

Education and Employment Perspectives for Mexican Rural Youth

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ABSTRACT

Economic development is closely related to education attained by the rural youth. This paper deals with the match between economic development, levels of education and employment. The research question is; does investment in education lead to an increase of wealth and to a reduction of poverty of households in rural areas? A comparison with the urban youth is made.

The *Encuesta Nacional de Ingresos y Gastos de los Hogares* (ENIGH) provides information about households' incomes, the economic activities, job type, and the sector of employment. More detailed information on employment and education is derived from the *Encuesta Nacional de Empleo* (ENE) and from the *Encuesta Nacional de Educación, Capacitación y Empleo* (ENECE).

The analysis in the paper provides insight in the differences in returns to education in urban and rural areas, and in the relations between education, employment, and poverty. We conclude that for the rural youth the economic perspectives are increasing, though still lagging behind the opportunities of the urban youth.

1 Introduction¹

Everyday Mexican young people enroll in formal systems of education and then while finishing school, start looking for opportunities in the labor market, which are not easy to find. Is it because the link between education and labor demand is weak? Are skills taught at school sufficient for a job opportunity in the labor market?

The situation in rural areas deserves special attention if the fight against poverty in Mexico wants to be successful. For that reason it is of special interest to study employment opportunities in the rural zones of Mexico. In this paper we study the relation between schooling, employment, and economic development. We make a comparison between the education and employment perspectives in urban and rural areas, and pay special attention to the perspectives for the younger generations. The research question is: does investment in education lead to an increase of wealth and to a reduction of poverty of households in rural areas?

The study is carried out at the national level, making a division in urban and rural areas. Section 2 investigates the returns to education in terms of job opportunities and income. We include the whole population in the analysis, using data from the *Encuesta Nacional de Empleo* (ENE) 2002 and the *Encuesta Nacional de Educación, Capacitación y Empleo* (ENECE) 2001. In section 3 we focus at a comparison between younger and older cohorts. In section 4 we use information from the *Encuesta Nacional de Ingresos y Gastos de los Hogares* (ENIGH) 2002 to focus more on the reduction in poverty.² Additional, detailed, research would be possible if we could get hold of micro-data. Section 5 comments on that. The findings are summarized and discussed in section 6.

2 The Returns to Education

A first answer to the question whether the returns to education in rural areas differ from the returns in urban areas, is derived using information from the *Encuesta Nacional de Empleo* 2002. Table 1 shows that in the rural areas the fraction of workers with no formal education³, about 13.6% of the employed population, is much larger than in urban areas, where less than 3% of the population did not receive schooling. On average the level of education in rural areas is lower.

For a large part this is reflected in the importance of the agricultural sector, which is the sector with lowest schooling levels. In urban areas agriculture is hardly relevant, only 0.75% of the urban population is employed in the agricultural sector. In rural areas more than one third of the population perform farming activities. Of them, 23.7% registers only 1 to 3 years of schooling, whereas 22.7% does not have any type of schooling. In total, 79.2% of the rural population employed in farming activities register a

¹ The first author got inspired for this paper when supervising the Master's thesis of the late Veronica Aviles Lobato.

² In the ENIGH the urban areas comprises towns with more than 2.500 inhabitants, whereas the rural areas are formed by localities with less than 2.500 inhabitants. The ENE and the ENECE make a different division since the urbanized area comprises the towns with more than 100.000 inhabitants, and state capitals, while the less urbanized area comprises towns with less than 100.000 inhabitants. We consider the methodological differences for defining the urban and rural areas do not disturb the study because we do not make comparisons between the data of the ENIGH and the ENE as well as the ENECE. The surveys are made by the *Instituto Nacional de Estadística, Geografía e Informática* (INEGI).

³ Within the National Educative System the formal education is the scholastic system where education is provided in class-rooms, where core knowledge is found, methods are followed, strategies are applied and defined targets are set.

maximum of completed primary education. In urban areas the sector employs both low and high-educated workers, while in rural areas the agricultural sector hardly attracts high-educated workers.

In urban areas the greater number of people are working in commerce (21.9%), manufacturing (20.0%), and other services (24.9%). In the rural areas, each of these sectors employs about 15% of the population. Especially in the urban areas, a significant fraction of the employees in these sectors have attained a bachelor's degree. In all sectors we observe that the schooling level in rural areas is much lower, in comparison to the urban areas. However both in urban and rural areas we see that the level of schooling of the employees increases as the degree of specialization in the sector increases.

