RACE DETERMINANTS OF WAGE GAPS IN COLOMBIA

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ABSTRACT

This paper examines the presence of wage gaps by race in Colombia. Information contained in the country's 2003 Living Standard Survey indicates that Afro-Colombian minorities -specifically, working age males- earn on average 6.4% less hourly wages than their non-Afro counterparts. In order to explain these differences standard Mincerian equations are estimated. No statistical evidence of race discrimination in wages is obtained when controls for education levels, age, experience, geographical location, informality and family size are included in the model. The most important statistically significant determinant of wages obtained was education levels. The results however do not rule out the existence of discriminatory practices in earlier stages in life that determine the quantity and quality of education as well as participation in the labor market. This result is corroborated by estimation of poverty and race. In this context, public policies that reduced differences in human capital endowments amongst Colombians of different ethnicities will contribute to decrease racial wage gaps.

KEY WORDS: Race and Ethnicity, Labor Discrimination, Colombia.
JEL CLASIFICATION: J7, J15, J38, O54

RESUMEN

Este artículo examina la presencia de diferencias salariales en Colombia considerando la raza de las personas. La información contenida en el informe de estándar de vida de 2003 de este país indica que las minorías Afro-Colombianas, –específicamente del genero masculino en edad laboral– ganan un 6.4 % menos por hora laboral que sus contrapartes no Afro. Para explicar estas diferencias se utilizan ecuaciones Mincerian estándar. Evidencia no estadística de la discriminación racial se obtiene con la inclusión en el modelo de los controles para la educación, edad, experiencia, ubicación geográfica, informalidad y tamaño del grupo familiar. El nivel de educación fue el determinante estadístico más importante que se obtuvo. Los resultados, sin embargo, no muestran la existencia de prácticas de discriminación en etapas tempranas de la vida que determinen la cantidad y calidad de la educación así como la participación en el mercado laboral. Este resultado es corroborado por la estimación de la pobreza y la raza. En este contexto, las políticas públicas que reduzcan las diferencias en dotación de capital humano entre los

colombianos de diferentes etnias contribuirán a la disminución de las diferencias salariales debido a la raza.

PALABRAS CLAVES: Raza y Etnia, Discriminación Laboral, Colombia.
CLASIFICACIÓN JEL: J7, J15, J38, O54.

INTRODUCTION

Colombia has a large Afro-descendant minority with lower living standards than the rest of the population. According to the 2005 Census, 4'261,996 Colombians or approximately one tenth of the population self-classify as part of the Afro minority. This minority exhibits lower socioeconomic conditions than their counterparts. Specifically, Afro - Colombians are more concentrated in the lowest income quintiles, have higher unemployment rates, lower average levels of education, and lower access to subsidized health according to Colombia's 2003 Living Standards Survey (LSS). In addition, working age male Afro-descendents earn 6.4% less hourly wages than their non-Afro counterparts.

These unequal living standards and wage differentials prompt the following questions: can wage gaps be accounted by lower human capital endowments, such as education or experience, or are these differences explained by labor market discrimination based on race?

An accurate assessment of this issue is of particular importance for policy design given that the Colombian government is mandated to guarantee equal treatment for all of its citizens. In 1991 a new Constitution was enacted which included amongst its pillars ethnic diversity, equality and respect for minority rights. For Afro-descendants such principles translated in a set of public policies to enhance and respect diversity. They included increasing political representation in local and national governments, participation in local development initiatives, greater access to existing

education, health, and other social services programs, improving statistical information on the socio-economic characteristics of the Afro - Colombian population and recognizing special property entitlements over community land in certain areas of the country (DNP, 2002, 2004). The equality principal implied specifically the need to guarantee equal treatment in the labor market. Thus, understanding the determinants of racial wage differentials becomes critical. Evidence of discriminatory practices would require the appropriate legal framework and policies to target any imbalances in order to comply with the ethnic diversity principle established in the Constitution[1].

In order to address these issues, this paper explores the relationship between wages and its race determinants in Colombia using the country's 2003 Living Standards Survey (from now on LSS (2003)). The following two sections provide a brief review of the theories used to explain labor market discrimination and its empirical applications in Latin America with special emphasis in Colombia. The third section describes the socioeconomic characteristics of Afro - Colombians as reported by the LSS (2003), estimates wage determinants based on the methodology developed by Mincer (1974) and poverty probabilities using ordered probability models. The final section concludes and provides policy recommendations.

As it will be seen, the analysis does not find evident discriminatory practices against Afro - Colombians in the labor market. However, the analytical framework implemented does not rule out the possibility of discrimination at earlier times in life, such as entering quality education, that in it of itself limits the possibilities of receiving increasing income. Moreover, analyzing wages limits the analysis to

1 To date, no specific policies for laws requiring quotas of racial minorities in the public or private sectors have been established. Quotas for women have been established at the central government level since 2001.

those receiving wages and rules out those not participating due to issues such as discrimination. The paper thus confirm the importance of education in setting wages and thus current policies that attempt to reduce unequal access to education, health and other human capital variables would constitute sensible measures to follow and further encourage.

