50	4.03	.89	4.53
51 +	2.88	.52	5.54

Table 4. Rate of Return and Indigenous Earnings Disadvantage by Age Group, Guatemala

Age Group	Rate of Return <sup>1/</sup> (percent)	Indigenous <sup>2/</sup> Earning Disadvantage (percent)
40 or less	13.5	- 42
30 or less	13.7	- 38

Notes: 1/ Coefficient on years of schooling in the function reported in Table 2, times 100.

2/ Coefficient on the "indigenous" dummy reported in the second function in Table 2, times 100.

## II. Bolivia

Sample description. The data are based on the 1989 Encuesta Integrada de Hogares (EIH) conducted by the Instituto Nacional de Estadística. This survey covers only urban centers with population of more than 10,000. The sample covered 22,100 individuals aged 16+, out of which 10,743 had positive earnings from employment. It should be noted that this survey is urban, whereas the one for Guatemala includes both urban and rural areas.

The ethnicity or indigenous variable was also defined in a different way in Bolivia relative to Guatemala. The survey asked the question "*¿Que idioma(s) habla habitualmente?*". ("What language do you usually speak?"). The responses were coded under the ten possibilities listed in Table 5, along with their frequencies.

For the purposes of this exercise we defined as ethnic or indigenous all those who usually spoke one or more of the vernacular languages, even if they also spoke Spanish. This grouping classified as ethnic 34 percent of the population at large (Table 5), or 38 percent of those who have positive earnings from employment (Table 6). These statistics match well independent accounts of the proportion of the ethnic group in Bolivia today.

Among the workers, the indigenous groups lags 3.4 years of schooling relative to the non-indigenous group. The overall level of schooling of both groups, however, is much above that of Guatemala. Mean earnings in the sample is 305 Bolivares or about US\$104 per month at the

official exchange rate. The earnings differential between the two groups is again substantial (See lower panel of Table 6). The indigenous workers earn 60 percent less than the non-indigenous group. (For an analysis of the gender earnings gap in Bolivia, using the same survey, see Scott, 1992).

The Determinants of Earnings. Table 7 presents the same human capital earnings functions as those fitted earlier for Guatemala. The results show, again, a statistically significant earnings gap of the indigenous versus non-indigenous group, although this gap (approximately 23 percent), is much lower than that found in Guatemala. The returns to education to the indigenous group (6.2 percent) are 2.4 percentage points lower relative to the non-indigenous group (8.4 percent).

Given the higher level of educational attainment of recent cohorts (Table 8), the earnings functions were run again for those aged less than 40 or less than 30 years old. The indigenous group's earnings disadvantage is much less for the younger cohort -- of the order of 16 percent (Table 9).

Table 5. The Distribution of Spoken Languages in Urban Bolivia, 1989

Code	Language	N	%
1	Castellano	14191	64.2
2	Quechua	196	.9
3	Aymará	182	.8
4	Castellano y Quechua	3445	15.6
5	Castellano y Aymará	3409	15.4
6	Quechua y Aymará	10	.0
7	Castellano, Quechua y Aymará	341	1.5
8	Castellano y Guaraní	12	.1
9	Castellano y otro nativo	14	.1
10	Castellano y otro no nativo	296	1.3
	Indigenous (codes 2 to 8)	7,599	34.4
	Non-Indigenous (codes 1, 9, and 10)	14,501	65.6
	Overall	22,100	100

Table 6. Characteristics of Workers by Ethnic Group, Bolivia, 1989

Characteristic	Indigenous	Non-indigenous	Entire Sample
<b>Educational Attainment(%) <sup>1/</sup></b>			
- No education	12	2	6
- Primary	55	35	42
- Secondary	22	36	31
- Higher	11	27	21
Years of Schooling	6.5	9.9	8.6
Labor Earnings (B/month)	305	493	422
Bottom 20% of Inc. Distr (%)	27	16	20
Male (%)	58	60	59
Age	39	35	37
Experience (Years)	26	19	22
Hours Worked/Week	42	42	42
<b>Economic Sector (%)</b>			
- Salaried	45	62	56
- Self-employed	55	38	44
<b>Earnings (Bolivares/month)</b>			
- No Education	205	273	222
- Primary	282	372	328
- Secondary	329	447	414
- Higher	470	724	673
- Overall	305	493	422
<b>Number of Observations</b>	<b>4,057</b>	<b>6,687</b>	<b>10,743</b>

<sup>1/</sup> Includes dropouts of the respective level.