**TABLE 1
EMPLOYED POPULATION, BY ECONOMIC ACTIVITY AND SCHOOLING LEVEL**

	Employed Population	Percentage of Employed Population	No schooling	SCHOOLING LEVEL (%)								
				Primary School			Secondary School		Sub Professional	Preparatory school	Professional	
				1 to 3 Years	4 to 5 Years ²	6 Years ²	1 to 2 Years	3 Years			1 to 3 Years	Tech Degree
MORE URBANIZED AREAS												
Total	19,982,284	100.00	2.95	5.32	3.05	17.96	4.82	20.83	7.71	13.72	2.50	21.16
Agricultural activities	149,523	0.75	10.91	11.79	6.71	21.87	2.92	12.28	2.66	9.01	1.64	20.22
Operation of mines and quarries; oil extraction and refining, electricity	225,483	1.13	0.88	2.33	0.78	10.02	2.25	19.39	6.11	19.12	4.18	34.93
Manufacturing industry	4,003,693	20.04	2.13	4.43	2.80	20.99	5.88	28.65	6.40	12.43	2.44	13.85
Building industry	1,097,156	5.49	6.87	11.70	7.54	25.94	6.12	17.24	2.88	6.31	1.43	13.95
Commerce	4,376,827	21.90	3.17	5.39	2.85	18.46	4.93	23.07	7.47	17.98	2.29	14.39
Hotels, restaurants & similar	1,262,163	6.32	4.03	7.93	4.24	22.04	7.14	23.13	5.86	15.36	2.02	8.25
Transports & related services	1,120,959	5.61	0.87	4.89	2.64	21.68	7.19	26.99	5.71	16.32	2.52	11.20
Communications	133,006	0.67	0.06	1.13	0.70	6.07	0.88	14.15	10.89	29.00	2.53	34.53
Real estate leasing, and financial and professional services	1,329,179	6.65	0.82	0.68	0.87	7.00	2.19	10.55	8.51	14.90	2.65	51.84
Other services	4,983,639	24.94	3.75	6.12	3.41	16.83	4.04	15.30	10.17	10.06	2.76	27.57
Public Management & Military defense	1,186,647	5.94	0.96	1.92	0.74	10.01	2.25	18.26	11.07	15.60	3.56	35.63
Not specified ¹	114,009	0.57	1.33	4.05	2.78	17.14	5.12	19.02	3.65	27.57	1.23	18.12
LESS URBANIZED AREAS												
Total	20,319,710	0.00	13.55	15.92	7.87	22.68	5.34	16.44	3.11	7.17	1.29	6.61
Agricultural activities	7,057,142	34.73	22.70	23.72	10.31	22.51	5.41	10.69	0.33	3.21	0.21	0.89
Operation of Mines and Quarries; oil extraction and refining, electricity	192,499	0.95	5.62	5.85	3.78	16.91	3.75	15.47	3.56	22.66	3.83	18.56
Industries	3,051,317	15.02	11.05	12.34	7.02	26.67	5.40	21.59	2.93	8.33	1.32	3.30
Building industry	1,435,990	7.07	10.90	17.08	9.26	29.85	6.20	19.62	0.83	3.73	0.63	1.90
Commerce	3,074,618	15.13	7.78	12.70	6.55	22.30	6.18	20.86	4.39	11.70	1.81	5.73
Hotels, restaurants & similar	822,826	4.05	9.55	13.54	9.06	25.03	6.61	18.11	3.86	8.36	1.67	4.21
Transports & related services	531,938	2.62	4.35	9.09	5.11	25.61	6.77	26.03	2.99	12.63	2.53	4.89
Communications	45,477	0.22	1.53	3.69	2.21	10.46	2.17	25.35	16.58	25.10	3.20	9.70
Real estate leasing, and financial and professional services	273,790	1.35	2.52	3.89	2.93	9.60	2.60	16.24	9.21	14.21	3.95	34.83
Other services	3,179,721	15.65	8.46	9.76	5.62	18.36	4.41	15.41	7.63	7.89	2.08	20.36
Public Management & Military defense	616,014	3.03	4.52	8.10	3.59	15.38	1.74	21.07	6.72	12.80	4.76	21.31
Not specified ¹	38,378	0.19	3.58	12.94	11.70	18.09	6.48	29.26	1.21	10.37	1.48	4.91

¹ Includes the Mexican workers in the United States whose economic activity is not known.

² Includes the population that had some training course after to have finished the primary school.

Note: More urbanized areas comprises cities with more than 100,000 inhabitants, and state capitals; Less urbanized areas are cities with less than 100,000 inhabitants. The category "education not specified" is ignored from the table.

Source: Encuesta Nacional de Empleo (ENE), INEGI, 2002.

Is the lower education in rural areas reflected in the type jobs that are obtained? Overall, in urban areas 66% of the employed population has a job in which they earn a regular wage (table 2), while in rural areas only 47% has a regular job (the difference is countered by the importance of self-employment in the rural areas, where it reaches 30.3% compared to 18.2% in the urban area). The difference is found for all levels of education, but is largest in the group of people who have at most secondary education. More often they are self-employed, or work as an unpaid laborer. For higher educated people, especially for those with (sub-) professional education, the fraction that is employed in a job with a regular wage differs less between urban and rural areas. It seems that (sub-) professional education in rural areas pays off, in the sense that people manage to find regular jobs at the same rate as in urban areas. However, also for the high-educated, the fraction of unpaid laborers is larger in rural areas. Somewhat remarkable is that in rural areas, the people with incomplete secondary or preparatory education have particularly bad chances to obtain a regular job.

In order to have access to a better-paid job, it is necessary to finish the formal studies, it seems more difficult to find a job without having finished secondary or preparatory education. Given the standards of skills and specific knowledge that the labor requires, they are affected most by changes in the demand for labor by the labor market. In this sense it is important to focus the educational expenses in rural areas in the secondary and preparatory education, mainly.

Professional education is equally important but the young people of the rural areas emigrate towards the urban areas to continue with their studies, in rural areas generally there are not a lot of important schools at professional level and in most cases they have no universities. The youth face the necessity to migrate to the urban areas to get better opportunities both for education and for well-paid jobs. Beyond doubt is that, if a larger number of opportunities had existed to follow education in the countryside, more of the educated young people and adults would refrain from migration, and those that migrated to study would return to the rural areas.