I. THEORETICAL FRAMEWORK

Labor economics theory of discrimination identifies three possible reasons to explain wage differences between members of different ethnicities: straightforward discrimination, statistical discrimination and endowment differences.

Straightforward discrimination Becker (1971), indicates that equally productive workers receive differential wage compensations based strictly on the discriminatory preferences of employers. Economically, such a behavior is possible in imperfect markets where companies are able to cut profits (by paying equally productive workers unequally) without being competed out of the market. *Statistical discrimination* arises when employers lack enough information to accurately determine a worker's productivity. Given this constraint, employers determine wages based on salient characteristics of the employee, such as their race, which could be lower than average and uncorrelated with the individual employees true productivity.

A third and final explanation of wage differentials are *endowment differences* associated with education levels and experience. This implies that individuals are treated unequally not because they belong to a specific group but due to different levels of education or experience which justify higher/lower wages. However, these differences in endowments can be the result of discriminatory practices in earlier stages of life, such as the ability to access quality education or to be able to work in specific occupations.

(Cunningham (2003), Ehrenber (2006), Tenjo (2004).

Empirically these theories can be tested by estimating the determinants of wages using race or ethnicity as an explanatory variable. The most common application is the framework described in Mincer (1974) in which the underlying assumption is that individuals take decisions regarding the returns and opportunity costs of education in the labor market. Race and ethnicity of individuals are used as control variables meant to capture any differences in wages introduced by individual characteristics. However, any significant result for these variables in a regression framework implies unequal compensation of labor for equally capable employees. Additionally, labor force participation should be corrected since in principle only those more efficient minorities would actually make it into the market affecting the overall results.

Understanding whether wage gaps come from discrimination or from endowment differences is essential to design the best policies to reduce these differences. The next section provides an indication of the types of efforts made to understand these issues in selected Latin American and Caribbean countries, including Colombia.

II. REVIEW OF LITERATURE

Unequal access to education has been found as the main reason that explains race wage inequality in Latin America. Cunningham et al. (2004) analyze the available surveys in the region that include race questions and find that Afro descendents have lower levels of education, assets, and wages than their non-Afro counterparts. Additionally, they empirically test the effects of race on wages but find that most wage differentials are explained by factor endowments rather than ethnicity or race. Calderón and Marshall (2005) find similar results when addressing social exclusion in education in Latin America. They also uncover lower educational attainments for minorities and find that belonging to a minority is an explanation for

participation in the labor market. They conclude that low levels of educational attainment might be a rational response to low returns in the labor market.

In the case of Colombia, existing literature based on qualitative methodologies points towards the presence of wage differences by race or ethnicity. Arocha, et al. (2002) find that 25% of Afro-Colombians interviewed in Bogotá report discrimination in the workplace. Florez, et al. (2003) find qualitative evidence of wage differentials in the poorest neighborhoods in Cali, one of the biggest cities in Colombia. The World Bank (2005) conducted focus groups with Colombians of several ethnic characteristics and found that urban Afro - Colombians report receiving a discriminatory treatment when applying for jobs.

In general, empirical work from the economics perspective about the socio - economic conditions of minorities has been scarce due to the lack of accurate statistical information. However, these information gaps have been closed recently due to the inclusion of race questions in the Census and household surveys. This fact has elicited more micro-econometrics studies addressing Colombian minorities including those of African descent.

One of the earliest papers of this type is Portilla (2003). This paper analyzes labor market and racial discrimination in the city of Cali and calculates the determinants of participating in the formal labor market of Afro and non Afro - Colombians based on a City of Cali and World Bank perception survey. The paper finds that market conditions are different between the two groups, and that these cannot be explained due to differences in endowments suggesting racial discrimination. A more recent paper by Viáfara and Urrea (2006) analyzes social stratification for three Colombian cities with high concentration of afro-descendent population, Cali, Cartagena and Bogota, using Encuesta Nacional de Hogares (2000). They find unfavorable outcomes for the Afro - Colombian population ex-

plained by inherited inequalities from parents' education, as well as unexplained differences which they attribute to accumulated disadvantages related to race and gender, by age cohort. Finally, Bernal and Cárdenas (2005) address racial and ethnic disparities directly in the context of health outcomes. Based on LSS (2003) and other information sources such as surveys from the *Familias en Acción* cash transfer program, they find that differences in health outcomes between minority and non minority populations are significantly reduced when controlling for individual and household characteristics. The main policy implication of the paper is that policies should be aimed at reducing any inequalities in terms of socioeconomic conditions for these can help reduce differences in terms of health outcomes. Bernal and Cárdenas' (2005) results provide a base for an analysis of wage gap differentials. Their results suggest that unequal endowments of human capital amongst race occur throughout a person's lifetime, explaining wage differentials.

The empirical evidence of discrimination is thus mixed. Specifically in terms of labor markets, there seems to be consensus that endowments explain most of the differences in wages. This paper will attempt to take another look at these issues at national level using LSS (2003). Given that wages can also influence the incentives into entering job markets and that wages are essential in improving living conditions, a better understanding of its determinants, can help define appropriate public policies.

