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Gender and ethnic wage gaps in Guatemala from a matching comparisons perspective

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GENDER AND ETHNIC WAGE GAPS IN GUATEMALA FROM A MATCHING COMPARISONS PERSPECTIVE

BY

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Abstract*

This paper analyzes gender and ethnic wage gaps in Guatemala for the period 2000-2006, applying a matching comparisons technique, finding pronounced wage gaps along both gender and ethnic dimensions, the latter being greater. Wage gaps in Guatemala are partially explained by differences in human capital characteristics, especially education, between indigenous and non-indigenous and males and females, which calls for equalization of educational opportunities for the population. However, wage gaps are greater than differences in education would predict, which suggests the need for interventions: information campaigns to generate consciousness regarding the need to provide more equal opportunities in labor markets according to each individual's productivity.

* Corresponding author: Ñopo (hugon@iadb.org). Research Department. Inter-American Development Bank. 1350 New York Avenue NW, Washington DC, 20577, USA. The usual disclaimer applies: The findings in this paper do not necessarily represent the views of the Inter-American Development Bank or its Board of Directors. Mario Cuevas, Julia Johannsen, Jorge Lavarreda, Osmel Manzano, Claudia Piras, Ernesto Stein and Natalia Winder provided valuable comments on previous drafts of the paper.

1. Introduction

Guatemala is one of the countries with the highest ethnic diversity, not only in Latin America but also in the world. The economic well-being of the different ethnic groups, however, is far from homogenous. The indigenous groups comprise 41 percent of the total population and are mainly concentrated in rural and poor areas, and the incidence of poverty in Guatemala is significantly higher among indigenous than non-indigenous people, 72 and 36 percent, respectively (Sauma, 2004). Along the same lines, the indigenous population amounts for less than one-quarter of national consumption (Fazio, 2007). Since Guatemalans generate about 90 percent of their family income in labor markets (Fazio, 2007), the analysis of the role of ethnic differences in wages becomes important for an understanding of general well-being.

The characteristics of labor markets in Latin America evidence that not only ethnic, but also gender wage gaps are noticeable at the beginning of the twenty-first century. Wage gaps along these two dimensions in Guatemala are among the highest of those seen in the Latin American region (see Table 1, adapted from Ñopo and Chong, 2008). At the same time, Guatemala is one of the countries showing the highest disparities in educational attainment and attendance in the region (Duryea et al., 2007).

Table 1.

Gender and Ethnicity Wage Gap per hour in Latin America

	Wage Gap according:	
	Gender	Ethnicity
Argentina (2005)	2.0%	-
Bolivia (2002)	6.7%	38.2%
Brazil (2003)	19.6%	88.1%
Chile (2003)	12.9%	51.8%
Colombia (2003)	8.0%	-
Costa Rica (2004)	-6.2%	-
Dominican Republic (2003)	12.0%	-
El Salvador (2002)	18.1%	-
Guatemala (2002)	27.3%	98.9%
Honduras (2003)	-6.2%	-
Mexico (2002)	9.9%	-
Nicaragua (2001)	3.8%	-
Panama (2003)	-2.8%	-
Paraguay (2003)	17.9%	84.3%
Peru (2003)	31.1%	-
Uruguay (2005)	13.2%	-
Venezuela (2004)	-1.5%	-

Source: Chong and Ñopo (2008) according Household Survey of each country.

These wage gaps, whether by gender or ethnic differences, reflect to some extent the differences in human capital characteristics among the groups being compared. Indeed, it has been shown that differences in average human capital characteristics (age, education, marital status, migratory status, and etc.) between the sexes explain forty percent of the gender wage gap for the period 1989-1998 in Guatemala (Yang, 2004). Similarly, human capital differences between indigenous and non-indigenous groups explain a little more than one-half of the ethnic wage gap (Romero, 2007).

This study is an attempt to complement these findings from a comparative perspective at the gender and ethnic wage gaps in Guatemala, using the matching comparisons technique developed in Ñopo (2008). We use three surveys to explore the wage gaps for the period 2000-2006. For the years 2000 and 2006, we use the National Survey of Conditions of Life (Encuesta Nacional de Condiciones de Vida, ENCOVI) and for the year 2004 we use the National Survey of Employment and Income (Encuesta Nacional de Empleo e Ingresos, ENEI). Provided that the objective of this study is to estimate wage gaps, the population under consideration is all employed individuals between 18 and 65 years old. Depending on the year of the survey, we have between 6,000 and 12,000 observations per year, with national coverage, in rural and urban areas.

The ethnic variable comes from individuals' self-identification in surveys. That is, the subjects were asked: "To which of the following ethnic groups do you belong? (...)" The list included 22 ethnic indigenous Mayan and two non-Mayan groups. Any person who answered as belonging to one of these ethnic groups has been regarded as Indigenous. Mestizos (Ladinos) and foreigners are considered within the non-indigenous group.

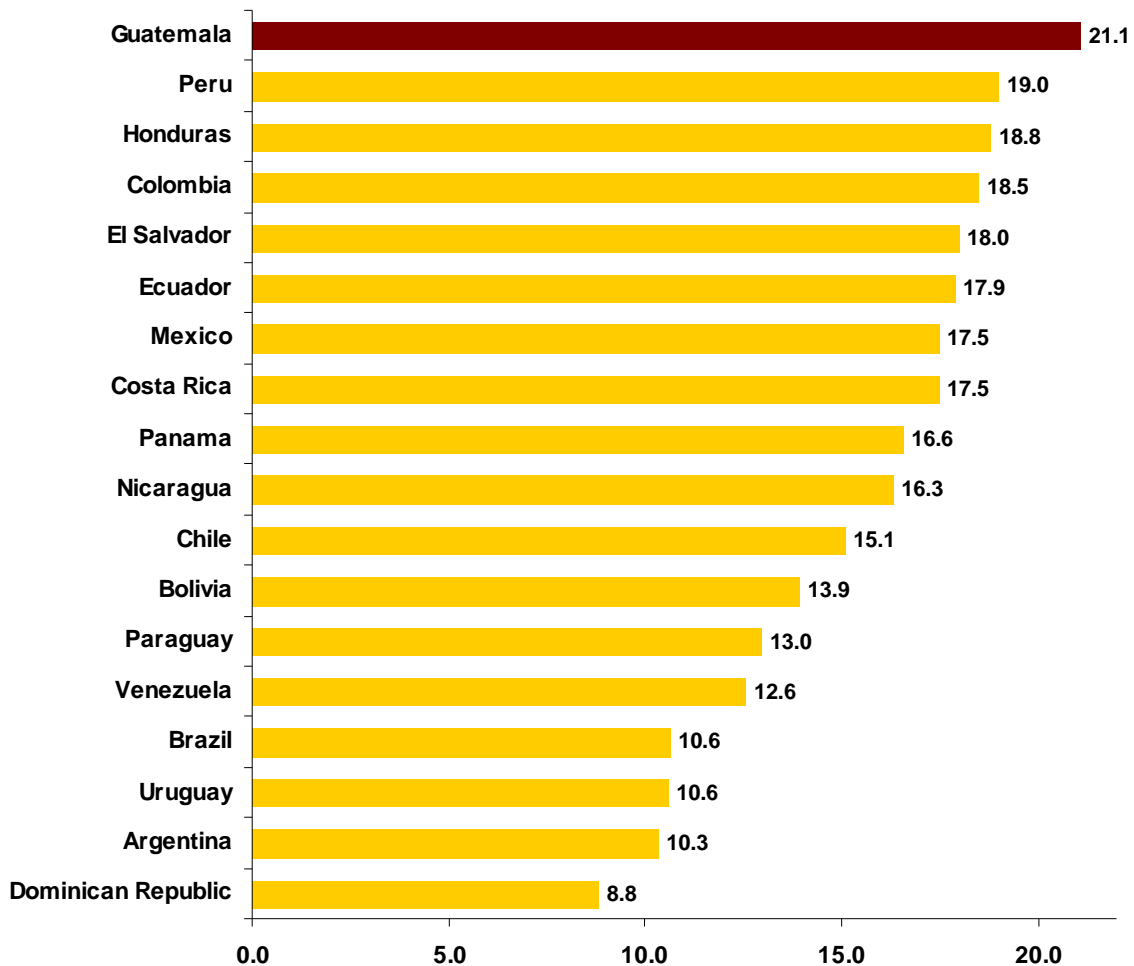
This study consists of two parts: the first dedicated to the analysis of wage gaps by gender, and the second to the wage gaps by ethnic differences. In each section we analyze the differences in human capital characteristics and wages, discussing the extent to which gaps are a consequence of differences in human capital. Finally, the Section 4 presents conclusions and policy recommendations.

2. Analysis of the Wage Gap by Gender

As Figure 1 shows, Guatemalans believe that education is one of the main reasons why people are not treated equally in their country. Later in this paper we will show that differences in education are indeed one of the main drivers of wage gaps in Guatemala. For that reason, in this section we explore first the differences in education and wages between male and females, turning next to the wage gap decompositions. As mentioned above, Section 3 will be devoted to the analysis of the differences between indigenous and non-indigenous workers.

Figure 1.

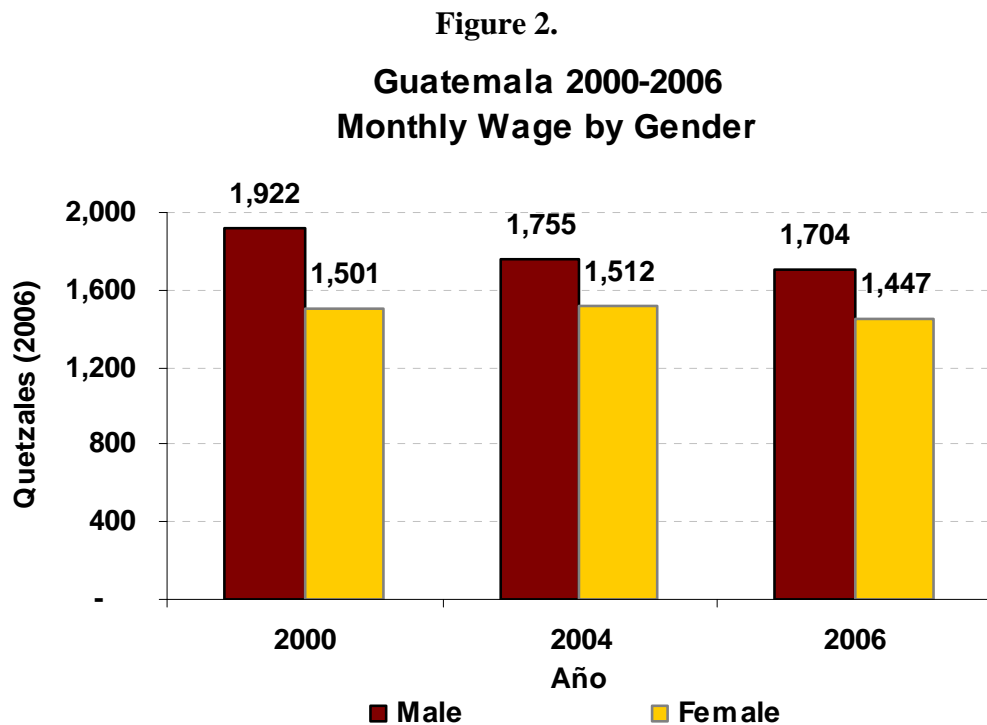
Reasons for Unequal Treatment: Not having enough education
(% of people who responded that lack of sufficient education is the reason why people are not treated equally)



Source: IADB (2007) based on Latinobarometro (2005).

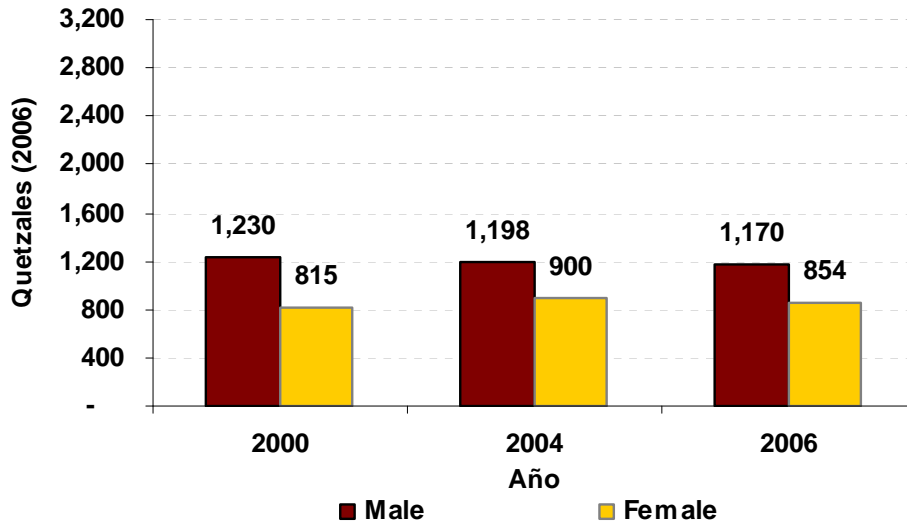
2.1 Monthly Wages

Real monthly wages (expressed in 2006 Quetzals) slightly declined for males and remained constant for females during 2000-2006 (Figure 2). As a result, the gender wage gap reduced from 28% to 18% during this period. While average urban wages are almost twice as much as average wages in rural areas, the decline in average male wages was more pronounced in urban areas. However, there are no substantial differences in gender gaps between urban and rural areas, except in 2000 (Figures 3 and 4)



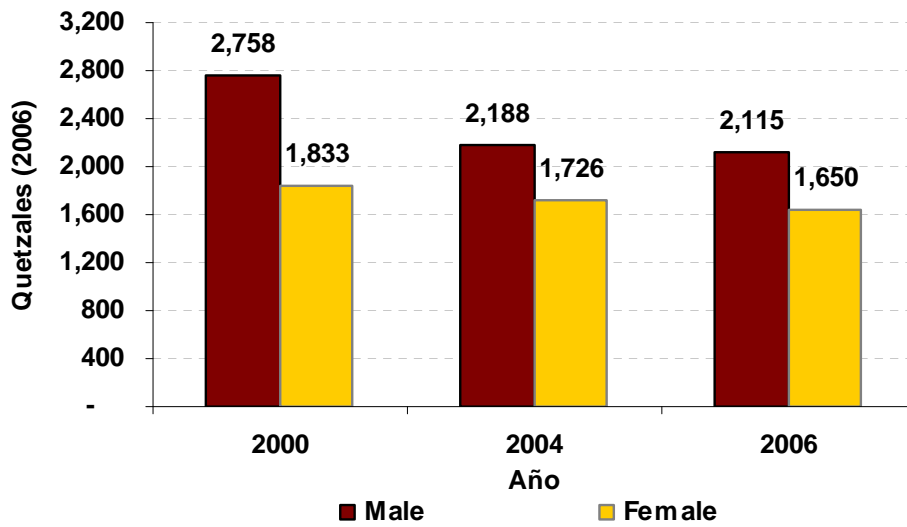
Source: Author's calculations based on Encovi, ENEI.