TABLE 2
EMPLOYED POPULATION, BY SCHOOLING LEVEL AND POSITION AT WORK

Schooling level	Employed Population	Percentage of Employed Population	POSITION AT WORK (%) ²				
			Employers	Self-employed	Wage – earning workers	Piece-rate Workers	Workers without payment
MORE URBANIZED AREAS							
Total	19,982,284	100.00	4.84	18.23	66.16	6.61	4.14
No schooling	589,092	2.95	3.20	41.97	45.46	4.99	4.38
1 to 3 years of primary school	1,062,125	5.32	4.13	34.58	48.84	8.08	4.38
4 to 5 years of primary school	608,555	3.05	4.00	26.83	53.62	9.64	5.91
6 years of primary school ¹	3,587,858	17.96	4.06	24.33	59.13	7.85	4.63
1 to 2 years of secondary school	962,913	4.82	2.99	16.12	61.51	11.07	8.31
3 years of secondary school	4,162,326	20.83	3.10	15.48	69.15	8.03	4.20
Sub-professional	1,539,972	7.71	3.40	13.80	74.70	4.63	3.47
1 to 3 years of preparatory school	2,741,547	13.72	4.81	13.69	68.73	7.66	5.07
Tech Degree	498,782	2.50	3.59	12.42	76.84	4.41	2.73
Bachelor Degree	4,228,362	21.16	8.88	12.84	73.22	2.86	2.19
LESS URBANIZED AREAS							
Total	20,319,710	100.00	3.74	30.30	46.88	5.13	13.90

No schooling	2,753,445	13.55	2.85	52.20	30.58	3.62	10.71
1 to 3 years of primary school	3,235,045	15.92	4.22	47.21	33.87	4.57	10.11
4 to 5 years of primary school	1,599,821	7.87	3.68	34.20	38.26	5.33	18.49
6 years of primary school ¹	4,607,574	22.68	3.71	28.33	45.91	5.88	16.13
1 to 2 years of secondary school	1,084,907	5.34	2.26	16.58	44.17	6.20	30.77
3 years of secondary school	3,340,744	16.44	3.00	18.73	58.36	6.38	13.49
Sub-professional	631,265	3.11	2.71	16.64	69.59	3.45	7.52
1 to 3 years of preparatory school	1,457,779	7.17	4.19	15.42	57.23	6.44	16.68
Tech Degree	262,382	1.29	4.83	11.67	74.04	4.86	4.51
Bachelor Degree	1,343,965	6.61	7.42	12.89	71.72	2.22	5.74

¹ Includes the employed population who had some kind of training course after finishing primary school.

² The position at work means "the relation that the employed population has with the property of the means of production and the product or service generated in the performance of its work". INEGI.

Note: More urbanized areas comprises cities with more than 100,000 inhabitants, and state capitals; Less urbanized areas are cities with less than 100,000 inhabitants. The category "education not specified" is ignored from the table, and also the category others workers (including unspecified) is ignored from the table.

Source: Encuesta Nacional de Empleo (ENE), INEGI, 2002.

In tables 1 and 2 we have seen that in rural areas the education is lower, but that (sub-) professional education pays off in the chances to find a job with a regular wage. Does it also pay-off in terms of income? In order to answer that question, we present information on the average income by schooling level, compared to the average income for workers with completed primary education, in the last two columns of table 3. We see that in rural areas the returns to education are larger than in urban areas: the difference in income for workers with (sub-) professional education, relative to primary education, is larger in rural areas. Over the whole range of levels of education, the incomes in rural areas are lower (as is shown in the first two columns of table 3), but there is more to be gained with higher education.

The returns to education are associated with increases in the labor productivity as a result of the greater availability of knowledge and abilities which are obtained mainly by formal education. In the competitive labor market, the greater level of knowledge and abilities is transformed into a signal of higher productivity, which is reflected in higher wages.

TABLE 3
AVERAGE INCOME

	Average income (relative to the minimum wage ²)		Income relative to the income earned with completed primary education	
	All	w/ income	All	w/ income
MORE URBANIZED AREAS				
Total	3.4	3.7	1.35	1.36
No schooling	1.9	2.0	0.74	0.73
1 to 3 years of primary school	2.2	2.3	0.86	0.86
4 to 5 years of primary school	2.3	2.5	0.92	0.93
6 years of primary school ¹	2.5	2.7	1 (fixed)	1 (fixed)
1 to 2 years of secondary school	2.3	2.6	0.93	0.96
3 years of secondary school	2.7	2.9	1.07	1.07
Sub-professional	3.3	3.6	1.30	1.30
1 to 3 years of preparatory school	3.3	3.6	1.30	1.32
Tech Degree	3.6	3.9	1.43	1.43
Bachelor Degree	5.8	6.5	2.31	2.36
LESS URBANIZED AREAS				
Total	1.8	2.2	1.13	1.11
No schooling	1.1	1.2	0.67	0.62
1 to 3 years of primary school	1.4	1.6	0.85	0.79
4 to 5 years of primary school	1.4	1.7	0.84	0.87

6 years of primary school ¹	1.6	2.0	1 (fixed)	1 (fixed)
1 to 2 years of secondary school	1.4	2.1	0.86	1.04
3 years of secondary school	1.9	2.3	1.19	1.16
Sub-professional	2.7	3.0	1.69	1.54
1 to 3 years of preparatory school	2.2	2.8	1.39	1.41
Tech Degree	3.0	3.2	1.83	1.62
Bachelor Degree	4.8	5.3	2.97	2.70

¹ Includes the employed population who had some kind of training course after finishing primary school.

² Minimum wage general average, in 2002: \$39.74 per day.

Note: More urbanized areas comprises cities with more than 100,000 inhabitants, and state capitals; Less urbanized areas are cities with less than 100,000 inhabitants. The category "education not specified" is ignored from the table.

Source: Encuesta Nacional de Empleo (ENE), INEGI, 2002.