**Table 7. Human Capital Earnings Functions by Ethnicity, Bolivia, 1989**

Variable	Entire Sample		Indigenous	Non-indigenous
	Basic	Extended		
Years of Schooling	.092	.076	.062	.084
Experience	.048	.046	.034	.052
Experience <sup>2</sup>	-.0005	-.0005	-.0003	-.0006
Hours Worked (log)	.389	.277	.230	.311
Indigenous		-.234		
Male		.364	.370	.369
Constant	2.672	3.124	3.315	2.861
R <sup>2</sup>	.210	.257	.188	.252
N	10,632	10,632	4,033	6,599

Notes: Dependent variable is the natural logarithm of earnings from employment. All coefficients are statistically significant at the 1% level or better.

Table 8. Educational Attainment Among Ethnic Groups by Age, Bolivia

Age Group	Years of Schooling		Non-indigenous Education Advantage Ratio
	Non-indigenous	Indigenous	
16 - 20	8.7	6.2	1.40
21 - 30	10.7	8.2	1.30
31 - 40	10.5	7.0	1.50
41 - 50	9.2	5.7	1.61
51 +	8.1	4.3	1.88

Table 9. Rate of Return and Indigenous Earnings Disadvantage by Age Group, Bolivia

Age Group	Rate of Return <sup>1/</sup> (percent)	Indigenous <sup>2/</sup> Earnings Disadvantage (percent)
40 or less	8.6	- 22
30 or less	9.0	- 16

Notes: 1/ Coefficient on years of schooling in the function reported in Table 7, times 100.

2/ Coefficient on the "indigenous" dummy reported in the second function in Table 7, times 100.

#### **IV. Comparative Lessons**

**What does this comparative exercise teach us? What interventions would improve the economic position of a minority ethnic group in a pluralistic society?**

**Because of the differential composition of the sample in the two countries, the Guatemalan estimates were repeated using only the urban sub-sample. Among urban residents, the earnings advantage of the non-indigenous group was 97 percent, versus 137 percent for the country as a whole. On the other hand, there is a major difference in the two countries in where the indigenous people live. In Guatemala, only 13 percent of the indigenous people live in urban areas, versus 34 percent in Bolivia. Hence, the comparison of urban Bolivia to Guatemala as a whole might be more appropriate than restricting the analysis to urban areas in the two countries.**

**Figure 1 shows the contrast between the two countries in terms of educational development and earnings, by ethnicity. The much lower educational attainment of the ethnic group in Guatemala relative to Bolivia, translates into a much sharper earnings differential in favor of the non-ethnic in Guatemala relative to Bolivia.**

**Figure 2 depicts essentially the same relationship, but cast in terms of the returns to education. The two lines assume a continuity in terms of educational development within ethnic**

groups across the two countries. The negative slope of both lines implies that, for any ethnic group, the higher its level of educational attainment, the lower the returns to education the group enjoys. This is just a further documentation of the law of diminishing returns. What is of importance for the purpose of this analysis, however, is that the line referring to the indigenous group lies well below the line for the non-indigenous group. What this means is that in both countries, even if the two groups had the same level of educational attainment, the indigenous group would enjoy a several percentage points lower rate of return on their schooling investment relative to the non-indigenous group.

The results presented here should be qualified by the fact the data do not permit to establish how much of the inferior economic position of the ethnic people in both countries is due to discrimination, either before or after joining the labor market. What we could say at most in this respect, is that the earnings differential between the two groups that remains unexplained, after controlling for human capital endowments, represents an upper bound of labor market discrimination. But there must be several other factors determining the earnings of these two very different groups, that we cannot be sure what is the degree of pure discrimination in the labor market.