Figure 3.
Guatemala 2000-2006
Monthly Wage in Rural Areas by Gender



Source: Author's calculations based on Encovi, ENEI.

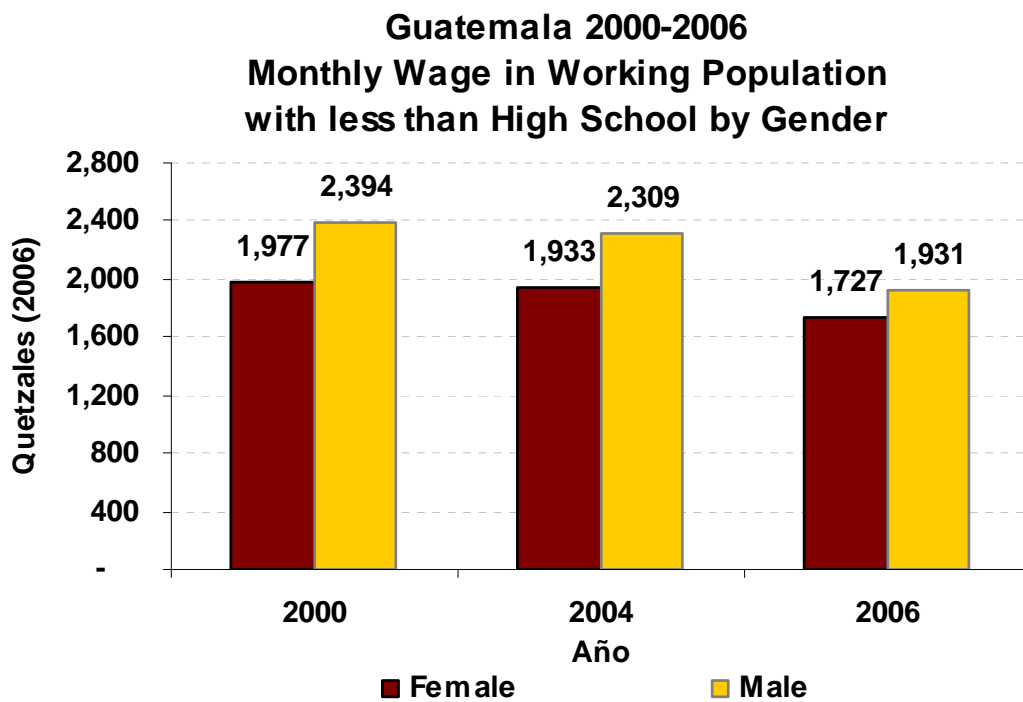
Figure 4.
Guatemala 2000-2006
Monthly Wage in Urban Areas by Gender



Source: Author's calculations based on Encovi, ENEI.

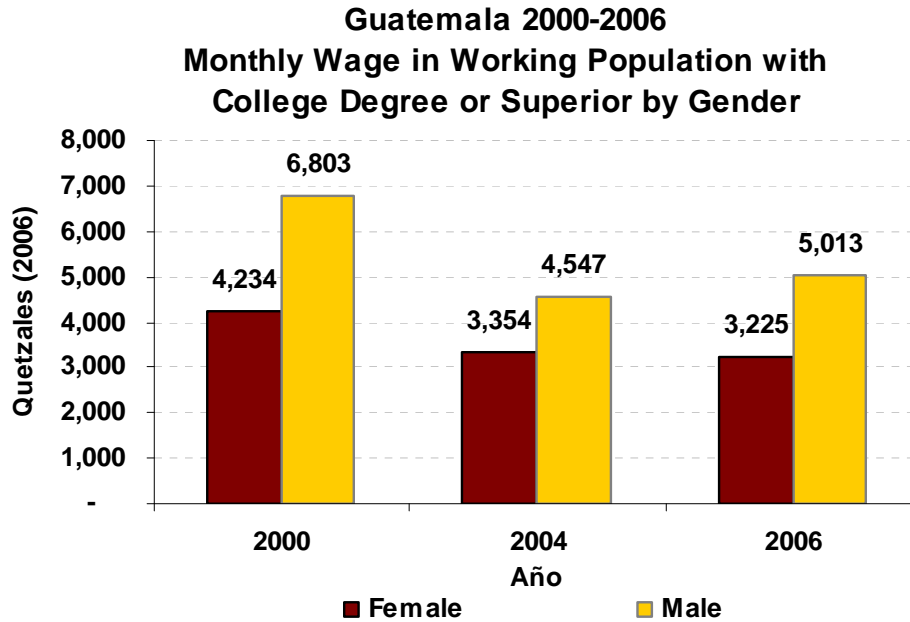
When comparing monthly wages by educational attainment, we can observe significant differences. The ratio between average wages of those with college degree and those with less than secondary education is five to one; but since 2000 this gap has been closing (Figures 5 and 6). These income disparities between the least educated and most educated are in line with the findings of Auguste, Artana and Cuevas (2007), which indicates that the returns to education in Guatemala are high (among the highest in Latin America).

Figure 5.



Source: Author's calculations based on Encovi, ENEI.

Figure 6.

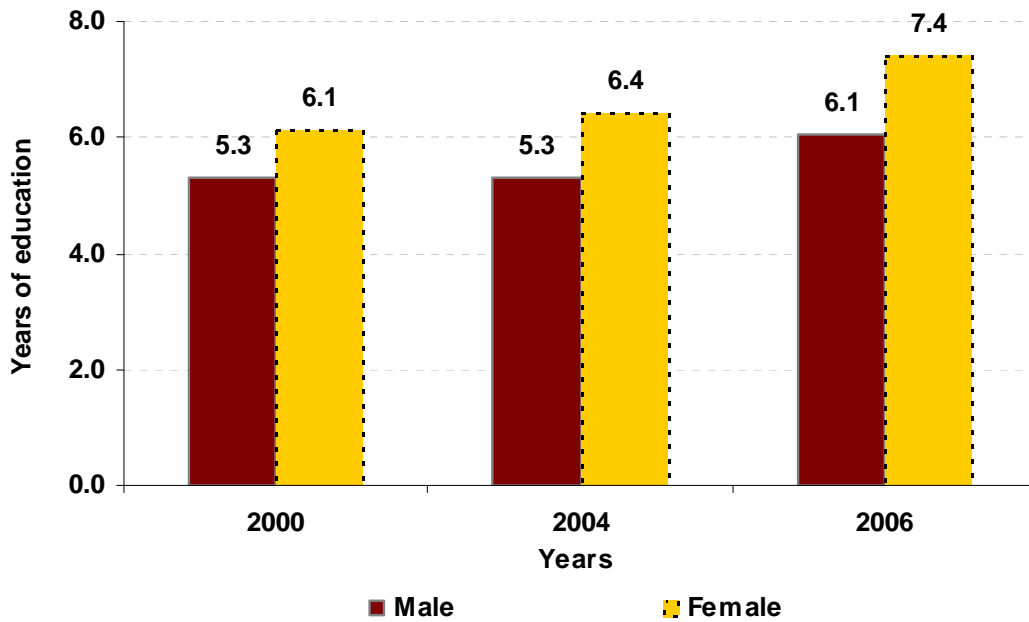


Source: Author's calculations based on Encovi, ENEI.

2.2 Education

For employed individuals, Guatemalan women spent more years in the educational system than men. Figure 7 shows the average years of schooling for men and women for the three years under review. Females have about one year of education more than males. This result seems to be in apparent contradiction with that reported by Duryea et al. (2007), who find that, for the entire population, Guatemalan males from recent cohorts are more educated than females. In that regard, it is important to highlight that our results refer to the working population while those authors' findings encompass the entire population. Indeed, with the data sets of this paper we found that the gender schooling gap in Guatemala between 2000 and 2006 was between 0.5 and 0.6 years, in favor of males. That is, the non-random selection of males and females into the Guatemalan labor markets differs significantly by gender, with selection favoring women in terms of education. This could reflect the fact that women, having limited opportunities to participate actively in the labor markets, need to acquire more education to compensate and therefore compete with men for jobs.

Figure 7.
Guatemala 2000-2006
Average Years of Education by Gender

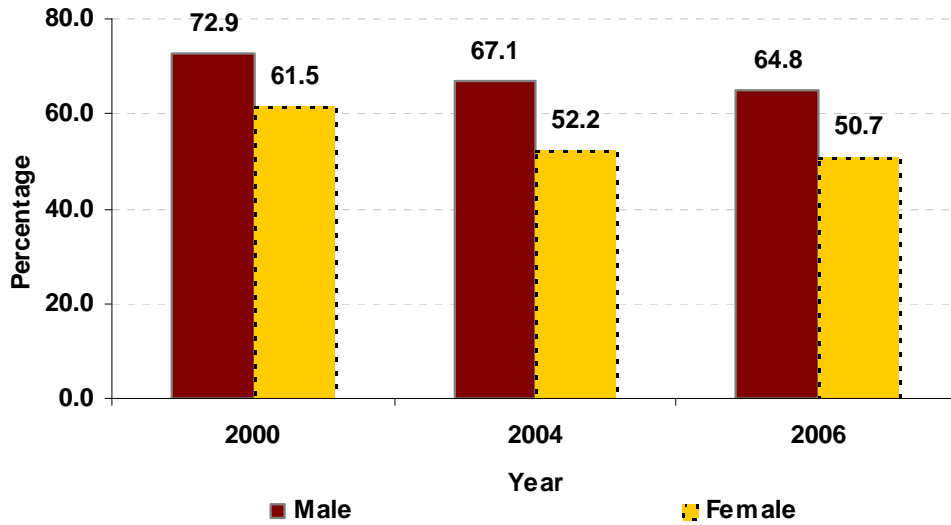


Source: Author's calculations based on Encovi, ENEI.

Figures 8 and 9 allow a deeper exploration of this point. In these figures we report the percentage of working people who have less than secondary education, on the one hand, and higher education or more, on the other. The results show that about two-thirds of employed males did not complete high school, compared to around one-half of the female working population that achieved that same level. At the other end of the distribution of education, the proportion of women who have attained higher education or more is significantly higher than the share of men: about one out of every eight female workers has reached higher education, while one out of 13 male workers attained a similar level of education. Differences in schooling also exist between urban and rural areas. The rural labor force is less educated than the urban labor force and the educational gender gap is wider in rural areas.

Figure 8.

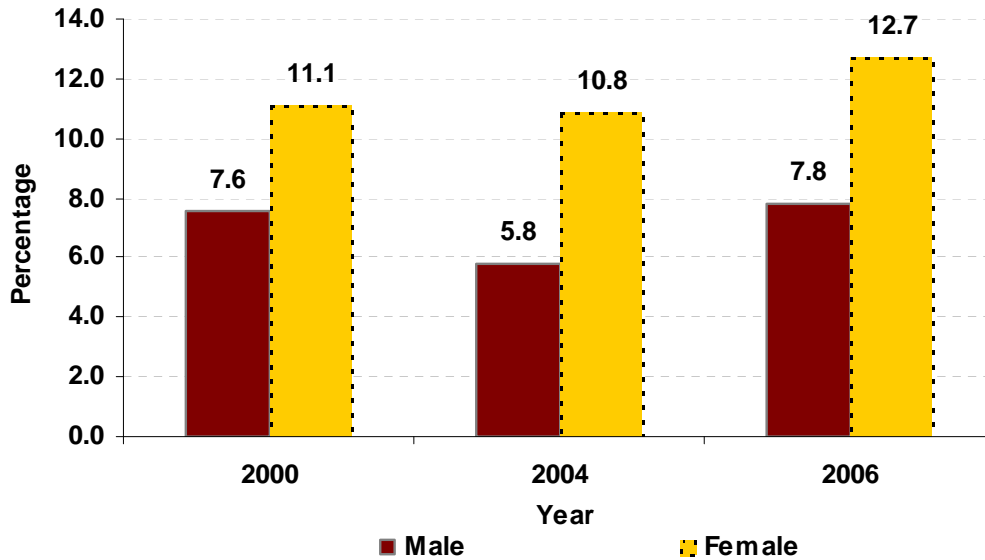
Guatemala 2000-2006
Percentage of Working Population with
less than High School Degree by Gender



Source: Author's calculations based on Encovi, ENEI.