Formal education is not the only way to obtain qualifications. Additional abilities can be obtained by following supplementary courses, after or next to the formal education in schools. The *Encuesta Nacional de Educación, Capacitación y Empleo 2001* provides information about advanced training courses. In table 4 we show the number of people who did a further course, and show the reason for the course, by the position in the work. The table 4 clearly shows that in the urban areas it is much more common to follow extra work-related courses: 30% of the workers did it. In the rural areas, only 10% participated in supplementary courses. The difference remains large in the group of employees in a job with a regular wage. Those who followed courses mainly did that for increasing the quality of the products or the services. Only a minority did the courses to get a promotion or to increase the income. It seems that the major qualifications that are required for the jobs have to be derived from the formal education, and that the additional courses do not lead to better jobs.

TABLE 4
EMPLOYED POPULATION THAT HAS TAKEN WORK-RELATED ADVANCED TRAINING COURSES, BY POSITION AT WORK AND AIM OF THE ADVANCED TRAINING COURSE

	% of workers who have taken work-related advanced courses	AIM OF THE ADVANCED TRAINING COURSE (%)								
		Getting or starting a new activity	Change of job	Work Position Promotion	Improving the quality of products and services	Improving productivity	Improving the income	Using of new technologies	Not useful at all	Other ¹
MORE URBANIZED AREAS										
Total	29.82	8.08	0.36	3.62	59.16	8.30	3.12	13.61	1.87	1.89
Employers	28.86	6.74	0.00	0.69	63.77	10.69	3.76	10.92	2.05	1.38
Self-employed	13.65	11.16	0.42	2.15	54.13	7.46	7.50	11.85	3.77	1.57
Wage-earning workers	35.96	7.22	0.38	4.09	59.35	8.48	2.34	14.56	1.66	1.91
Piece-rate workers	27.29	13.68	0.25	2.16	62.86	5.99	6.44	5.55	2.02	1.05
Workers without payment	6.22	29.18	0.00	0.00	38.14	2.69	6.69	10.66	0.59	12.05
LESS URBANIZED AREAS										
Total	10.30	10.15	0.13	3.04	64.02	6.21	3.20	10.59	0.90	1.76
Employers	14.33	8.22	0.91	1.98	55.47	10.46	2.98	15.06	2.77	2.14
Self-employed	3.58	21.77	0.04	1.86	47.03	9.72	6.73	9.21	1.51	2.13
Wage-earning workers	17.11	8.59	0.09	3.40	66.53	5.52	2.37	11.11	0.67	1.71
Piece-rate workers	11.77	9.10	0.20	1.58	71.07	5.35	7.89	3.43	0.68	0.70
Workers without payment	1.01	17.32	0.00	2.46	61.31	5.04	3.51	5.71	2.88	1.76

¹ Includes not specified.

Note: More urbanized areas comprises cities with more than 100,000 inhabitants, and state capitals; Less urbanized areas are cities with less than 100,000 inhabitants. The category Others Workers (Includes not specified) is ignored from the table.

Source: Encuesta Nacional de Educación, Capacitación y Empleo, INEGI, 2001.

Until now we investigated if education pays off in terms of chances to find a job and in the earnings. Another important question is if the job that one obtains is in balance with the education. Table 5 provides information on the match between job and education. It shows that on average, in rural areas more people report that their job matches with the education attained, 74 vs. 69%. Over the whole range of education levels, we see that in rural areas the match between job and education is better. There are two exceptions: those with incomplete secondary or preparatory education report less often that they realized a good match between job and education. Above we have seen that in rural areas people with incomplete secondary or preparatory education are also worse off in terms of job chances and income.

TABLE 5
EMPLOYED POPULATION (EXCLUDING INITIATORS OF A NEW), BY SCHOOLING LEVEL AND CORRESPONDENCE OF THE JOB WITH THE EDUCATION, QUALIFICATION AND EXPERIENCE

	Employed Population	CORRESPONDENCE WITH THE WORK (%)		
		Yes	No	Not specified
MORE URBANIZED AREAS				
Total	19,809,180	69.7	14.5	15.9
No schooling	644,504	63.2	14.8	22.0
1 to 3 years of primary school	1,132,101	69.1	13.1	17.7
4 to 5 years of primary school	597,642	72.5	12.7	14.8
Primary school completed ¹	3,463,435	71.1	12.9	16.0
Secondary school not completed	978,151	65.9	16.3	17.9
Secondary school completed	4,037,778	66.4	15.8	17.7
Sub-professional	1,638,498	68.8	16.1	15.2
1 to 3 years of preparatory school	2,602,368	66.4	18.3	15.3
Tech Degree	496,467	65.9	18.6	15.5
Bachelor Degree	4,218,107	76.1	11.0	12.9
LESS URBANIZED AREAS				
Total	19,946,577	74.4	16.8	8.8
No schooling	2,624,408	82.3	10.8	6.9
1 to 3 years of primary school	3,250,551	78.5	13.0	8.6
4 to 5 years of primary school	1,677,429	74.2	15.4	10.5
Primary school completed ¹	4,494,402	74.8	15.5	9.7
Secondary school not completed	1,048,364	63.8	26.1	10.1
Secondary school completed	3,213,351	69.2	21.5	9.3
Sub-professional	724,700	72.6	19.6	7.8
1 to 3 years of preparatory school	1,340,171	64.0	27.2	8.8
Tech Degree	275,363	78.7	15.4	5.9
Bachelor Degree	1,297,329	79.9	13.6	6.6

¹ Includes the employed population who had some kind of training course after finishing primary school.