III. DESCRIPTIVE STATISTICS AND EMPIRICAL ESTIMATIONS

The purpose of this section is to describe the socio economic characteristics of Colombian Afro descendents and to determine whether or not there is a wage-gap between this group and

other race or ethnic groups in Colombia. The definition of Afro-Colombian used in this paper is based on the information set up for the country's 2003 Living Standards Survey. The LSS provides general socioeconomic and geographic statistics, and describes wage differentials for a particular sub-sample of Afro - Colombians.

Chart 1 summarizes the main differences between Afro-descendant's and Non-Afro descendant's socio - economic characteristics. In terms of numbers, 7.9% of the country's 43.7 million self-identified as Afro-descendants[2]. 51.3% of them are female, just one percentage point below the figure for non-Afro Colombians. The typical Afro-Colombian is younger than the rest of the population: more Afro- Colombians are younger than 18 compared to non-Afro Colombians. In terms of wages, this fact could imply a greater burden to household incomes and encourage members of this minority to enter the labor force earlier in order to contribute to family income. Finally, Afro - Colombians are more likely to cohabit than to marry; this could push greater female participation in the labor force as alimony rights are not always enforceable.

On average, Afro-descendents are "worse off" than other Colombians. They are more concentrated in the poorest three income deciles and are more vulnerable: 51% of Afro - Colombians lack health insurance compared to 35% of their counterparts. Afro-descendents have lower education levels: average years of schooling are 5.9 vs. 6.7 in non-Afro descendents. Finally, this minority has a harder time finding jobs: unemployment rates are 14% compared to 11% of the average population in this survey, reaching levels of 22% in places such as the Caribbean region.

2 In this paper, Afro - descendents will be those respondents who self - classify as "raizal del archipiélago", "palenquero" and "mulato or negro".

Chart 1

Descriptive Statistics. Afro and non Afro - Colombians, 2003

Description	Non Afro - Colombians	Afro - Colombians
Population	40,269,189	3,448,389
% Of. total population	92.1	7.9
% female	52.4	51.3
% younger than 18 years of age	38.8	47.1
% married	15.4	26.0
% living in cohabitation	21.7	30.3
% in the three lowest income deciles	30.8	46.4
% without health insurance	35.0	51.0
Unemployment rate	11.0	14.0
Average years of education	6.7	5.9

Source: Author's calculations based on LSS (2003).

Colombia's Afro-descendants live in regions that were colonial enclaves. As can be seen in Table 2, the Pacific, Valle del Cauca and Caribbean region jointly concentrate almost 90% of the Afro-Colombian population, with the Pacific region leading with a noticeable 40.5%. This is not a surprising result considering that during the colonial period these regions where respectively mining, sugar extractions and slave ports areas. The geographical distribution also indicates that in some regions Afro - Colombians are almost equally large as other ethnic groups, such as in the case of the Pacific region as well as of San Andres and Providencia where the "raizales del archipiélago" represent 47.1% of the island's inhabitants.

Chart 2
Population by region, Afro and non Afro - Colombians, 2003

	Non Afro - Colombians			Afro - Colombians		
Region	Number (thousands)	% total non Afro Colombians	% regional population	Number (thousands)	% total Afro Colombians	% regional population
Antioquia	5,473	13.6	97.6	136	3.9	2.4
Caribbean	8,756	21.7	92.2	741	21.5	7.8
Bogota	6,785	16.9	98.9	76	2.2	1.1
Central	5,428	13.5	99.5	29	0.8	0.5
Oriental	7,820	19.4	99.0	76	2.2	1.0
Orinoquía Amazonía	482	1.2	96.6	17	0.5	3.4
Pacific	2,055	5.1	59.5	1,397	40.5	40.5
San Andres	30	0.1	52.9	27	0.8	47.1
Valle del Cauca	3,440	8.5	78.4	950	27.5	21.6
Total	*40,269*			*3,448*		

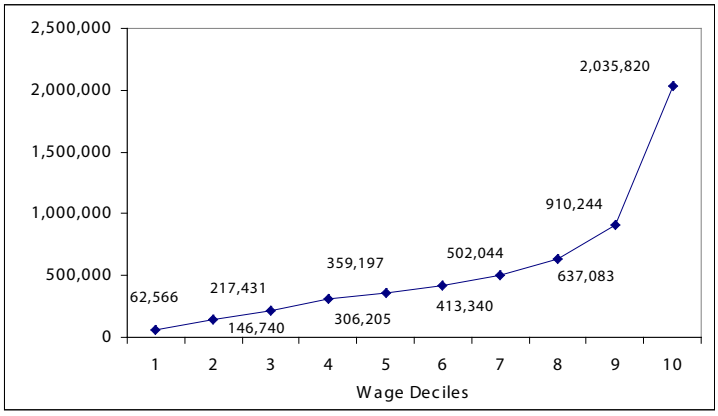
Source: Author's calculations based on LSS (2003).

The analysis above indicates some important differences between Afro and Non - Afro Colombians in terms of socio economic characteristics and geographical location. The next step is to determine whether there exists any wage differentials by race.