Figure 9.

Guatemala 2000-2006
Percentage of Working Population with College
Degree or more by Gender



Source: Author's calculations based on Encovi, ENEI.

The gender composition of the country's labor markets shows a stable trend over the period of analysis. Approximately 70 percent of employees in Guatemala are male, and this has not changed significantly during the period of analysis. This participation by gender is more balanced in urban areas (60 percent males, 40 percent females) than rural areas (80 percent males, 20 percent females).

2.3 Wage Gap Decomposition

As education is a key component of human capital, it is worthwhile to analyze to what extent differences in salaries are the result of differences in education. Or more generally, we can ask to what extent differences in wages between males and females result from differences in certain characteristics of human capital. Next we turn to explore the link between gender differences in human capital and wages in Guatemala.

The technique applied for the wage gap decompositions follows the one developed in Ñopo (2008). According to that technique, wage differentials can be expressed as the sum of four elements that correspond to differences (if present) in the characteristics of human capital of individuals. Specifically, the wage gap (i.e., the average difference in wages between men and women) is expressed as the sum of:

- **Delta M.** The portion of the gap that can be attributed to the existence of human capital profiles for which there are males but no females. A typical example of this type is the fact that for individuals around 40 years old, with higher education, living in the capital, married, with children and occupying management positions it is possible to find males but no females in the household surveys.
- **Delta F.** This component of the gap is due to the existence of human capital profiles for which there are females but no males. This typically corresponds to a segment of the population around 30 years of age, with less than high-school education, who migrated from the interior of the country to the capital and are single but with children. This profile, which corresponds to that of a maid or a domestic servant, is practically impossible to find among men.
- **Delta X.** The portion of the gap due to differences in the distribution of observable characteristics among females and males, whenever the

comparison is possible (i.e., without considering the human capital profiles that are accounted for in the two previous components).

- **Delta 0.** Corresponds to the portion of the gap that cannot be explained by differences in the characteristics of human capital compared between males and females. This could eventually be attributed to either the existence of other characteristics of human capital that differ between groups in comparison but have not been captured by the available data, or the existence of discrimination in labor markets.

The decomposition is implemented performing matching comparisons. For that purpose, we try to find pairs of female and male workers with the same set of human capital characteristics (ethnicity, age, education, marital status, migratory condition, etc.). The result of these matches reflects a synthetic situation where males and females have exactly the same distribution of observable characteristics. For further details on the workings of this technique see Ñopo (2008).

The matching was made according to four sets of individual characteristics. The initial set considers three variables: age, marital status and years of education. The second set adds ethnicity. The third adds migratory condition and, finally, the fourth set adds a variable that identifies whether the person is a resident of the capital city or not. For these four sets of characteristics, Table 2 shows the percentages of men and women who were paired, that is, the common support of the domains of human capital characteristics.

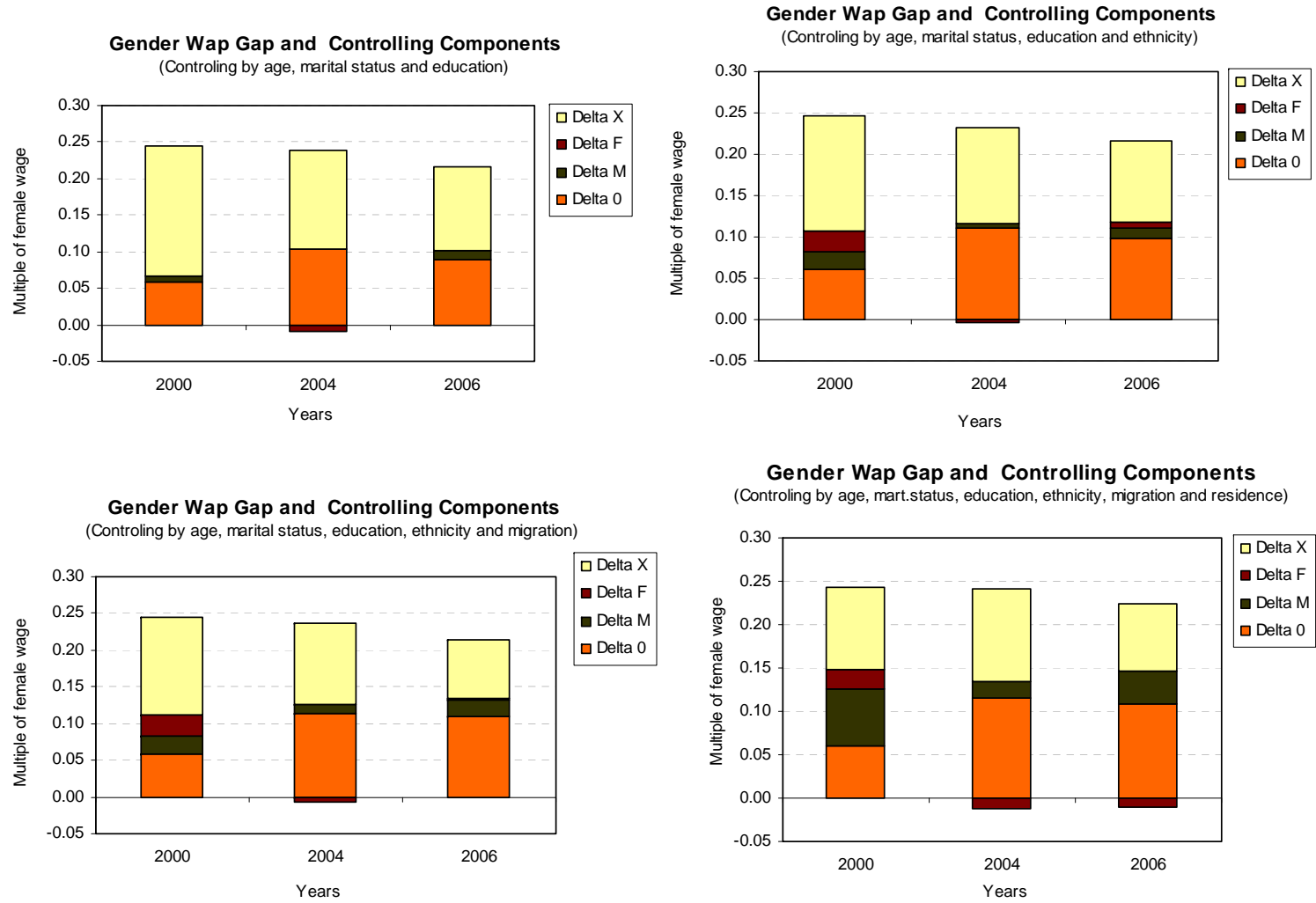
Table 2.
Percentage of Females and Males Matched by Different Control Sets

Años	Controlling by:			
	(i)	(ii)	(iii)	(iv)
	Age, education and marital status	Age, marital status, education and ethnicity	Age, marital status, education, ethnicity and migration	Age, marital status, education, ethnicity, migration and residence
2000				
Female	88.62	84.42	77.08	61.59
Male	96.56	91.32	85.78	72.35
2004				
Female	87.04	83.33	74.68	59.01
Male	96.79	93.13	88.32	75.51
2006				
Female	90.77	85.72	80.23	65.29
Male	96.57	91.31	84.02	71.12

Source: Author's calculations based on Encovi, ENEI

The decompositions of wage gaps were made for the entire working population (Figure 10) and for urban (Figure 11) and rural (Figure 12) working populations. About half of the wage gaps are explained by differences in the distribution of characteristics of human capital whenever these are comparable (Delta X) or not (Delta F and Delta M) and the other half is not explained by characteristics (Delta 0).

Figure 10.
Guatemala 2000-2006: Total National
Gender Wage Gap Decomposition by Different Sets of Controls

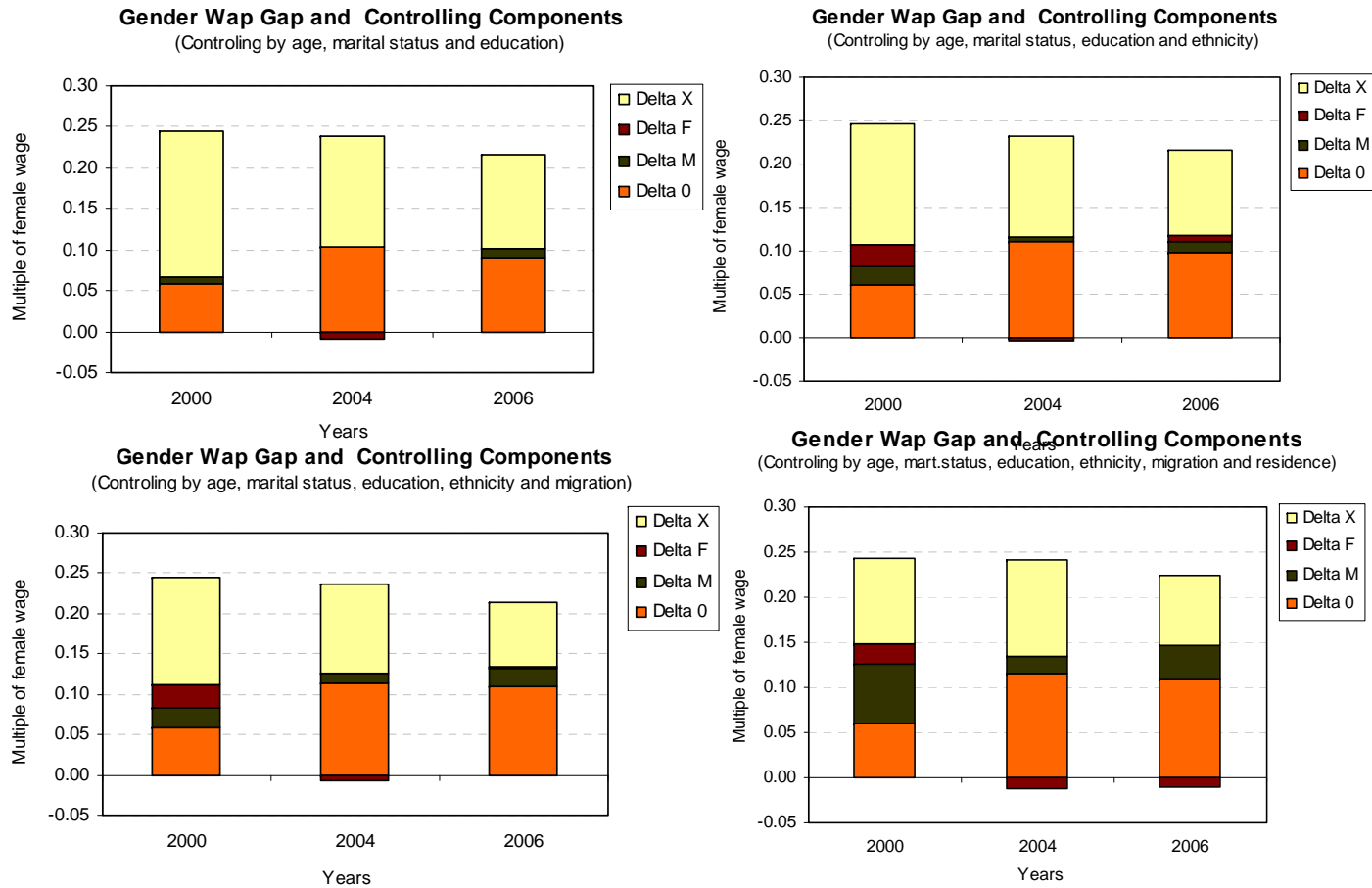


Source: Author's calculations based on Encovi, ENEI.

Figure 11.