Note: More urbanized areas comprises cities with more than 100,000 inhabitants, and state capitals; Less urbanized areas are cities with less than 100,000 inhabitants. The category "education not specified" is ignored from the table.

Source: Encuesta Nacional de Educación, Capacitación y Empleo, INEGI, 2001.

3 The Returns to Education for Young People

The analysis in section 2 includes all the employed, both young and old people. The returns to education may differ between age groups. In general we can say that the youth of today have more opportunities to attain education than the older generations had when they were young (Camarena, 2001). This holds both for rural and for urban areas, but it is not necessarily the case that developments in urban and rural areas

have been equal. In order to obtain better insight in the current returns to education, we study the returns in urban and rural areas for different age groups.

Table 6 shows that in urban areas, compared to rural areas, relatively more people have at least one year of secondary education.⁴ In the younger cohorts (18-24 years), we see that the share of the population with secondary education (or more) is higher in urban areas than in rural areas. Thus, in urban areas more students attain (sub) professional education. The differences between urban and rural areas however are much smaller in the younger cohorts. In the cohorts above 45 years old, it is even the case that the fraction of people with completed primary education is lower in the rural areas. For the youngest cohorts, who may still be in education, we see that the relative difference between urban and rural areas gets smaller. It is an indication of the continuation of the process that the education in rural areas is catching up with the urban education levels.

TABLE 6
POPULATION OF 6 YEARS AND MORE, BY AGE GROUPS AND SCHOOLING LEVEL

	Population of 6 years and more	No Schooling	SCHOOLING LEVEL (%)								
			Primary			Secondary		Sub Professional	1 to 3 years of Preparatory school	Professional	
			1 to 3 Years	4 to 5 Years	6 Years ¹	1 to 2 Years	3 Years			Tech Degree	Bachelor Degree
MORE URBANIZED AREAS											
Total	43,093,359	7.33	12.16	7.09	16.83	6.97	16.01	6.17	11.70	1.64	14.09
6 to 11 years	5,884,999	26.73	51.66	21.08	0.53	0.00	0.00	0.00	0.00	0.00	0.00
12 to 14 years	2,876,596	0.48	2.65	24.74	32.55	38.60	0.97	0.02	0.00	0.00	0.00
15 to 17 years	2,877,440	0.82	0.94	1.78	8.73	25.53	34.57	1.94	25.45	0.22	0.01
18 to 21 years	3,853,613	1.00	1.12	1.42	8.84	5.14	23.67	6.13	33.67	3.17	15.84
22 to 24 years	2,699,250	1.21	1.70	1.75	11.50	4.05	23.81	6.78	18.16	3.38	27.67
25 to 29 years	4,245,969	1.23	1.91	2.02	13.49	4.89	25.43	8.40	15.54	3.19	23.90
30 to 34 years	3,909,643	1.76	2.62	2.04	14.69	4.24	25.17	10.68	14.21	3.16	21.43
35 to 39 years	3,542,440	2.40	4.26	2.92	18.75	4.21	20.77	9.76	12.95	2.30	21.68
40 to 44 years	3,257,110	2.95	6.09	3.88	23.20	3.07	16.97	9.67	10.12	1.98	22.07
45 to 49 years	2,588,544	4.39	9.03	4.14	28.07	2.64	13.52	8.76	8.05	1.15	20.23
50 to 54 years	2,086,794	7.36	11.26	4.87	29.23	2.95	11.47	9.04	6.26	1.12	16.44
55 to 59 years	1,519,035	10.16	14.82	6.22	29.83	2.10	9.62	7.90	4.51	0.62	14.22
60 to 64 years	1,250,989	13.77	18.88	7.35	29.62	1.75	7.39	7.52	3.74	0.39	9.60
65 years and more	2,496,315	23.28	21.87	6.29	26.32	1.83	5.57	4.80	2.63	0.55	6.84
LESS URBANIZED AREAS											
Total	46,288,509	17.29	21.54	11.38	18.52	6.85	11.80	2.08	5.74	0.79	4.00
6 to 11 years	8,143,957	28.31	51.84	19.36	0.46	0.02	0.00	0.00	0.00	0.00	0.00
12 to 14 years	4,160,811	1.60	6.62	28.88	32.08	29.98	0.76	0.07	0.01	0.00	0.00
15 to 17 years	3,696,649	2.50	2.92	5.53	18.40	25.46	29.33	0.76	14.86	0.19	0.05
18 to 21 years	3,706,306	3.70	4.97	5.32	20.73	6.19	26.77	2.58	21.51	2.25	5.98
22 to 24 years	2,304,643	4.81	7.07	6.30	24.67	4.66	25.05	2.95	11.56	2.27	10.66
25 to 29 years	3,632,942	5.98	8.36	7.29	26.96	4.70	23.39	4.12	8.73	1.92	8.52
30 to 34 years	3,411,820	7.22	10.80	7.96	25.84	4.64	21.63	5.02	7.97	1.78	7.12
35 to 39 years	3,306,722	10.94	15.82	8.08	25.63	3.61	15.01	5.06	6.24	1.41	8.20
40 to 44 years	2,890,274	14.68	20.66	9.51	25.15	2.71	9.89	3.75	4.20	0.98	8.44
45 to 49 years	2,434,303	20.83	26.66	8.98	23.65	1.83	7.49	2.57	2.04	0.28	5.64
50 to 54 years	2,027,980	27.14	29.38	8.54	20.08	1.54	4.89	2.17	1.96	0.24	4.03
55 to 59 years	1,619,665	34.11	31.17	8.35	16.34	1.20	3.12	1.93	0.92	0.10	2.77
60 to 64 years	1,482,084	39.64	31.25	8.47	14.37	0.66	2.13	0.95	0.61	0.22	1.70
65 years and more	3,461,698	53.13	29.17	6.16	8.31	0.32	1.24	0.57	0.34	0.01	0.75

⁴ The table includes the whole population aged 6 or more. The same picture arises when looking only at the economically active population, as in the other tables, but then a comparison for the youngest cohorts is not possible.