In order to determine potential income gaps by ethnicity target population is limited to Colombian males between the ages of 15 and 65. The reason to focus primarily in this group is twofold. First, an analysis limited to males avoids making further assumptions regarding the labor participation decisions of women. Female wages might not accurately reflect their productivity if their occupation choice is influenced by the fact that they might not be the primary income earner within the family or because they have household jobs. Second, the 15 to 65 age cohort covers the official definition

of working age group. Thus, limiting the sample to 25 to 55 year old males will limit potential measurement errors[3].

First of all, most Colombians earn much less than a minimum wage regardless of race. Graph 1 shows minimum monthly wages are reached in the 5th decile. This implies that half of the population earns less than enough labor income to satisfy their basic needs[4]. On the other hand, average wages jump between the 9th and the 10th deciles by more than 100% from $910.000 to $2.035.000. This dramatic change in slope indicates a small segment of the population with higher wages, and possibly productivity, than the rest.



Source: Author's calculations based on LSS (2003).
Note: Official minimum wage 2003= $332,000.

Graph 1. Average monthly wages by income deciles, all males of ages 15 to 65, 2003 (Colombian pesos)

3 The sample is also restricted to urban areas as defined by LSS(2003) where urban refers to any geographical location with an institutionalized local government, regardless of the size of its population.

4 Minimum wages were COP $332.000 in 2003 according to the Central Bank of Colombia.

In terms of ethnicity, Afro - Colombians earned lower wages than non-Afro Colombians. Chart 3 shows that average monthly wage for this minority was $491.994. 1,5 times the minimum wage and 11,3% lower that the average wage of non afro Colombians. Average years of education were roughly the same around 8 to 10 years. In addition, Afro - Colombians work on average 46 hours a week, 3 less hours than their counterparts. Working less hours reduces the wage gap by almost half to 6,4%. This fact highlights the importance of looking at hourly wages and not monthly wages, since the later often do not reflect the effort required in proportion to the number of hours worked.

Chart 3

Wages and Education, Afro and Non Afro male Colombians between 15 and 65 years of age, 2003

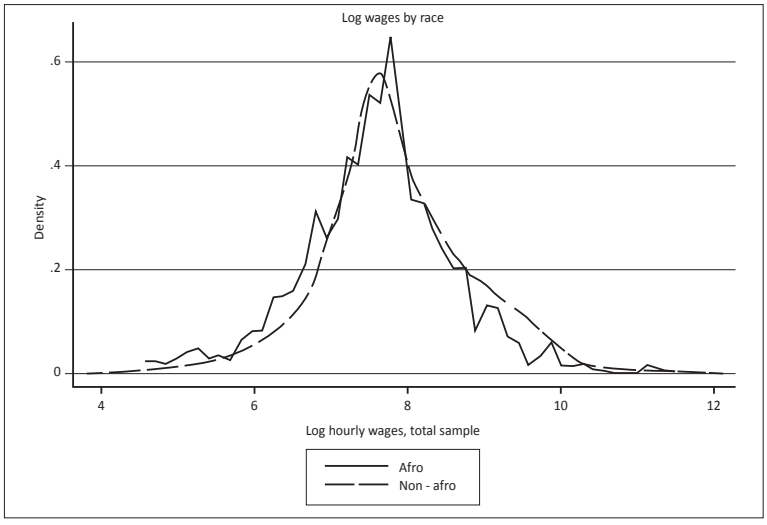
	Afro - Colombians	**Non Afro - Colombians**	**Difference Afro - Non Afro**
Monthly Wages	491,994	547,536	-11.3%
Weekly Hours Worked	46	49	-2
Hourly Wages	3,269	3,478	-6.4%
Years of Education	8.5	9.0	-0.5

Source: Author's calculations based on LSS (2003).

What explains the gap between Afro and non Afro - Colombian wages? Is it the result of different levels of education or experience? Or, is it evidence of discriminatory practices in the labor market?

To test these hypotheses, first it is necessary to determine whether the distribution of hourly wages is statistically different. Graph 2 shows the density distribution for the logarithm of hourly wages by race. Visually, not many differences are observed. If any the visual inspection indicates that the distribution of wages for Afro

Colombians might be slightly skewed to the right of that of non Afro Colombians. However, what is evident is that Afro - Colombian wages had lower standard deviations indicating greater homogeneity than the rest of the population. This could imply that Afro - Colombians are less likely to reach highest levels of incomes.



Source: Author's calculations based on LSS (2003).

Graph 2. Log hourly wages density distribution, men between 15 and 65 years of age, 2003

A more thorough test is possible by using the Kolmogorov–Smirnov test. This test performs a two-sample test to compare the distributions of values in the two data vectors X1 and X2 of length n1 and n2, respectively, representing random samples from some underlying distribution(s). The null and alternative hypothesis tested are:

H_0 = X1 and X2 are drawn from the same continuous distribution
H_1 = They are drawn from different continuous distributions

The test for the log hourly wages of Afro and non-Afro Colombians yields the following result:

. ksmirnov lhourw, by (afro)
Two-sample Kolmogorov-Smirnov test for equality of distribution functions:

Smaller group	D	P-value	Corrected
0:	0.0041	0.978	
1:	-0.0610	0.008	
Combined K-S:	0.0610	0.016	0.014

Because the P value is close to zero, we can reject the null hypothesis that Afro and non-Afro Colombian log hourly wages have the same underlying distribution.