In spite these caveats, our investigation has shown that, other things equal (including culture) those indigenous people who acquire more human capital enjoy relatively higher economic rewards relative to their counterparts who have less human capital. Hence, the sheer provision of education to such groups, mainly in the form of basic education, is bound to

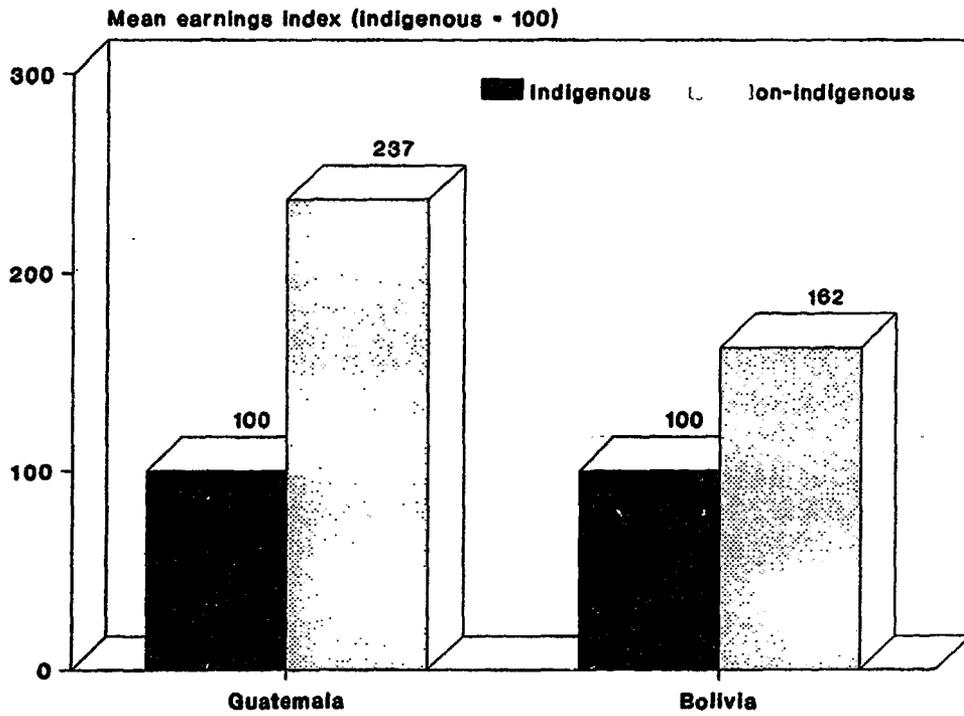
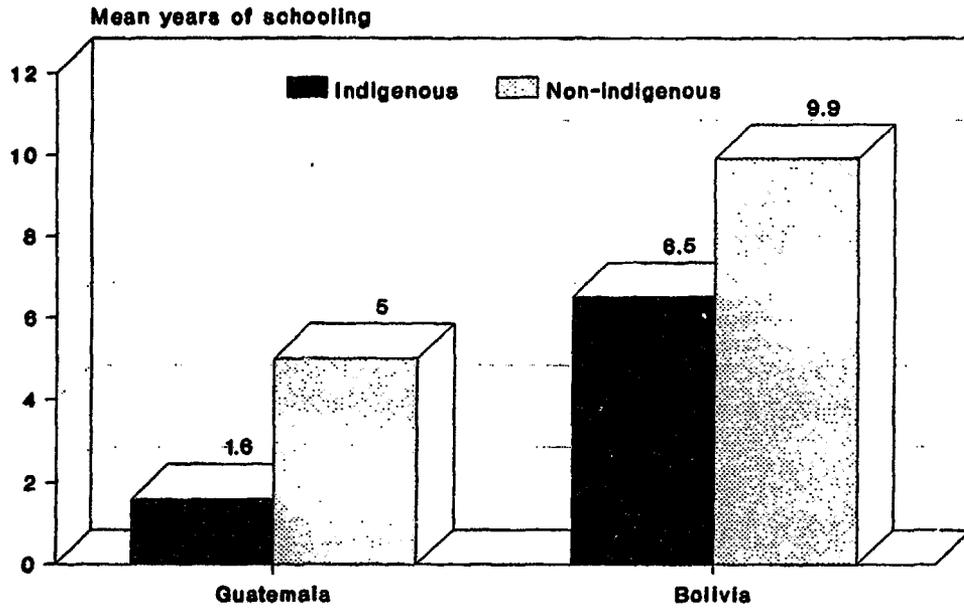
improve their position.