¹ Includes the population that had some training course after to have finished the primary school.
 Note: More urbanized areas comprises cities with more than 100,000 inhabitants, and state capitals; Less urbanized areas are cities with less than 100,000 inhabitants.
 The category "education not specified" is ignored from the table, as is the category "age not specified".
 Source: Encuesta Nacional de Empleo (ENE), INEGI, 2002.

Is the catching-up of education reflected in the employment perspectives? Did employment opportunities grow? Information on the type of job (cf. table 2) is not available per age group; we have to be satisfied with information on the unemployment rates per age cohort. The last column of table 7 shows the ratio between the unemployment rates in urban and rural areas. In every cohort the official unemployment rate in urban areas is higher than in rural areas. The difference between urban and rural areas is lowest in the group aged 35-44. In the younger cohorts, the difference is similar to the cohort 45-54. It is difficult to draw hard conclusions about the returns to education. However it is clear that the reduction of the education gap between urban and rural areas is absorbed by the labor market: unemployment rates in rural areas remain low, also in the younger cohorts.

TABLE 7
ECONOMICALLY ACTIVE POPULATION, BY AGE GROUPS AND EMPLOYMENT STATUS

	MORE URBANIZED AREAS		LESS URBANIZED AREAS		Ratio Between the Unemployment Rates in Urban and Rural Areas
	Total	Unemployment Rate (%)	Total	Unemployment Rate (%)	
TOTAL	20,497,997	2.52	20,587,739	1.30	1.93
12 to 14 years	172,946	1.57	687,313	0.51	3.08
15 to 19 years	1,531,348	6.42	2,537,962	2.85	2.26
20 to 24 years	2,761,727	4.85	2,426,405	2.94	1.65
25 to 29 years	3,050,645	3.27	2,337,533	1.48	2.20
30 to 34 years	2,861,816	1.81	2,311,352	0.82	2.22
35 to 39 years	2,649,891	1.34	2,274,906	0.88	1.53
40 to 44 years	2,388,260	1.37	2,017,669	0.91	1.51
45 to 49 years	1,820,100	1.30	1,635,228	0.59	2.23
50 to 54 years	1,339,271	1.12	1,288,050	0.50	2.22
55 to 59 years	878,069	1.37	959,873	0.78	1.77
60 to 64 years	505,716	1.54	813,080	0.31	4.93
65 years and more	537,640	0.42	1,296,650	0.22	1.93

Note: More urbanized areas comprises cities with more than 100,000 inhabitants, and state capitals; Less urbanized areas are cities with less than 100,000 inhabitants. The category "age not specified" is ignored from the table.
 Source: Encuesta Nacional de Empleo (ENE), INEGI, 2002.

4 Poverty Reduction⁵

The analysis in section 2 indicates that the returns to education in rural areas are large, larger than in urban areas. In section 3 we conclude that the schooling level in the rural areas is increasing over the age cohorts. We find indications that the rural areas are catching up with the urban areas. Given these facts, we expect to observe a reduction in poverty, especially in rural areas. We investigate this expectation using various waves of the *Encuesta Nacional de Ingresos y Gastos de los Hogares* (ENIGH).

In table 8 we see that in 2002 the average total income for a rural household is only 47.1% of the average total income for a household in urban areas. It is the largest percentage in the analyzed period; in the years 1992-2000 the gap between urban and rural has been larger than in 2002. In the table it is observed that the rural income grew at a faster rate in comparison with the urban income. The average annual growth rate of the rural household's income was 3.7%, whereas in the urban area this only 2.0%.

⁵ This section is based on the work of the second author and the SIAP on "Ingreso Rural Total por Hogar", SIAP, SAGARPA, 2004.

TABLE 8
TOTAL HOUSEHOLD INCOME (in Pesos of 1993, annual)

Year	URBAN AREAS		RURAL AREAS		Income in Rural vs. Urban areas (%)
	Total Household Income (Pesos)	Change (%)	Total Household Income (Pesos)	Change (%)	
1992	36,705		14,632		39.9
1994	38,605	5.2	15,112	3.3	39.1
1996	28,767	-25.5	13,192	-12.7	45.9
1998	32,569	13.2	13,204	0.1	40.5
2000	44,851	37.7	16,964	28.5	37.8
2002	44,709	-0.3	21,036	24.0	47.1
Average annual growth rate	2.0		3.7		1.7

Note: The urban areas comprises towns with more than 2,500 inhabitants, whereas the rural areas are formed by localities with less than 2,500 inhabitants.

Source: Encuesta Nacional de Ingresos y Gastos de los Hogares (ENIGH), INEGI, Annual data 1992-2002.

A way to value the importance of changes in the household's income in the rural areas, is to summarize the average income into multiples of the minimum wage. As can be seen in table 9, the percentage increase of the rural income in between 2000 and 2002, relative to the income in urban areas, has been consistently larger in all the deciles, with exception of decile III. In decile III, the increase in the rural areas is only 1.0%, compared to 3.2% in urban areas. Especially in the rural areas, the higher income deciles register larger growth rates than the lower income deciles. The highest income deciles in urban areas show a reduction of the income, so we conclude a process of catching-up, but the gap between incomes in urban and rural areas remains large.