Again, what explains these wage differences? To answer this question a standard Ordinary Least Squares (OLS) regression of the log of hourly wages as a function of levels of education and experience is estimated. Specifically, the model follows the following characteristics:

(1) $\log (w) = \beta_0 + \beta_1 \text{ afro} + e_i$
(2) $\log (w) = \beta_0 + \beta_1 \text{ afro} + \beta_2 \text{ educ} + \beta_3 \text{ exper} + \beta_4 \text{ exper}^2 + e_i$
(3) $\log (w) = \beta_0 + \beta_1 \text{ afro} + \beta_2 \text{ educ} + \beta_3 \text{ exper} + \beta_4 \text{ exper}^2 + X_1\beta_5 + e_i$
(4) $\log (w) = \beta_0 + \beta_1 \text{ afro} + \beta_2 \text{ educ} + \beta_3 \text{ exper} + \beta_4 \text{ exper}^2 + X_1\beta_5 + X_2\beta_6 \, e_i$

Where

log (w) : logarithm of hourly wages
afro: dummy for race (Afro=1, non Afro=0)
educ: years of formal education
exper: experience equal to age – years education – 6

X_1= controls (region, marital status, family size, and whether the individual works in an informal job[5])
X_2 = interactive terms of key variables with the afro dummy

Distributions by race of the main control variables of the sub sample are available in Annex chart A2. The hypothesis being tested is whether being Afro - Colombian significantly affects changes in the log of hourly wages to non Afro - Colombian. Results are presented in chart 3[6].

Chart 3
Wage determinant estimations, Afro and non Afro - Colombians, 2003 (males of ages 15 to 65)

Dependent Variable: ln wages	**(1)**	**(2)**	**(3) Model (2) with controls**	**(4) Model (3) with interactive terms**
Afro dummy	-0.084**	-0.014	0.033	0.092
	(0.034)	(0.028)	(0.030)	(0.117)
Years of Education		0.128***	0.121***	0.112***
		(0.002)	(0.002)	(0.002)
Potencial Experience		0.039***	0.030***	0.032***
		(0.002)	(0.002)	(0.002)
Potencial Experience squared		-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)
Number of observations	12,864	12,829	12,829	12,829
Adjusted R2	0.00	0.29	0.31	0.33

Source: Author's calculations based on LSS (2003).
Note: standard deviation in parentheses. * significant at 10%; ** significant at5% , *** significant at 1%. OLS estimations.

5 Informal jobs are defined as those workers who are independent, that work in their own piece of land, family workers working more than 20 hours a week, and non compensated help working more than 20 hours a week.
6 Complete results can be seen in the appendix Annex chart 3.

Belonging to an Afro-descendent minority is not a statistically significant explanation for variations in wages when controls are included. In particular, controlling by region reduces de value of the parameter significantly, a result that is not surprising given that some regions have high concentrations of Afro - descendents. However, as can be seen in Appendix A3 interactive terms of the regional and afro dummies are not significant, expect in the case of the Central region (region 3) where the interactive dummy is significant and positive. Other control variables, such as informality have the expected negative and significant results. Informal jobs are expected to have lower levels of income as incomes are more volatile and are not regulated by labor codes.

Returns to education are positive as expected. In the third model and fourth models with controls show that every additional year of education increases expected wages by 12%. This result is concordant with those obtained by researchers who find education as an important predictor of wages. It also opens the question of whether workers with the same levels of education will be treated unequally in the market thus indicating discrimination. This possibility is tested by estimating the model for sub samples of workers with similar levels of education, basically, primary, secondary and tertiary education. However, the results presented in Annex chart A4 to A6 indicate that for sub samples of workers with similar endowments of education, race is not a significant predictor of changes in hourly wages.

The results seem to support results at the regional level attributing wage differences to endowments, but are contrary to more recent papers such as Portilla (2003) and Viáfara and Urrea (2006) that do not rule out discriminatory practices. The estimation model chosen might explain part of this. OLS limits the analysis to individuals actively participating in the labor market. But this participation can in itself be affected by ethnicity and levels of

education. If a person thinks that belonging to a particular minority will make obtaining a job more difficult, then this decision might speak about the greater ability of those who actually make it into the labor force.

This problem also relates to omitted variables such as occupation that can be correlated with the level of education that people choose. If Afro-Colombians feel that they will be discriminated in certain occupations that require more education, they might choose to pursue lower levels of education which will affect the level and changes in their wages. Additionally, internal displacement has not been controlled. This is important given that Afro - Colombians have been one of the groups most affected by Colombia's civil conflict induced migration towards large urban areas. These circumstances could potentially make them accept wages that they would otherwise reject. Not accounting for this could also result in biased results.