The above intervention is supported not only from within-country evidence, where the more educated, even if indigenous, earn more than the less educated. It is also supported by the cross-country evidence that when a country has a higher level of educational attainment on average (Bolivia), the indigenous people fare much better relative to a country with a lesser educational attainment (Guatemala).

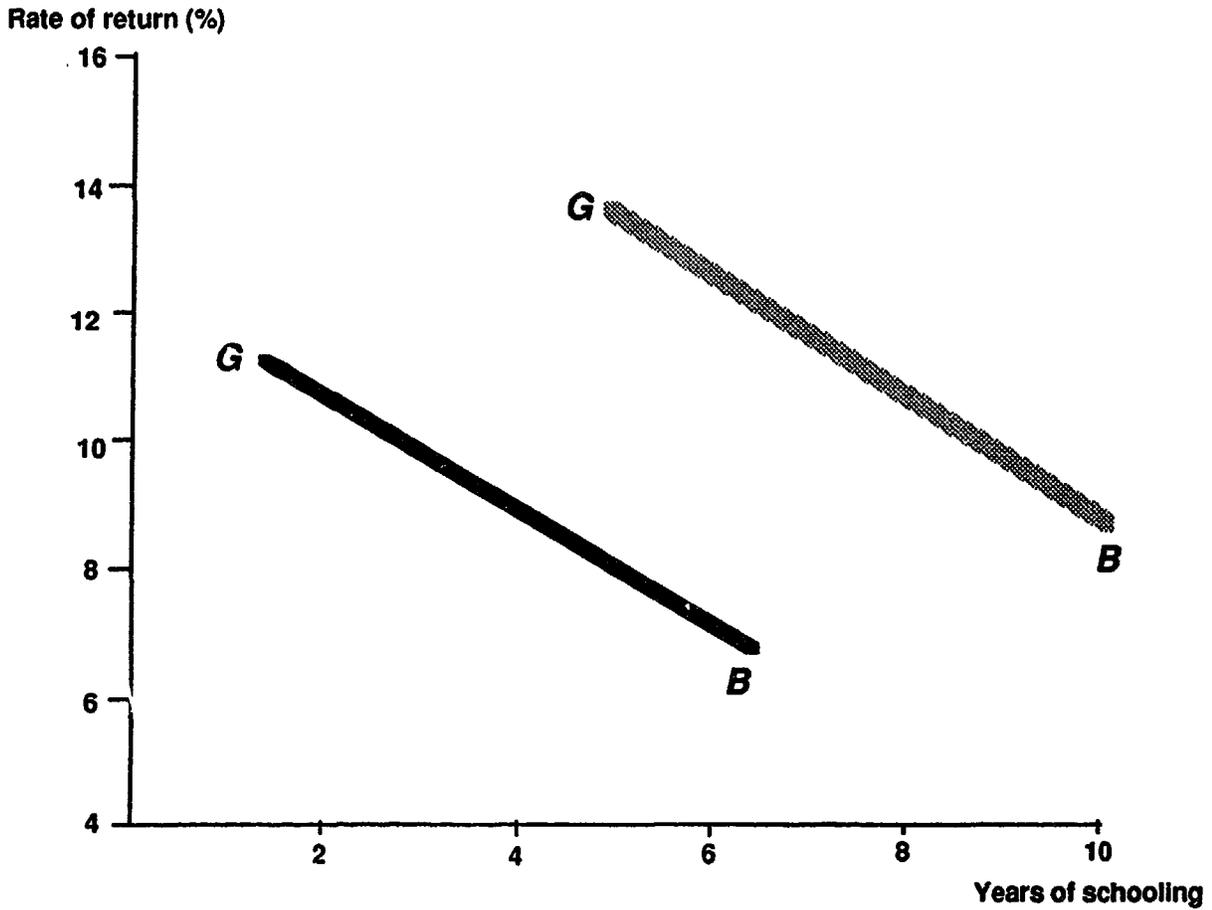
Another possible intervention is the provision of schooling in the child's first language. This is a highly controversial issue, given the fact the child will have later to switch to Spanish for further education. Yet such intervention has been successfully implemented on a small scale in rural Guatemala. (See Chesterfield and Stealy, 1986). Bilingual programs also exist in Bolivia, although at a small scale.