TABLE 9
MONETARY HOUSEHOLD INCOMES BY DECILES (Number of Times of Minimum Wage)

Decile	NATIONAL			URBAN AREAS			RURAL AREAS		
	2000	2002	Change (%)	2000	2002	Change (%)	2000	2002	Change (%)
I	0.68	0.69	1.5	1.07	1.06	-0.9	0.36	0.38	5.6
II	1.41	1.42	0.7	1.91	1.99	4.2	0.71	0.75	5.6
III	1.94	2.04	5.2	2.53	2.61	3.2	1.01	1.02	1.0
IV	2.52	2.62	4.0	3.18	3.26	2.5	1.27	1.31	3.1
V	3.19	3.30	3.4	3.95	4.00	1.3	1.56	1.66	6.4
VI	4.03	4.10	1.7	4.77	4.87	2.1	1.87	2.04	9.1
VII	5.04	5.13	1.8	5.93	5.98	0.8	2.29	2.51	9.6
VIII	6.57	6.64	1.1	7.59	7.65	0.8	2.92	3.25	11.3
IX	9.58	9.39	-2.0	11.26	10.64	-5.5	4.05	4.42	9.1
X	23.29	20.82	-10.6	25.86	22.38	-13.5	9.18	11.99	30.6

Note: The urban areas comprises towns with more than 2,500 inhabitants, whereas the rural areas are formed by localities with less than 2,500 inhabitants.

Source: Encuesta Nacional de Ingresos y Gastos de los Hogares (ENIGH), INEGI, third trimester 2000-2002.

Tables 8 and 9 show that the increase of the incomes in rural areas is larger than in urban areas. Despite the faster increase of the incomes, the average household in the rural areas has lower incomes than the average household in urban areas. Can we conclude that the increase of the incomes also reduces the poverty rates? In table 10 we show information on the number of persons living below the poverty line. Three poverty lines are calculated, following the methodology of the *Secretaría de Desarrollo Social* (Secretariat of Social Development). For all three measures we find that poverty has reduced, both in urban and in rural areas. Only when looking at the lowest poverty line ("nourishing poverty": the income that is sufficient to cover the expenses necessary to buy food), we see that the largest percentage reduction of the number of people living in poverty is found in rural areas. For the other two poverty measures, the largest percentage reductions are found in the rural areas. The group of the "poorest poor" in the rural areas decreases at the fastest rate, but with 34.8% of the rural population it remains a sizeable group.

TABLE 10
EVOLUTION OF THE POVERTY (2000-2002, % of the total population)

Line of Classification	NATIONAL			URBAN AREAS			RURAL AREAS		
	2000	2002	Change (%)	2000	2002	Change (%)	2000	2002	Change (%)
Nourishing poverty ¹	24.2	20.3	-16.1	12.6	11.4	-9.5	42.4	34.8	-17.9
Development of capacities ²	31.9	26.5	-16.9	20.2	16.0	-20.8	50.0	43.8	-12.4
Development of patrimony ³	53.7	51.7	-3.7	43.8	42.0	-4.1	69.3	67.5	-2.6

¹ Population whose income is not enough to cover the nourishing needs.

² Population whose income is not enough to cover the nourishing, education and health needs.

³ Population whose income is not enough to cover the nourishing, education, health, dressing, footwear, housing and transport needs.

Note: The urban areas comprises towns with more than 2,500 inhabitants, whereas the rural areas are formed by localities with less than 2,500 inhabitants.

Source: Calculation of the *Secretaría de Desarrollo Social*, using the official methodology of poverty measurement, applied on the ENIGH 2000 and the ENIGH 2002 of INEGI.

Table 11 relates income to education. The lower income deciles (I-IV) in the countryside show lower schooling levels, 53.9% of the heads of the household have only primary education and 40% do not have any schooling; on the other hand, in the urban area 48.8% have primary and 31.4% have secondary education. Looking at the medium income levels (V-VIII) and the top deciles (IX-X), the schooling levels in the urban area are also higher than in the rural zones.

In the rural area the main schooling level in all layers remains the primary education, although in agreement with other results we find that an increase in the level of income goes together with a small increase in the schooling level. However in the urban area increased income is coming with a significant increase in education.

TABLE 11
SCHOOLING LEVEL OF THE HEAD OF THE HOUSEHOLD

Income Decile	Total	SCHOOLING LEVEL OF THE HEAD OF THE HOUSEHOLD			
		No Schooling	Primary	Secondary	Preparatory school, Professional and Postgraduate
URBAN AREAS					
I-IV	100	16.8	48.8	31.4	3.1
V- VIII	100	5.5	37.5	43.2	13.9
IX-X	100	1.2	18.0	32.9	48.0
RURAL AREAS					
I-IV	100	40.0	53.9	5.9	0.2
V- VIII	100	24.7	58.7	16.1	0.5
IX-X	100	14.1	55.1	19.7	11.1

Note: The heads of household are ordered in deciles according to their total trimestral income. Households with a zero total trimestral income are excluded from the ordering.

Note: The urban areas comprises towns with more than 2,500 inhabitants, whereas the rural areas are formed by localities with less than 2,500 inhabitants.

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

5 Micro-Data

We discussed results derived from comparisons at a macro-level, applying national surveys. It provides insight in the returns to education for urban and rural youth, and in the relations between education, employment, and poverty. For further research it would be ideal if analyses could be performed at the level of the individual, because research at the micro-level can provide more detailed insight into the reasons for differences in achievements between rural and urban youth, and questions such as: Are students who finished their education able to find a job at a level that matches with their schooling level? Does the acquired job level match with the potential job level, as defined by the individual's education?