A final source of bias is the indicator of rural and urban settlements. The current definition used in LSS (2003) includes many small towns into its definition of urban. This creates a problem since, as is indicated in World Bank (2005), rural Afro Colombians have different "preferences" which give less importance to work on their value scale. Additionally, many Afro - Colombians live in the Pacific region where mostly rural economies work and where standard labor market frameworks might not apply.

These biases however do not rule out the finding that endowment differences are a mayor explanation of wage differentials. But, what explains low levels of education? Are lower education levels of Afro Colombians due to the fact that they are poor and that poorer areas have less access and quality of education? Or is it otherwise, that Afro Colombians remain poor precisely because of low levels of education? Understanding the particular determinants of education levels and poverty is beyond the purpose of this paper. However, this relationship between poverty and race can shed light upon the

discussion of discrimination in the labor market. Although race was not found to be determinant of wages, if race is a determinant of poverty then there would be reason to support the hypothesis that discrimination happens before individuals enter the labor market.

To explore this possibility the probability of belonging to certain poverty level if an individual is from a specific ethnicity is tested. An ordered probit of an individual's income decile (as a measure of poverty) as a dependent variable can be estimated, explained by descriptive characteristics and controls such as those used in the log wage regression model. Specifically, income deciles as defined by LSS (2003), y^* are defined as:

$$y^* = X\beta + e \qquad e : N(0,1).$$

where X is a matrix of independent variables including, education, experience, race and control variables. Let $\alpha_1 < \alpha_2 < \ldots < \alpha_J$ be unknown "cut points" or "threshold parameters" that make individuals move from one income decile level to another. Cutting points are reported in Annex Table A7.

Ordered probit estimations allows to determine what these cut points are assuming specific distribution of errors, and it is possible to determine how changing X's, such as race, affects the probability of each particular outcome P(y=j|x). The probabilities of each level of income deciles, from 1 being the lowest to 10 being can be estimated by:

$$\frac{\partial P(y = 0 \mid x)}{\partial x_k} = -\beta\phi\,(\alpha_1 - x\beta)$$

$$\frac{\partial P(y = j \mid x)}{\partial x_k} = \beta_k\,[\,\phi(\alpha_{j-1} - x\beta) - \phi\,(\alpha_j - x\beta) \qquad 0 < j < J$$

$$\frac{\partial P(y = J \mid x)}{\partial x_k} = \beta_k\,\phi(\alpha_{j-1} - x\beta)$$

where α are the cutting points for different levels. The results for the Afro dummy are the following:

Chart 4
Probabilities of belonging an Income Decile if Afro - Colombian
(Ordered Probit model number 2)

Income Decile	Mean	Standard Deviation
1	-0.0108	0.012
2	0.0077	0.005
3	0.0065	0.005
4	0.0049	0.005
5	0.0033	0.006
6	0.0018	0.007
7	-0.0003	0.007
8	-0.0030	0.008
9	0.0239	0.016

Source: Author's calculations based on LSS (2003).

The chart shows that Afro - Colombian's probability to belong to a specific income decile decreases as the income level increases, compared to non-Afro Colombians. Thus, the result would confirm the correlation between poverty and belonging to a specific minority. This in turn indicates that the lack of observed explanatory power of race in the wage determinant model might be related to the type of individuals participating in the labor market rather than the inexistence of discriminatory practices.

In sum, the above analysis does not contradict previous research in the sense of explaining wage gaps in terms of endowments. But it neither rules out the possibility of discrimination at earlier stages of life that reflect on these endowments. These results should be taken with caution given the potential biases incurred in terms of the model chosen as well as the type of information from which conclusions are drawn. Afro-Colombians have lower socioeconomic

levels than the rest of the population and that these human capital differences might explain wage gaps.

CONCLUSIONS AND POLICY RECOMMENDATIONS

This paper has attempted to explain the existence of wage gaps by race. In the second section, a brief overview of theories for wage gaps was described, distinguishing discrimination theories from models with rewards to productivity in the work force. The third section provided an overview of empirical applications examples for the Latin American and Colombian case. It was highlighted that the few amounts of research stems from scarce good quality surveys. This is likely to change in the future as more and better surveys including race questions become available and more researchers continue to be interested in these issues.

The fourth section described the socio-economic characteristics of Afro Colombians based on Colombia's LSS (2003). It highlights unequal living conditions of Afro minorities compared to the rest of the population, in terms of levels of education, access to social services and participation in labor markets. In addition, hourly wages by race were calculated for males between 15 and 65 and a 6.4% gap was observed for non Afro - Colombians compared to Afro-Colombians. Additionally, wages for the latter group were found to be less variable which could imply that members of this minority have a harder time earning higher levels of income.

Determinants of wages were tested estimating standard Mincer equations using OLS. The results indicated that when education, experience, geographical location, informality and marital status are controlled, race is not a determinant of wages. Years of education and experience are the most important variables explaining wages. Additionally, some dummies were Afro - Colombians are more highly concentrated, such as Caribbean and Pacific, where negative

and significant indicating that race might be highly correlated with poverty and that this might be limiting increases in wages. This was corroborated by estimating the probabilities of belonging to certain income levels and Afro - Colombians were found to have decreasing probabilities as income levels rose.