The economic position of the indigenous people can be addressed from the perspective of several disciplines. Here we have used an economic perspective, in particular human capital theory, extended to accommodate the indigenous attribute of the wage or salary earner. In summary, from the above analysis we conclude that in a country with a high proportion of ethnic population, those who are indigenous have much lower levels of educational attainment and receive less rewards in the labor market relative to the non-indigenous group. We also conclude that education is a good investment for both groups, i.e. including the indigenous people.

**Figure 1**  
**Education and Earnings by Ethnicity**



**Figure 2**  
**The Returns to Education by Ethnicity and Level of Educational Development**



————— Indigenous  
..... Non-Indigenous

**G** Guatemala observation

**B** Bolivia observation

## REFERENCES

- Arends, M., "Female Labor Force Participation and Earnings in Guatemala," Chapter 17, in G. Psacharopoulos and Z. Tzannatos, eds., Women's Employment and Pay in Latin America, The World Bank, 1992.
- Becker, G.S., Human Capital. National Bureau of Economic Research, 1964. (Second edition, 1975).
- Chesterfield, Ray, and H. Ned Seeye, Process Evaluation of the Programa Nacional de Educacion Bilingue (PRONEBI). Final Report for USAID/Guatemala and PRONEBI. Washington, D.C.: United Agency for International Development, 1986.
- Guerra Borges, A., Compendio de Geografía Económica y Humana de Guatemala. Editorial Universitaria de Guatemala, 1983.
- Kugler, B., Psacharopoulos, G., "Earnings and Education in Argentina: an Analysis of the 1985 Buenos Aires Household Survey", Economics of Education Review, Vol. 8, No. 4, 1989: 353-365.
- Mincer, J., Schooling, Experience, and Earnings. New York: Colombia University Press, 1974.
- Nyrop, R., Guatemala: A Country Study, American University, 1983.
- Psacharopoulos, G., Returns to Education: An International Comparison. Elsevier - Jossey Bass, 1973.
- Psacharopoulos, G., "Time Trends of the Returns to Education: Cross-National Evidence", Economics of Education Review, vol. 8, no. 3. 1989: 225-231.
- Schultz, T.W., "Investment in Human Capital," American Economic Review, 51 (1), March, 1961.
- Scott, K., "Women in the Labor Force in Bolivia: Participation and Earnings," Chapter 7 in G. Psacharopoulos and Z. Tzannatos, eds. Women's Employment and Pay in Latin America, The World Bank 1992.
- Stephen, David, and Wearne, Phillip, Central American's Indians with a summary by Rodolfo Stavenhagen. London: Minority Rights Group, 1984.
- Sumner, Daniel, "Wage Functions and Occupational Selection in a Rural Less Developed Country Setting," Review of Economics and Statistics, vol. 63, 1981:513-519.

Terrell, Katherine. "An Analysis of Wage Structure in Guatemala City," The Journal of Developing Areas, vol. 23, April 1989: 405-423.

Whetten, N., Guatemala: The Land and the People. New Haven: Yale University Press, 1961.