Administrative or representative survey data at the individual level are required if we want to answer such questions. Micro-data allows for more detailed analysis of the mechanisms at work in the decision processes of individual students and employees. Such data is not readily available. Gong & Van Soest (2001) and Lopez Acevedo (2001) use micro-data from the *Encuesta Nacional de Empleo Urbano*: a rotating panel survey on the urban labor markets. We need a more representative sample including information on rural labor markets. Recently several papers using data from the *PROGRESA* have been published (e.g. Schultz 2001). The *PROGRESA* program started in August 1997 and was designed to stimulate the education, health and nourishment in poor rural areas, although currently the program includes also the urban area⁶ (see World Bank (2004) for detailed information on the program).

The micro-data underlying the *PROGRESA*, *ENE* and *ENECE* survey results could be a promising source of information for a research at the individual's level. We hope to be able to conduct a micro-oriented investigation into the returns to education as a follow-up to the current paper.

6 Discussion

Education pays off, both in the chance to find a job with a regular wage and in the income. In rural areas there is more to gain with a higher education, relative to the chances that one has with only primary education. Especially in the rural areas however it seems to be important to finish the education. Those employees with incomplete secondary or preparatory education perform particularly bad in rural areas. It is not clear why that is the case, but migration to urban areas may be a cause for this effect.

Various economic and social reasons exist for the rural migration to the urban areas by both adults and youth from the rural areas. One of the causes of the migration of the youth; however is that they want to continue their education at a professional level, which opens opportunities to them to be productive in the urban zones. From this point of view, the rural migration is a natural phenomenon. The youth cannot be forced to have a lower level of education, or be denied the access to the better jobs in the urban areas the industry, the commerce and the services have a great contribution in the generation of the growth.

Ultimately, it is important that the youth find opportunities in the countryside that are in agreement with their capacities and abilities. It is elementary that the young people receive a good basis of education in the rural areas, so that they have access to a higher standard of living with an income according to their educational level. It is obvious that the rural migration brings social, economic and political problems to the urban areas due to the lack of opportunities, it is necessary to develop political support directed to the rural young people, and not only directed to restrain the rural migration.

⁶ The *PROGRESA* changed its objectives in March of 2002, it is now known as "*Programa de Desarrollo Humano Oportunidades*". It widened the covering of the program to the urban areas and it operates in all the states.

The opportunities of life in the field should be enlarged, because that provides the means to enable a viable and free choice about one's way of life. The rural activities must involve not only the work in the field, also it should include activities like the agro-industry and services.

The study emphasizes that the individuals in the urban zones are still the greater beneficiaries of the education. Individuals in rural areas have less access to the professional education, and in general benefit less from the education, despite the efforts that are made through different institutions such as the *Secretaría de Educación Pública* (SEP), the *Secretaría del Trabajo y Previsión Social* (STPS), *Secretaría de Desarrollo Social* (SEDESOL), *Consejo Nacional de Ciencia y Tecnología* (CONACYT), *Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación* (SAGARPA). Through its different educative programs and professional schooling they investigate professionalization and development of capacities and abilities for a large number of individuals in the rural areas.

Lack of details on the employment per age category make it difficult to conclude on the employment perspectives of the youth. We have seen that the gap between the levels of education in urban and rural areas is getting smaller, though it is still existing. The stronger growth of education in rural areas seems to be absorbed by the labor market. We do not find that higher educated people in rural areas have more difficulties to find a job at the desired level.

We have shown that the income growth in rural areas in recent years has been larger than income growth in urban areas. This lead to a reduction of poverty in rural areas. We presume a causal relation between education and income, and conclude that the increased investment in education lead to an increase of wealth and to a reduction of poverty. However there is a long way to go before rural areas have similar wealth as the urban areas.

Further, the economic returns of a higher education are not only expressed in increased wage and productivity, but also they associate to direct social profits that are derived from several externalities related to the education. The justifications of an investment in education at individual and social level not only generate direct economic profits but also it fosters economic profits in other sectors of the community. The generation of social profits is difficult to quantify in economic terms, in the meaning that it generates values and identities in the local community which are fundamental for the sustainable development in a country.

For definite conclusions, micro-economic analysis is the preferred tool, but the data requirements are rather high. Given the observations made in the paper on the developments of education, income and poverty, we conclude that for the rural youth the economic perspectives are increasing, though still lagging behind the opportunities of the urban youth.

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APPENDIX Abbreviations and acronyms in Spanish and English

CONACYT	<i>Consejo Nacional de Ciencia y Tecnología</i>	National Council on Science and Technology
ENE	<i>Encuesta Nacional de Empleo</i>	National Employment Survey
ENECE	<i>Encuesta Nacional de Educación, Capacitación y Empleo</i>	
ENIGH	<i>Encuesta Nacional de Ingresos y Gastos de los Hogares</i>	National Survey on Household Income and Expenditure
INEGI	<i>Instituto Nacional de Estadística, Geografía e Informática</i>	National Statistics, Geography and Informatics Institute
PROGRESA	<i>Programa de Educación, Salud y Alimentación</i>	Program of Education, Health and Nourishment
SAGARPA	<i>Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación</i>	Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food
SEDESOL	<i>Secretaría de Desarrollo Social</i>	Ministry of Social Development
SEP	<i>Secretaría de Educación Pública</i>	Ministry of Education
STPS	<i>Secretaría del Trabajo y Previsión Social</i>	Ministry of Labor and Social Prevision

Source: World Bank (2004)