The paper indicates a number of potential biases that might explain the difference between these results and those of other recent research papers on discrimination. The most important of these is participation in the labor market. If discriminatory practices are present, then members of this minority might not be able to enter the formal labor market. Thus, those Afro Colombians for whom the survey reports wages would be the most able and their ability might compensate the discrimination that they might otherwise face. A better understanding of labor force participation might reveal a more complete picture of labor market discrimination.

Discrimination in the labor market was not specifically found, but education gaps were identified indicating that policies should continue to improve the education levels of minorities. Special emphasis should be placed on reducing the drop out rates in order to increase this population's chances of improving their levels of income. In this sense, current strategies that target the education levels of the poorest regions in Chocó and areas with concentration of Afro Colombians should be encouraged. For adults, programs such as those targeted to displaced families should continue to be fostered in order to improve the skills that these workers bring into the market place.

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APPENDIX

Chart A1

Ocupation rates by race and gender

	Total	Afro	Female
Population › 12	32.778.018	2.420.933	17.524.184
Labor Force	20.714.433	1.615.149	8.838.011
Occupied	18.323.016	1.386.579	7.604.564
Unoccupied	2.391.417	228.570	1.233.447
Unemployment%	11,5	14,2	14,0
Ocupation rate%	56	57	43

Chart A2

Distribution by Region, Marital status, and Informality
Males reporting wages ages 15 to 65 2003

	Non Afro - Colombians	% of Non Afro Colombians	Afro Colombians	% Afro Colombians
Caribbean	1,181,475	21%	82,798	21%
Oriental	970,951	17%	13,897	3%
Central	661,584	12%	1,078	0%
Pacifica	166,991	3%	90,703	23%
Bogota	1,342,410	23%	19,278	5%
Antioquia	732,917	13%	30,874	8%
Valle Cauca	567,827	10%	156,185	39%
San Andres y Providencia	7,352	0%	5,061	1%
Orinoquia y Amazonia	83,200	1%	2,154	1%
Cohabitation	1,754,085	31%	175,236	44%
Married	1,918,158	34%	91,248	23%

Widow	37,365	1%	4,667	1%
sep/div	366,165	6%	24,935	6%
Single	1,638,934	29%	105,942	26%
Formal Worker	3,445,477	60%	235,320	59%
Informal Workers	2,269,230	40%	166,708	41%
Total	*5,714,707*		*402,028*	
Average Years Education	*9.0*		*8.5*	
Average Household (No. of persons)	*4.6*		*5.0*	

Source: Author's calculations based on LSS (2003)

Chart A3

OLS Wage Determinant Estimation, complete sample
(males 15-65)

DEPENDENT VARIABLE: LN WAGES	(1)	(2)	(3) MODEL (2) WITH CONTROLS	(4) MODEL (3) WITH INTERACTIVE TERMS
Afro	-0.084**	-0.014	0.033	0.092
	(0.034)	(0.028)	(0.030)	(0.117)
Years of Education		0.128***	0.121***	0.112***
		(0.002)	(0.002)	(0.002)
Potencial Experience		0.039***	0.030***	0.032***
		(0.002)	(0.002)	(0.002)
Potencial Experience Squared		-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)
reg1: Caribbean			-0.226***	-0.136***
			(0.021)	(0.022)
reg2: Oriental			-0.083***	-0.084***
			(0.023)	(0.023)
reg3: Central			-0.191***	-0.194***

Continua…

			(0.026)	(0.026)
reg5: Pacifica			-0.297***	-0.286***
			(0.038)	(0.044)
reg6: Antioquia			-0.053**	-0.077***
			(0.025)	(0.025)
reg7: Valle Cauca			-0.039	-0.035
			(0.026)	(0.027)
reg8: San Andres y Providencia			0.085	0.034
			(0.155)	(0.197)
reg9: Orinoquia y Amazonia			-0.011	-0.001
			(0.061)	(0.060)
cohabitation			0.074***	0.070***
			(0.020)	(0.020)
married			0.230***	0.222***
			(0.022)	(0.021)
widow			-0.114	-0.064
			(0.086)	(0.085)
Separated/Divorced			0.004	-0.012
			(0.032)	(0.032)
afroreg_1				-0.086
				(0.131)
afroreg_2				-0.206
				(0.185)
afroreg_3				1.962***
				(0.527)
afroreg_4				0.066
				(0.135)
afroreg_6				0.289*
				(0.152)
afroreg_7				-0.129
				(0.126)
afroreg_8				0.074
				(0.329)
afro_informal				-0.054***

Continua…

				(0.056)
informal				-0.295***
				(0.015)
Number of Persons in Household				-0.028***
				(0.003)
Constant	7.670***	5.987***	6.170***	6.449***
	(0.009)	(0.029)	(0.034)	(0.038)
Number of observations	12,864	12,829	12,829	12,829
Adjusted R2	0.00	0.29	0.31	0.33

Source: Author's calculations based on LSS (2003)

Note: standard deviation in parentheses. * significant at 10%; ** significant at 5% , *** significant at 1%. OLS estimations.