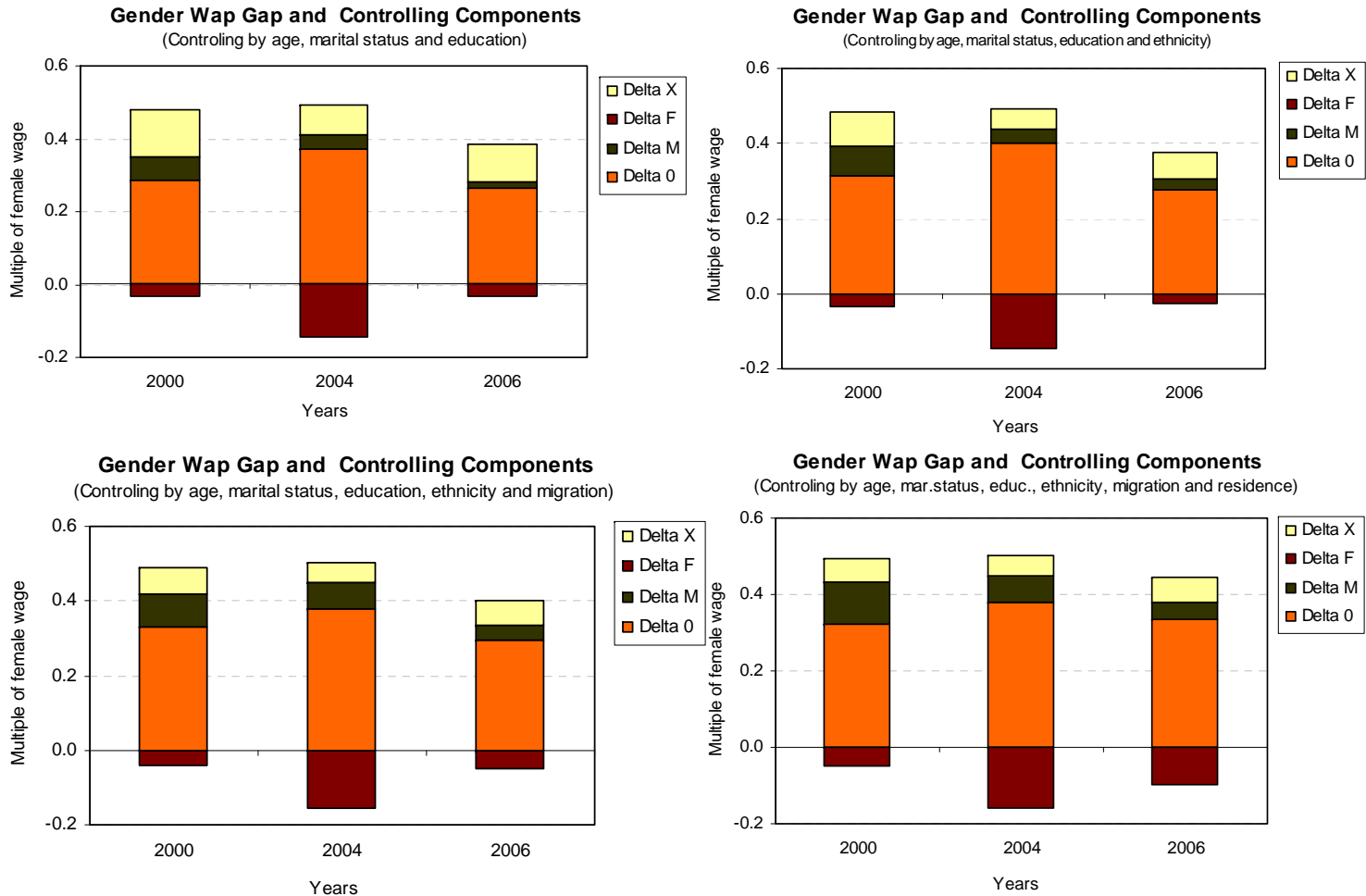
Guatemala 2000-2006. Urban Areas

Gender Wage Gap Decomposition for Different Sets of Controls



Source: Author's calculations based on Encovi, ENEI.

Figure 12.
Guatemala 2000-2006. Rural Areas
Gender Wage Gap Decomposition for Different Sets of Controls



Source: Author's calculations based on Encovi, ENEI.

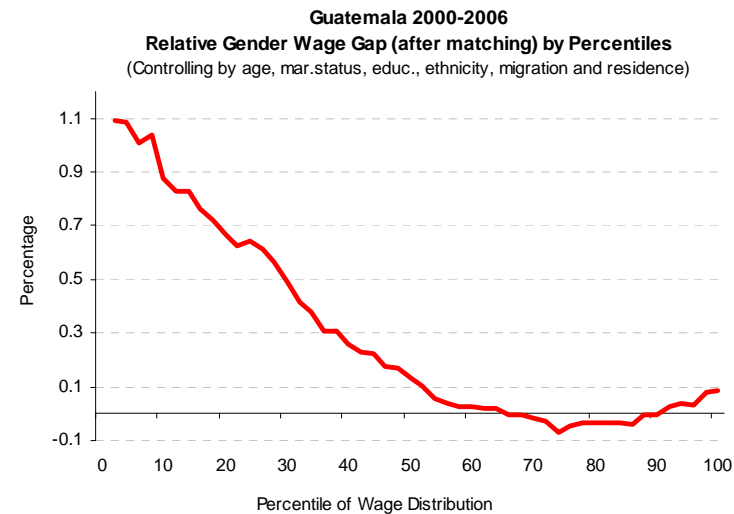
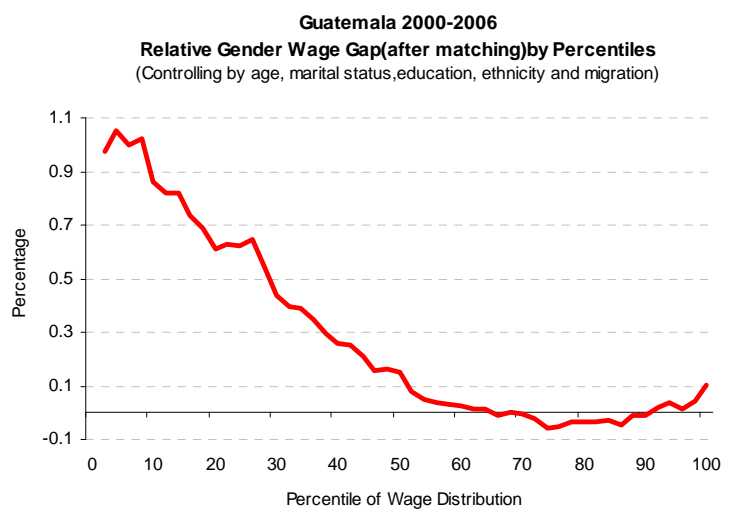
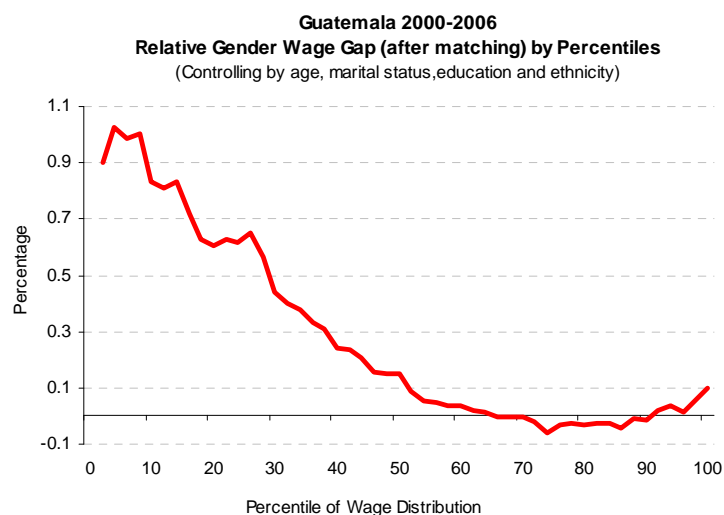
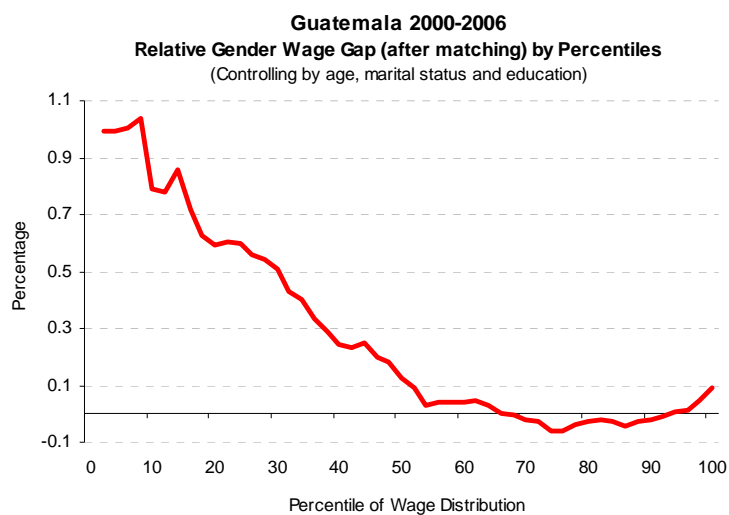
As mentioned earlier, Delta 0 may reflect discrimination, or it may reflect the existence of other characteristics of human capital that labor markets are rewarding but household surveys do not capture. The components that control for the lack of common support between men and women are very small and not statistically significant in most combinations. Only in the last set of controls do Delta M and Delta F play an important role. This result is very similar to those found in Peru (Ñopo, 2004) and Chile (Ñopo, 2006).

Decompositions that additionally control for ethnicity, migratory condition and residence in the capital do not change significantly the size of the components of the gaps. This means that age, marital status and education of individuals provide enough information to assess the unexplained gender wage gap. Moreover, of these three variables, it is education that drives wage gaps.

The wage gap decomposition at the national level is largely similar to that one in urban areas. However, in rural areas, the decomposition is slightly different. First, the unexplained component accounts for approximately 80 percent of the wage gap. Second, the component attributable to unpaired women is negative. Apparently, segmentation (or segregation) operates negatively on the female wage in urban areas and positively in rural areas.

Figure 13 shows the unexplained wage gaps (Delta 0) by percentiles of the income distribution. Results show that the unexplained component of the wage gap is more pronounced among low-income workers than among high-income. This distribution of the unexplained wage gap is similar to that found in Peru but not in Chile, where the unexplained component of wage gaps is higher for higher income.

Figure 13. Gender Wage Gap by Percentiles for Different Groups, Control over the Period 2000-2006



Source: Author's calculations based on Encovi, ENEI.

Another way to analyze Delta 0 in detail is to compute the wage gap decomposition for segments of the control variables. In Table 3 we present such unexplained gaps for the four sets of control variables and possible segmentations inside of labor markets. It is interesting to note that unexplained gender wage gaps are larger among young people, those with higher education, those separated, migrants and those living in the capital.

Table 3.
Guatemala 2000-2006
Unexplained Gender Wage Gap for Different Sets of Controls and
Segmentation
(percentage of female wage)

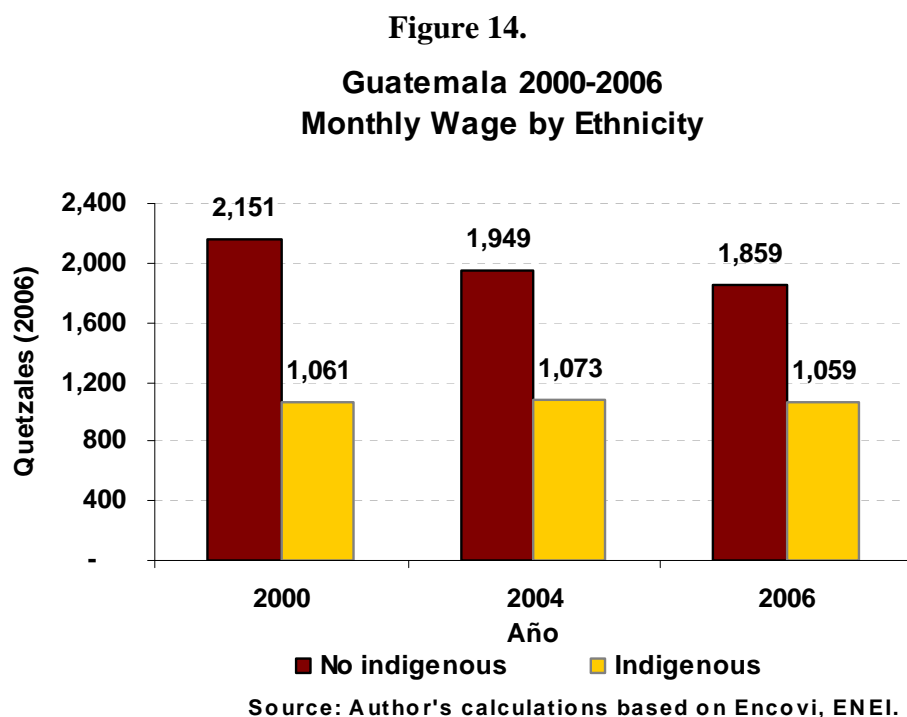
	Controlling by:			
	(i)	(ii)	(iii)	(iv)
	Age, education and marital status	Age, education, marital status and ethnicity	Age, education, marital status, ethnicity and migration	Age, education, marital status, ethnicity, migration and residence
By Age:				
18 to 25 years	12.77	12.82	12.91	12.65
26 to 35 years	12.12	12.94	14.40	13.50
36 to 45 years	4.28	5.20	4.57	4.61
46 to 55 years	-2.26	-2.06	1.49	6.08
56 to more	16.06	12.62	9.58	5.23
By education:				
Nothing	28.89	28.69	28.54	30.17
Primary	36.78	38.69	39.22	40.34
Secondary	22.15	24.28	25.12	26.77
Superior	75.08	79.78	82.83	70.98
By marital status:				
Married	2.99	5.17	6.47	6.94
Separated	14.49	13.77	16.51	21.92
Single	7.72	7.57	8.44	7.90
By migrant condition:				
Non migrant	9.06	10.23	10.28	10.34
Migrant	11.42	12.49	19.83	22.22
By residence:				
In capital city	11.54	12.22	12.59	12.64
Out capital city	17.71	20.54	27.28	41.85
By ethnicity:				
Indigenous	7.45	14.14	14.02	14.24
Non Indigenous	13.06	13.88	15.34	15.50
By area:				
Urban	12.09	13.11	14.47	14.37
Rural	12.14	12.57	11.46	16.14
Total sample	9.54	10.52	11.53	11.67