**Policy Research Working Paper Series**

	<b>Title</b>	<b>Author</b>	<b>Date</b>	<b>Contact for paper</b>
WPS992	Regional Integration in Sub-Saharan Africa: Experience and Prospects	Faezeh Foroutan	October 1992	S. Fallon 37947
WPS993	An Economic Analysis of Capital Flight from Nigeria	S. Ibi Ajayi	October 1992	N. Lopez 34555
WPS994	Textiles and Apparel in NAFTA: A Case of Constrained Liberalization	Geoffrey Bannister Patrick Low	October 1992	A. Daruwala 33713
WPS995	Recent Experience with Commercial Bank Debt Reduction	Stijn Claessens Ishac Diwan Eduardo Fernandez-Arias	October 1992	Rose Vo 33722
WPS996	Strategic Management of Population Programs	Michael H. Bernhart	October 1992	O. Nadora 31091
WPS997	How Financial Liberalization in Indonesia Affected Firms' Capital Structure and Investment Decisions	John R. Harris Fabio Schiantarelli Miranda G. Siregar	October 1992	W. Pitayatonakarn 37664
WPS998	What Determines Demand for Freight Transport?	Esra Bennathan Julie Fraser Louis S. Thompson	October 1992	B. Gregory 33744
WPS999	Stopping Three Big Inflations (Argentina, Brazil, and Peru)	Miguel A. Kiguel Nissan Liviatan	October 1992	R. Luz 34303
WPS1000	Why Structural Adjustment Has Not Succeeded in Sub-Saharan Africa	Ibrahim A. Elbadawi Dhaneshwar Ghura Gilbert Uwujaren	October 1992	A. Maranon 39074
WPS1001	Have World Bank-Supported Adjustment Programs Improved Economic Performance in Sub-Saharan Africa?	Ibrahim A. Elbadawi	October 1992	A. Maranon 39074
WPS1002	World Fossil Fuel Subsidies and Global Carbon Emissions	Bjorn Larsen Anwar Shah	October 1992	WDR Office 31393
WPS1003	Rent-Sharing in the Multi-Fibre Arrangement: Evidence from U.S.-Hong Kong Trade in Apparel	Kala Krishna Ling Hui Tan	October 1992	M. T. Sanchez 33731
WPS1004	Family Planning Programs in Sub-Saharan Africa: Case Studies from Ghana, Rwanda, and the Sudan	Regina McNamara Therese McGinn Donald Lauro John Ross	October 1992	O. Nadora 31091
WPS1005	An Approach to the Economic Analysis of Water Supply Projects	Laszlo Lovei	October 1992	M. Dhokai 33970

## Policy Research Working Paper Series

Title	Author	Date	Contact for paper
WPS1006 Preparing Multiyear Railway Investment Plans: A Market-Oriented Approach	Jorge M. Rebelo	October 1992	A. Turner 30933
WPS1007 Global Estimates and Projections of Mortality by Cause, 1970-2015	Rodolfo A. Bulatao Patience W. Stephens	October 1992	O. Nadora 31091
WPS1008 Do the Poor Insure? A Synthesis of the Literature on Risk and Consumption in Developing Countries	Harold Alderman Christina H. Paxson	October 1992	C. Spooner 32116
WPS1009 Labor and Women's Nutrition: A Study of Energy Expenditure, Fertility, and Nutritional Status in Ghana	Paul A. Higgins Harold Alderman	October 1992	C. Spooner 32116
WPS1010 Competition and Efficiency in Hungarian Banking	Dimitri Vittas Craig Neal	October 1992	W. Pitayatonakarn 37664
WPS1011 How Tax Incentives Affect Decisions to Invest in Developing Countries	Robin Boadway Anwar Shah	November 1992	C. Jones 37754
WPS1012 The Brady Plan, the 1989 Mexican Debt Reduction Agreement, and Bank Stock Returns in the United States and Japan	Haluk Unal Asli Demirgüç-Kunt Kwok-Wai Leung	November 1992	W. Patrawimolpon 37664
WPS1013 The Impact of Mexico's Retraining Program on Employment and Wages	Ana Revenga Michelle Riboud Hong Tan	November 1992	D. Young 30932
WPS1014 Ethnicity, Education, and Earnings in Bolivia and Guatemala	George Psacharopoulos	November 1992	L. Longo 39244
WPS1015 Benefit Incidence Analysis in Developing Countries	Thomas M. Selden Michael J. Wasylenko	November 1992	C. Jones 37754