Source: Author's calculations based on Encovi, ENEI

3. Analysis of the Ethnic Wage Gap

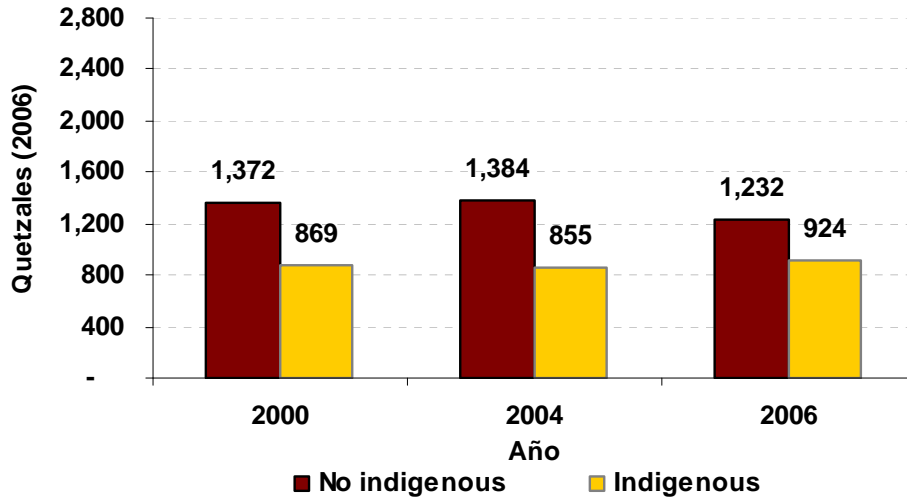
3.1 Monthly Wages

As shown in the introduction, the ethnic schooling gaps are higher than those found from gender comparisons. Similarly, the ethnic wage gaps outstrip the gender ones. Figure 14 shows that real wages (in 2006 Quetzales) of the indigenous population have remained roughly constant during the period under review, while real wages of non-indigenous people have fallen slightly, especially in urban areas.



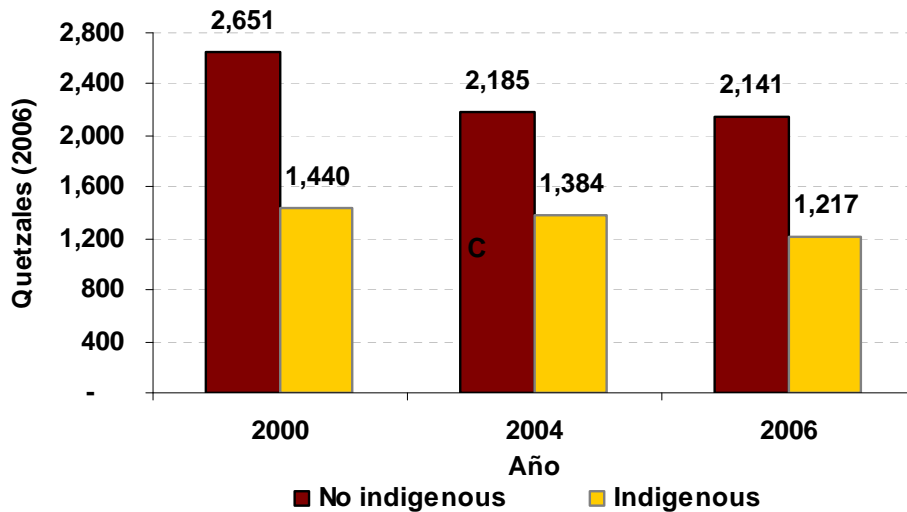
The wage gaps favor the non-indigenous both in urban and rural areas, but are slightly higher in the former than in the latter. While in urban areas the average wages of non-indigenous people have a ratio of two to one and with the indigenous people wages, in rural areas such relationship is reduced to 1.4 to one (see Figures 15 and 16).

Figure 14.
Guatemala 2000-2006
Monthly Wage in Rural Areas by Ethnicity



Source: Author's calculations based on Encovi, ENEI.

Figure 15.
Guatemala 2000-2006
Monthly Wage in Urban Areas by Ethnicity



Source: Author's calculations based on Encovi, ENEI.

Similar to the gender wage differences, the wage gap between low-educated and the more educated is enormous. The average wage of a person with a higher education is four times that of a person who did not complete secondary education (see Figures 17 and 18).

Figure 16.

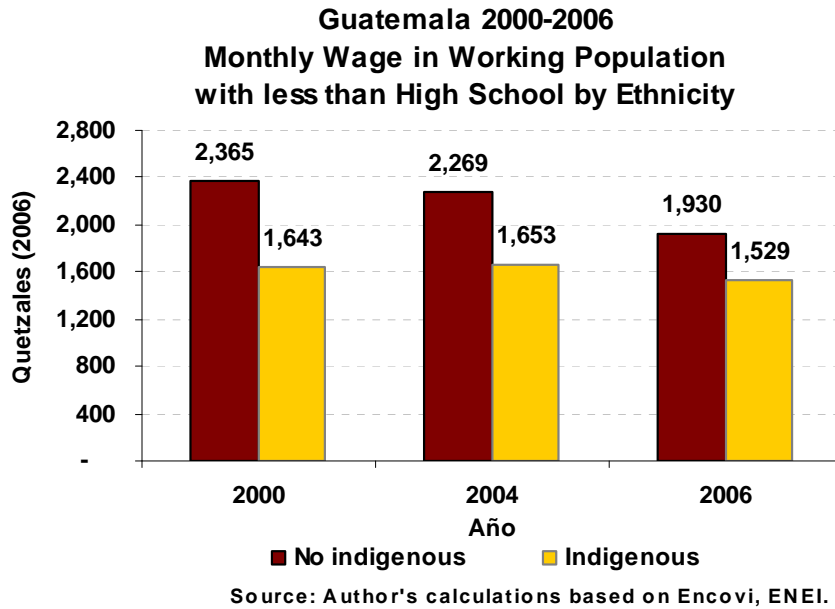
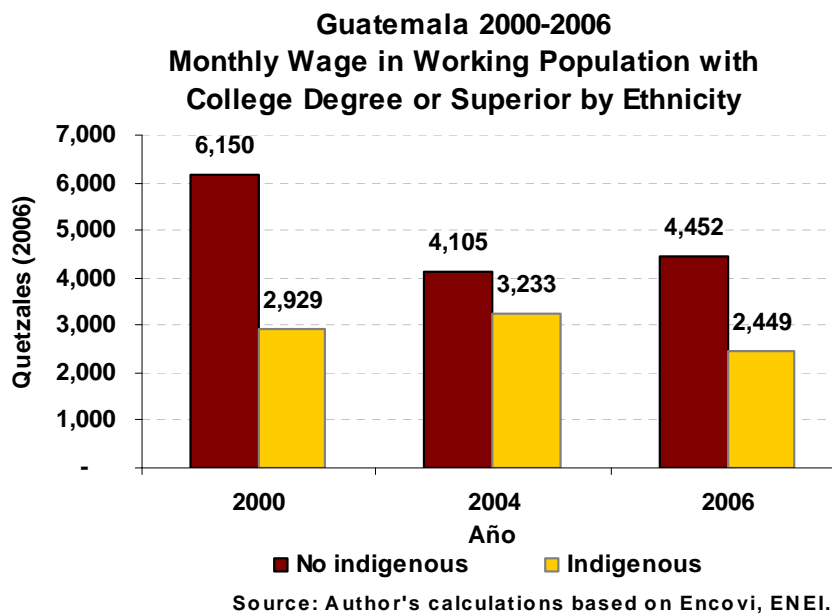
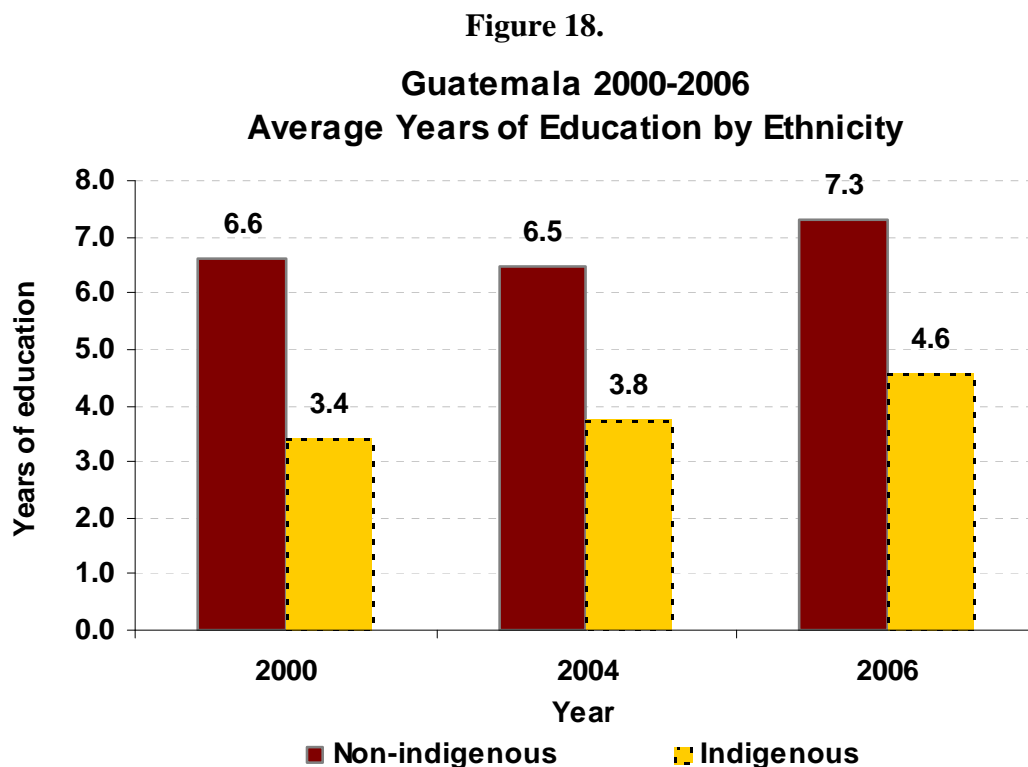


Figure 17



3.2 Education

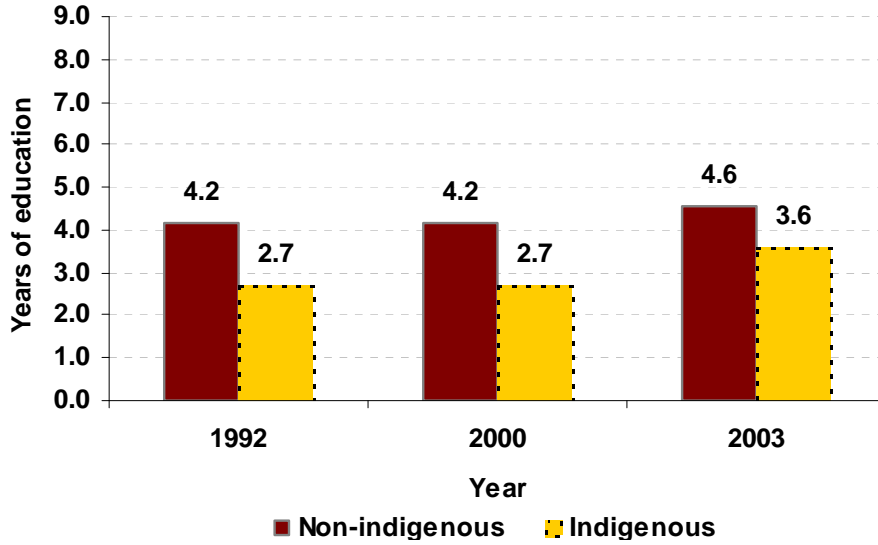
As noted previously, Guatemala is one of the countries with the most heterogeneous indigenous population. Each ethnic group is distinguished by a unique language, culture and social organization (Fazio, 2007). The disparities in education by ethnicity are much more pronounced than gender disparities. Figure 19 shows the average years of education for indigenous and non-indigenous people for the period 2000-2006. Non-indigenous people have about three more years of education than the indigenous.



Source: Author's calculations based on Encovi, ENEI.

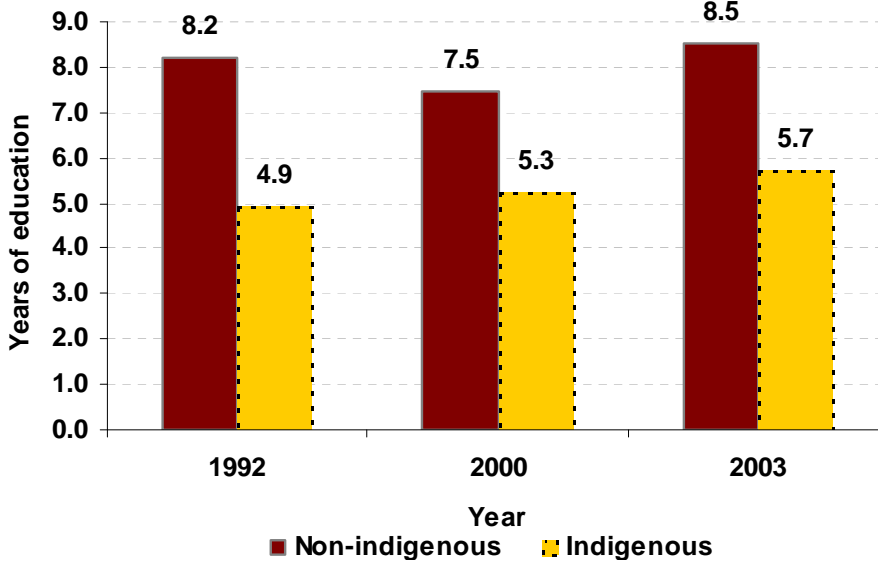
Figures 20 and 21 report schooling by rural and urban areas. In rural areas, where the majority of the population is indigenous, the educational levels achieved are systematically lower than in the urban areas. While in rural areas the schooling gap by ethnicity is around one year, in urban areas it is nearly four years.

Figure 20.
Guatemala 2000-2006
Average Years of Education in Rural
Areas by Ethnicity



Source: Author's calculations based on Encovi, ENEI.

Figure 19.
Guatemala 2000-2006
Average Years of Education in Urban
Areas by Ethnicity

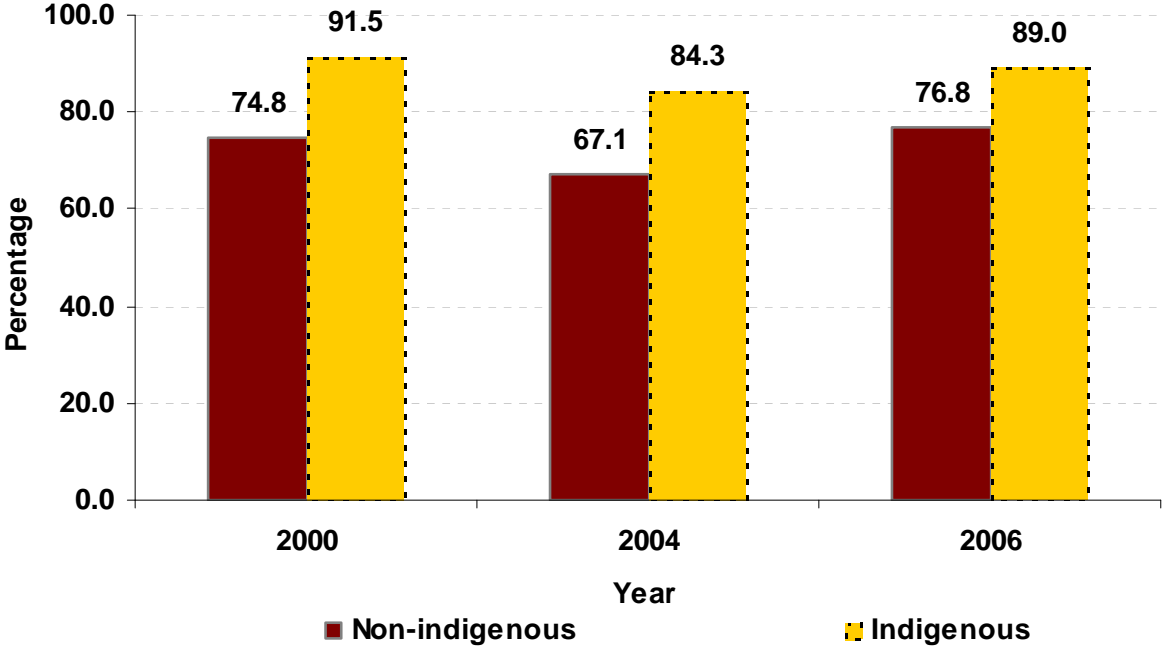


Source: Author's calculations based on Encovi, ENEI.

During the period studied, almost nine of 10 indigenous employed Guatemalans and seven of 10 non-indigenous employed Guatemalans had attained less than complete secondary education. As stated before, in rural areas there is a higher proportion of persons with less than secondary education than in urban areas. Thus, the gap in education between ethnic groups is wider in urban areas (Figures 22, 23 and 24).

Figure 22.

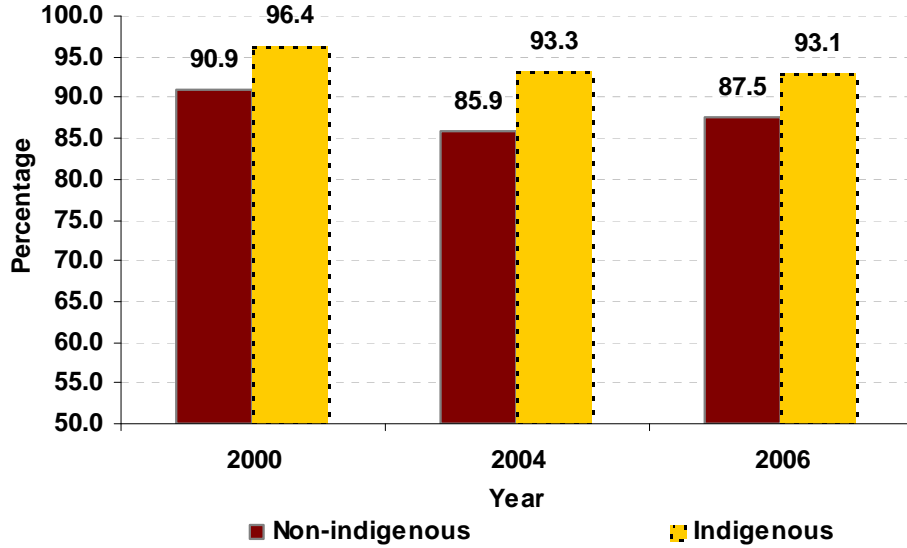
**Guatemala 2000-2006
Percentage of Working Population with less than High School by Ethnicity**



Source: Author's calculations based on Encovi, ENEI.

Figure 23.

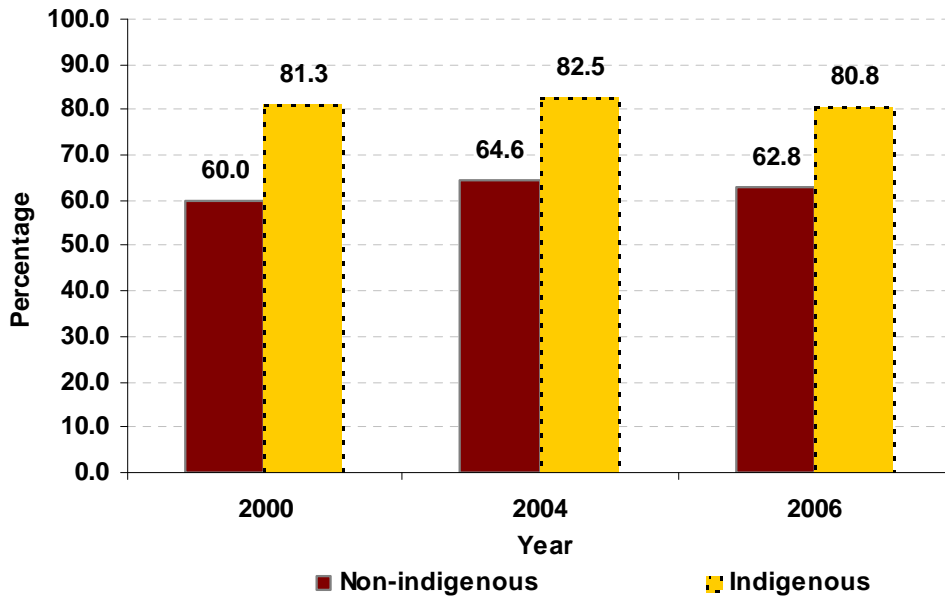
Guatemala 2000-2006
Percentage of Working Population with less than High School in Rural Areas by Ethnicity



Fuente: Estimaciones propias basadas en Encovi, ENEI.

Figure 20

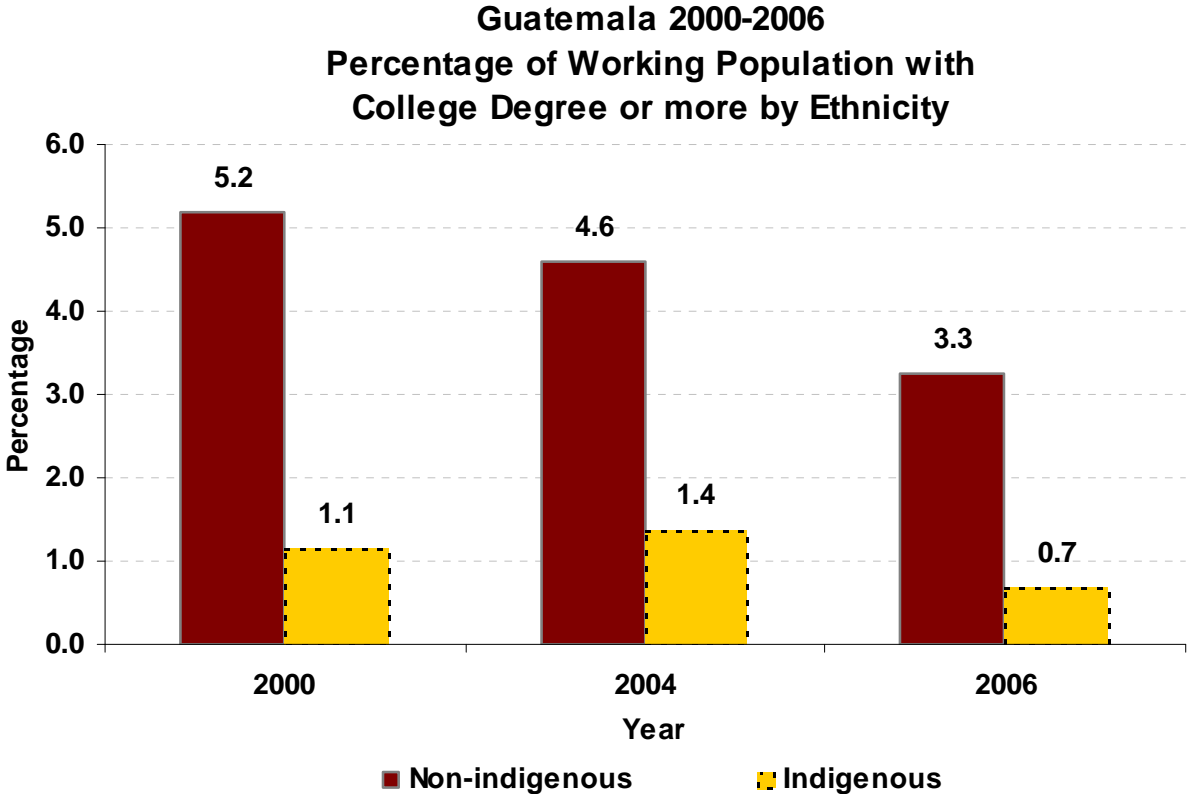
Guatemala 2000-2006
Percentage of Working Population with less than High School in Urban Areas by Ethnicity



Fuente: Estimaciones propias basadas en Encovi, ENEI.

The share of indigenous workers with higher education or more is comparatively very low compared to that of non-indigenous population. While at the national level that share participation is only about 1 percent, in rural areas it is almost 0 percent (Figures 25, 26 and 27).

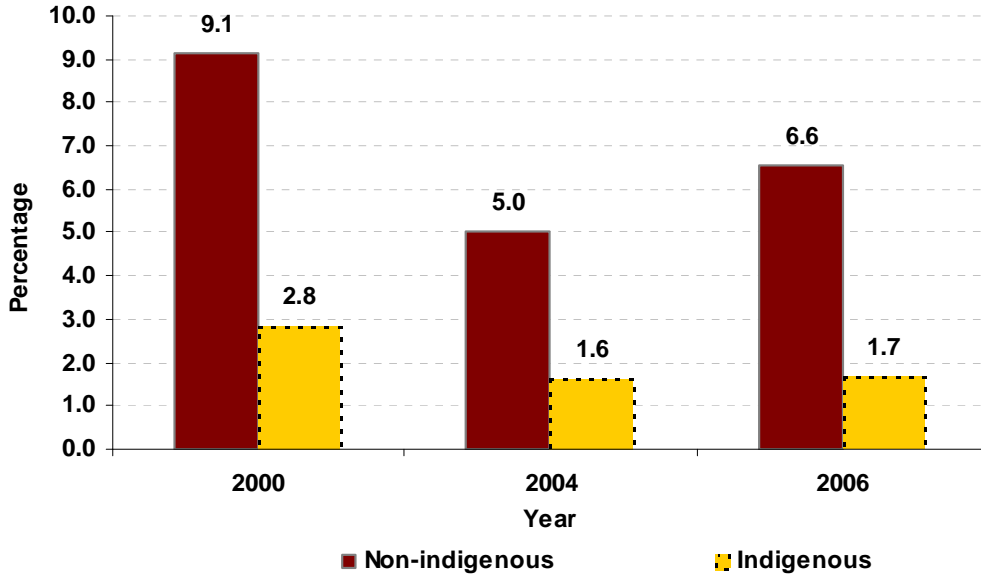
Figure 21



Source: Author's calculations based on Encovi, ENEI.

Figure 26.

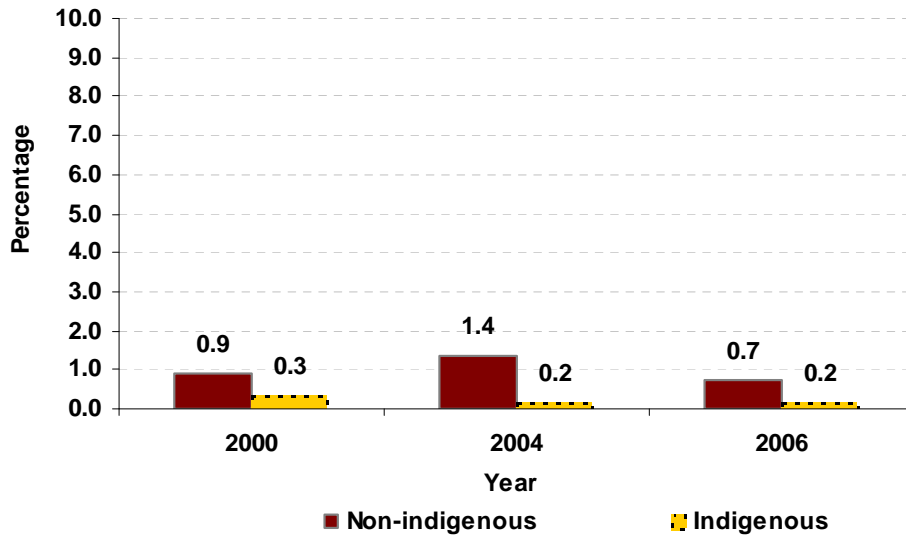
Guatemala 2000-2006
Percentage of Working Population with College Degree or more in Urban Areas by Ethnicity



Source: Author's calculations based on Encovi, ENEI.

Figure 22.

Guatemala 2000-2006
Percentage of Working Population with College Degree or more in Rural Areas by Ethnicity



Source: Author's calculations based on Encovi, ENEI.

The ethnic composition of the employed population is similar to the gender composition at the national level. . The non-indigenous population represents 70 percent of employees, while 30 percent are indigenous. In rural areas, the share of ethnic minorities is almost equal to the non-indigenous share, whereas in urban areas 20 percent of employees have an indigenous background.

3.3 Wage Gap Decomposition

Similar to the gender wage gap decomposition stated in the previous section, now we explain the ethnicity wage gaps are a result of educational gaps and other differences in characteristics between indigenous and non-indigenous population. As in the gender wage gap decomposition, in this decomposition we chose to match with four combinations of characteristics as well. The first comprises age, marital status and years of education. The second combination adds gender to the variable set. The third and fourth combinations add migratory condition and whether the person is a resident of the capital, respectively. The percentages of matched indigenous and non-indigenous individuals are presented in Table 4.

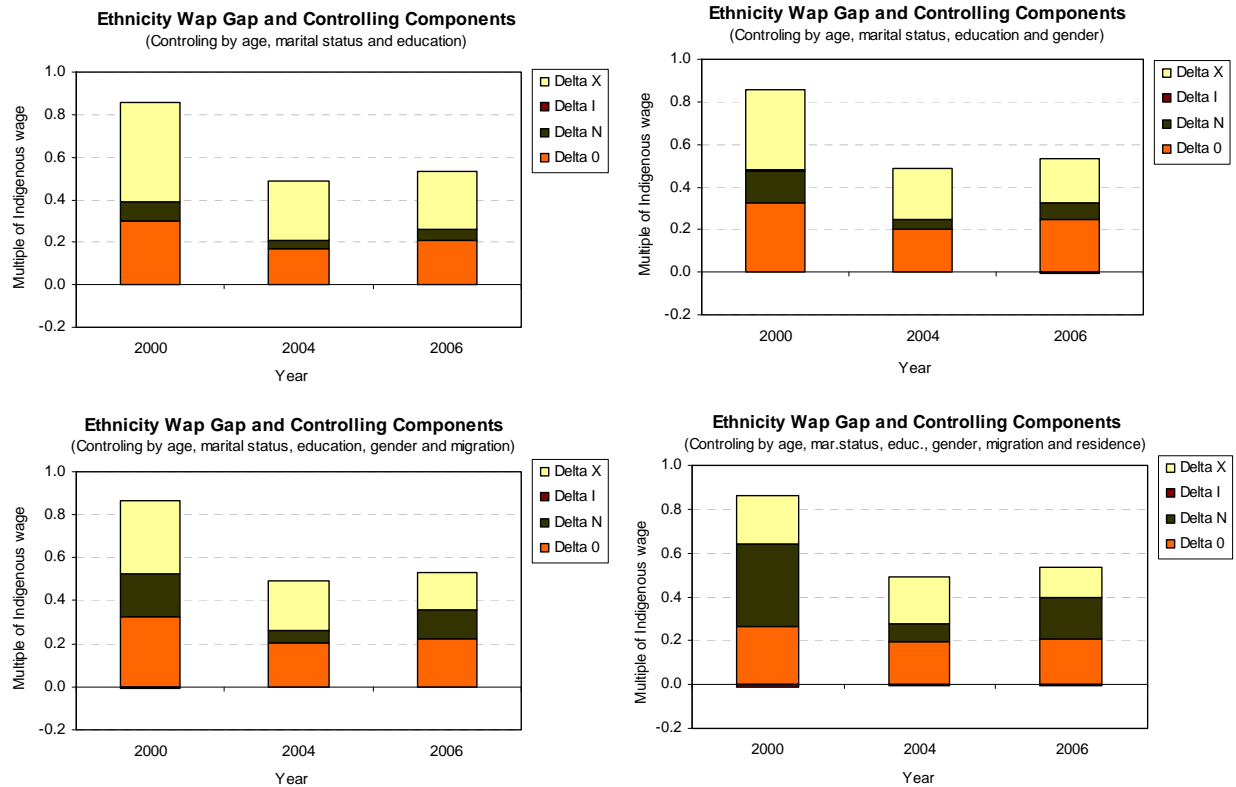
Table 4.
Percentage of Indigenous and Non-indigenous Matched by
Different Control Sets

Años	Controlling by:			
	(i)	(ii)	(iii)	(iv)
	Age, education and marital status	Age, marital status, education and gender	Age, marital status, education, gender and migration	Age, marital status, education, gender, migration and residence
2000				
Indigenous	96.77	95.55	94.41	88.30
No indigenous	90.51	85.36	72.26	44.25
2004				
Indigenous	99.13	97.64	98.02	90.81
No indigenous	93.20	87.79	78.16	41.94
2006				
Indigenous	97.62	96.58	94.03	87.86
No indigenous	89.91	83.75	68.23	47.84

Source: Author's calculations based on Encovi, ENEI

Following are the results of decomposition of wage gaps between indigenous and non-indigenous individuals. As in the case of the gender wage gap decomposition reported in the previous section, the gaps are measured as percentages of the average wages of the lowest income group (in this case, the indigenous group). What was Delta F in the gender wage gap decomposition is now Delta I, which denotes the component of the gap that can be explained by the existence of certain profiles of indigenous workers without a match in the sample of non-indigenous workers.

Figure 23.
Guatemala 2000-2006: Total National
Ethnicity Wage Gap Decomposition by Different Sets of Controls



Source: Authors' calculations based on Encovi, ENEI.

On the other hand, Delta N denotes the component of the gap due to the presence of certain profiles of non-indigenous workers that are unpaired in the sample of indigenous workers. Figure 28 shows the decomposition at the national level using the four sets of matching characteristics described above; Figures 29 and 30 show the same decomposition for urban and rural areas, respectively.

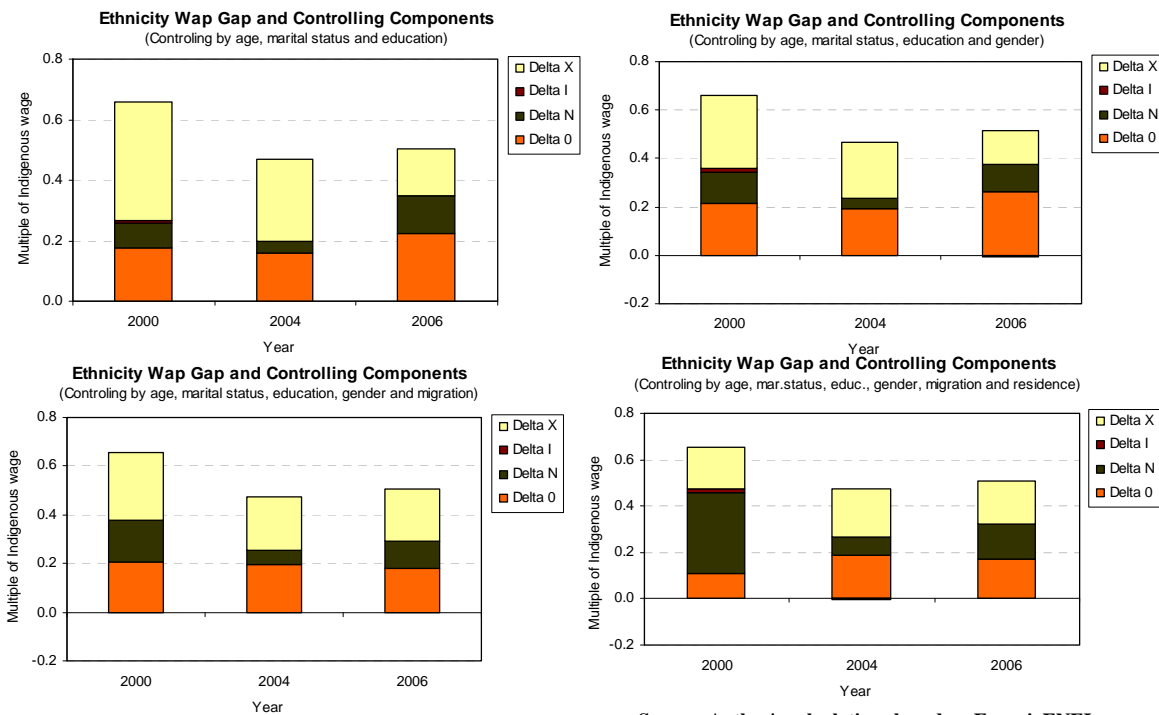
While gender wage gaps are on the order of 20 to 25 percent of average female wages, ethnic gaps are between 50 and 80 percent of average indigenous wages. Unlike the case of gender, where the unexplained component was about half the total gap, the unexplained component of the ethnicity wage gap is approximately one third of the total gap. The differences between the urban and rural ethnicity wage gap decompositions are larger than in gender, but in rural areas the unexplained wage gap is higher.

Another highlight in the present decomposition is the significant role that Delta N plays, both in urban and rural areas. In other words, the existence of certain profiles of human capital present only in the non-indigenous population increases ethnicity wage gaps by approximately 10 percentage points.

Figure 24.

Guatemala 2000-2006. Urban Areas

Ethnicity Wage Gap Decomposition for Different Sets of Controls



Source: Author's calculations based on Encovi, ENEL.

Figure 30.

Guatemala 2000-2006. Rural Areas

Ethnicity Wage Gap Decomposition for Different Sets of Controls

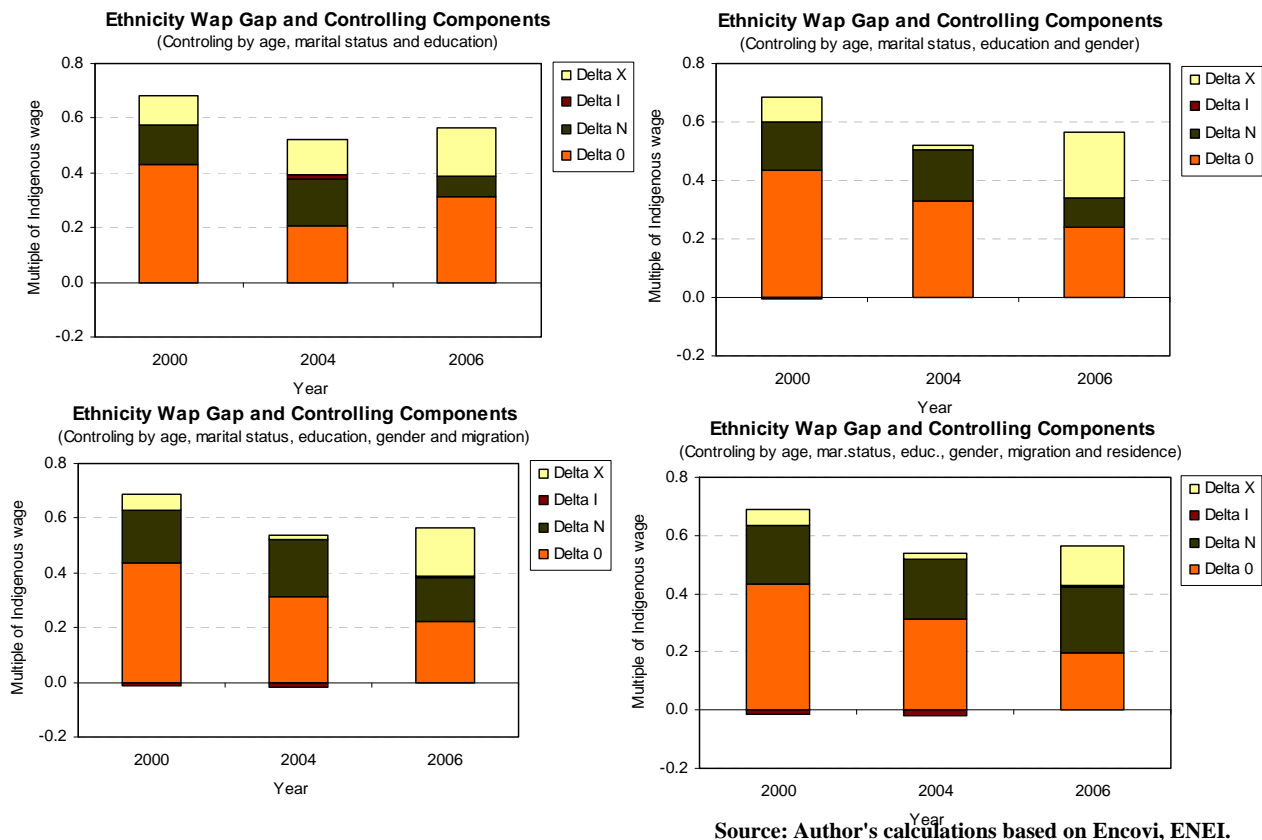
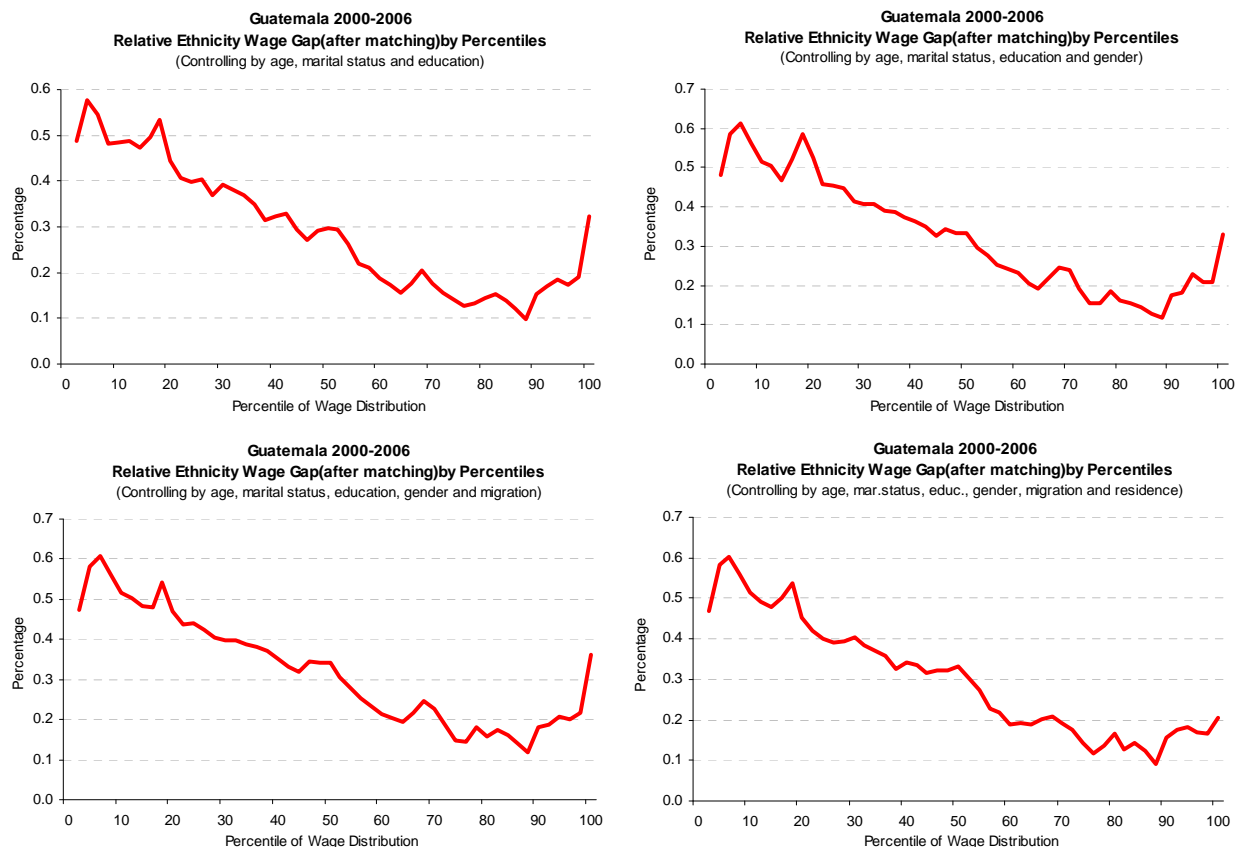


Figure 31 reports Delta 0 by percentiles of the income distribution. The pattern found here is similar of that in the gender analysis. The unexplained gaps are higher for low-income workers, and the decline of Delta 0 related to higher income percentiles is reverted in the highest income decile, where Delta 0 increases.

Figure 25
Gender Wage Gap by Percentiles for Different Groups, Control over the Period 2000-2006



Source: Authors' calculations based on Encovi, ENEI.

As we did in the previous section, Table 5 reports unexplained wage gaps (Delta 0) for different segments of the working population. Unlike the results of the gender analysis, unexplained ethnicity wage gaps are smaller for younger workers (those between 18 and 25 years old) and higher for married workers. On the other hand, as in the gender analysis, the unexplained ethnicity wage gap is higher for more educated worker. Lastly, the unexplained ethnicity wage gap is higher for men than for women.

Table 5.
Guatemala 2000-2006
Unexplained Ethnicity Wage Gap for Different Sets of Controls and
Segmentation
(percentage of indigenous wage)

	Controlling by:			
	(i)	(ii)	(iii)	(iv)
	Age, education and marital status	Age, education, marital status and gender	Age, education, marital status, gender and migration	Age, education, marital status, gender, migration and residence
By Age:				
18 to 25 years	17.22	17.67	17.50	15.63
26 to 35 years	25.66	28.98	27.89	24.44
36 to 45 years	20.21	25.66	26.35	23.78
46 to 55 years	24.33	31.11	30.67	27.73
56 to more	24.83	26.60	21.49	19.80
By education:				
Nothing	22.07	20.83	20.34	19.51
Primary	21.87	25.60	24.31	22.65
Secondary	21.02	26.08	25.73	22.27
Superior	73.94	80.40	78.79	45.44
By marital status:				
Married	22.94	26.95	26.68	23.66
Separated	10.11	10.75	12.67	11.77
Single	19.56	18.20	17.41	15.31
By migrant condition:				
Non migrant	20.76	23.57	24.12	21.44
Migrant	15.30	21.87	21.33	19.51
By residence:				
In capital city	18.60	21.25	20.75	21.49
Out capital city	9.85	14.78	19.50	20.39
By gender:				
Female	17.35	17.55	15.49	12.68
Male	24.55	25.62	26.18	23.23
By area:				
Urban	19.79	23.98	23.91	20.29
Rural	24.64	26.26	22.35	22.82
Total sample	21.19	24.36	23.91	21.32

Source: Author's calculations based on Encovi, ENEI

4. Conclusions and Policy Recommendations

This exploration of wage gaps in Guatemala sheds several results, suggesting some guidelines relevant for policy discussion.

Wage gaps are remarkably high in Guatemala, favoring males and the non-indigenous. Chong and Ñopo (2007) reported that the wage gaps in Guatemala are among the highest in Latin America. About half of the wage gaps in Guatemala can be explained from differences in observable characteristics of human capital of workers. Differences in education play an important role in the determination of those wage gaps. In fact, according to Latinobarometro, Guatemalans believe that the lack of education is the principal cause of discrimination. This result is in line with the findings of Duryea et al. (2007) that educational gaps in Guatemala are among the highest in Latin America. This leads to an initial recommendation of public policy.

- ✓ It is necessary to **improve the educational attainment of the population by providing equal opportunities** of access to education. However, the best way to encourage Guatemalans to remain in school longer is to provide early interventions. In this sense, as Carneiro and Heckman (2003) argue, the earlier in the life cycle the intervention is made, the more effective the policies are. This leads to advocate for interventions that will stimulate development in early childhood, for example, through programs of conditional cash transfers complemented by quality and quantity improvements in the provision of education.

In this regard, the experience of Southeast Asia in recent decades deserves special attention. While at the beginning of the 1960s the average schooling of the adult population in Southeast Asia was similar to that of Latin America (about 3 years), 40 years later average schooling in America had risen to only 5.5 years, while in Southeast Asia climbed to nearly 8 years. That is, Southeast Asia increased its schooling well above their peers in Latin America (Barro and Lee, 2000). Moreover, income distribution in Southeast Asia has improved between the eighties and nineties higher than in Latin America (Camps et al., 2006). The

improvements in the education have gone hand in hand with improvements in income distribution.

With regard to the policy recommendation that we propose, it should be noted that Guatemala already has a road trip on issues of early childhood development, as indicated in Behrman et al. (2008). This paper makes an assessment of the early childhood programs in Guatemala in the last decade and notes that, during this period some dimensions of the programs have shown significant results, including increases in pre-school enrollment and school attendance at early ages. Nevertheless, Guatemala still shows a strong backlog in the school success indicators in comparison with other countries in the region. This situation is much more striking for indigenous children in rural areas and in poor households.

Wage gaps are larger in rural areas and its unexplained parts are proportionately higher in such areas.

- ✓ It is relevant to remember that **rural labor markets operate differently from urban labor markets**. The population in rural areas needs to develop skills relevant to their environment and to the cultural differences present in such areas. As indicated by Márquez et al. (2007), the experience of the region in more inclusive educational methods has encompassed bilingual education (as in Bolivia, Ecuador, Honduras), the expansion of physical access and use of innovative teaching methods that allow persons with disabilities to attend regular classes (such as the “Inclusion in Higher Education” program in Mexico), incorporating and adapting curricula to emphasize multicultural heritage and the contributions of indigenous groups and people of African descent to national culture and history (as in the case of Colombia), and the linkage of education and school attendance with programs aimed to eradicate the worst forms of child labor. These are some examples of effective interventions that could be implemented on the basis of previous efforts that have been carried out in Guatemala.

The component Delta M (or Delta N)—that is, the wage gap explained by profiles of human capital only present in males or non-indigenous population- is clearly relevant in the wage gap decompositions, in urban and rural areas. This means that certain groups face glass-ceilings in their development opportunities in the labor markets.

Moreover, the curve of unexplained wage gaps (both ethnic and gender) by income percentiles is U-shaped (those with lower income face higher unexplained wage gaps, but those with the highest income also face higher unexplained wage gaps), as in Peru and Colombia, but different from Chile. Lower-income individuals face higher wage gaps, and in Guatemala wage gaps are linked to poverty.

It is also interesting to note that the unexplained ethnicity wage gaps are wider for older workers, workers with higher education, and married men, whereas unexplained gender wage gaps are wider for young people, workers with higher education, workers who are separated, migrants and those living in the capital.

The combination of glass ceilings and unexplained wage gaps evidences discriminatory practices in Guatemalan labor markets. An important caveat remains: we have not taken into account the role of unobservable characteristics that may explain those apparent discriminatory practices. However, the size of these unexplained gaps and the effect of these glass ceilings on wages suggest a range of policy options.

- ✓ It is important to raise awareness and promote job opportunities for all Guatemalans. This involves massive campaigns to combat the various forms of discriminatory practices and noting that they result in considerable inefficiencies and losses for society as a whole.

In fact, Márquez et al. (2007) have shown, using a set of experimental tools, that economic agents: (i) have effectively formed stereotypes about people's productivity, but (ii) they abandon such stereotypes when they receive timely and specific information on the productivity of individuals.

These results show that, if **information** about the actual productivity of individuals regardless of gender or ethnicity flowed faster in labor markets,

unexplained gaps will be reduced and glass ceilings will be less binding. Consequently, initiatives to improve information flow such as employment bureaus and job intermediation (as in Mexico, the Dominican Republic and Peru), are strongly recommended. It is extremely important that these instruments actively compensate for the disadvantages of women and indigenous people, particularly in terms of network building and the development of core competencies through intermediation services. Otherwise, these mechanisms are likely to reproduce market performance, as the evaluation of the employment services of the Ministry of Mexico shows (Flores, 2006).

Moreover, in terms of gender issues, it is important to emphasize that the role played by unequal relations within households. Balances in bargaining power between spouses within households bring with it increased employment opportunities for women, and, as Calderón (2007) argues, significant benefits in nutrition for other household members.

Evaluations of a nursery program undertaken in Guatemala since the 1990s (Ruel, 2001) found that, in addition to the improvement on children nutrition, nurseries served as tools for lifting some barriers to female labor force participation. The strengthening and expansion of this program would generate significant benefits regarding these issues.

As a final comment, it is worth to note that we undertook this study on ethnicity and gender gaps because both are dimensions traditionally analyzed in relation to differences in earnings and that may be studied on the basis of available survey data. However, inequality or income inequity is a phenomenon that transcends the identity of groups in Guatemala and Latin America in general. In other words, unexplained wage gaps, glass ceilings, and in general, the barriers of exclusion are phenomena that affect not only women and indigenous groups, but also much broader segments of society. In this regard Márquez et al. (2007) provide clues on the changing patterns of exclusion in Latin America.

- ✓ Finally, it is crucial to consider the need for inclusive policies that go beyond markets for education and work, and beyond indigenous people and women. The challenge to create more inclusive labor markets in Guatemala necessarily involves the development of a more inclusive society.

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