Chart A4

OLS Wage Determinant Estimation, males 15-65 with primary school

Dependent Variable: ln wages	(1)	(2)	(3) Model (2) with controls	(4) Model (3) with interactive terms
Afro	-0.141**	-0.124	-0.056	0.174
	(0.056)	(0.055)	(0.058)	(0.250)
Potencial Experience		0.050***	0.033***	0.035***
		(0.005)	(0.005)	(0.005)
Potencial Experience Squared		-0.001***	-0.001***	-0.000***
		(0.000)	(0.000)	(0.000)
reg1: Caribbean			-0.278***	-0.163***
			(0.048)	(0.049)
reg2: Oriental			0.022***	0.021***
			(0.047)	(0.047)
reg3: Central			-0.297***	-0.286***
			(0.050)	(0.049)
reg5: Pacifica			-0.392***	-0.344***
			(0.071)	(0.078)
reg6: Antioquia			-0.143***	-0.173***

Continua…

			(0.050)	(0.050)
reg7: Valle Cauca			-0.051**	-0.002***
			(0.057)	(0.060)
reg8: San Andres y Providencia			0.237	0.132
			(0.396)	(0.481)
reg9: Orinoquia y Amazonia			-0.132	-0.110
			(0.116)	(0.114)
cohabitation			0.310	0.324
			(0.042)	(0.041)
married			0.449***	0.456***
			(0.045)	(0.044)
widow			0.276***	0.314***
			(0.134)	(0.137)
Separated/Divorced			0.199	0.207
			(0.066)	(0.065)
afroreg_1				-0.307
				(0.278)
afroreg_2				0.006
				(0.512)
afroreg_3				-
afroreg_4				-0.196***
				(0.283)
afroreg_6				0.390
				(0.326)
afroreg_7				-0.455*
				(0.268)
afroreg_8				0.115
				(0.848)
afroreg_9				-
afro_informal				0.044
				(0.108)
informal				-0.314***
				(0.029)
Number of Persons in Household				-0.017***

Continua…

				(0.006)
Constant	7.241***	6.468***	6.618***	6.785***
	(0.015)	(0.073)	(0.080)	(0.083)
Number of observations	3111	3111	3111	3111
Adjusted R2	0.00	0.04	0.10	0.13

Source: Author's calculations based on LSS (2003)

Note: standard deviation in parentheses. * significant at 10%; ** significant at 5% , *** significant at 1%. OLS estimations.

Chart A5

OLS Wage Determinant Estimation, males 15-65 with secondary school

Dependent Variable: ln wages	**(1)**	**(2)**	**(3) Model (2) with controls**	**(4) Model (3) with interactive terms**
Afro	0.010**	0.008	0.028	-0.042
	(0.042)	(0.041)	(0.043)	(0.183)
Potencial Experience		0.042***	0.031***	0.033***
		(0.003)	(0.003)	(0.003)
Potencial Experience Squared		-0.001***	-0.001***	-0.001***
		(0.000)	(0.000)	(0.000)
reg1: Caribbean			-0.251***	-0.132***
			(0.030)	(0.031)
reg2: Oriental			-0.093***	-0.094***
			(0.033)	(0.033)
reg3: Central			-0.238***	-0.225***
			(0.038)	(0.038)
reg5: Pacifica			-0.246***	-0.251***
			(0.057)	(0.066)
reg6: Antioquia			-0.018***	-0.049***
			(0.036)	(0.036)
reg7: Valle Cauca			-0.000**	-0.015***
			(0.037)	(0.038)
reg8: San Andres y Providencia			0.114	0.051

Continua…

			(0.196)	(0.245)
reg9: Orinoquia y Amazonia			0.073	0.106
			(0.092)	(0.090)
cohabitation			0.064	0.042
			(0.028)	(0.028)
married			0.334***	0.313***
			(0.032)	(0.031)
widow			-0.079***	-0.041***
			(0.144)	(0.140)
Separated/Divorced			0.011	-0.029
			(0.047)	(0.047)
afroreg_1				-0.103
				(0.204)
afroreg_2				0.012
				(0.265)
afroreg_3				-
afroreg_4				0.227***
				(0.208)
afroreg_6				0.476
				(0.221)
afroreg_7				0.071*
				(0.194)
afroreg_8				0.206
				(0.427)
afroreg_9				-
afro_informal				-0.018
				(0.081)
informal				-0.301***
				(0.021)
Number of Persons in Household				-0.039***
				(0.005)
Constant	7.576***	7.156***	7.278***	7.528***
	(0.011)	(0.028)	(0.033)	(0.040)
Number of observations	5962	5934	5934	5934
Adjusted R2	0.00	0.05	0.09	0.13

Source: Author's calculations based on LSS (2003)

Note: standard deviation in parentheses. * significant at 10%; ** significant at 5% , *** significant at 1%. OLS estimations.

Chart A6

OLS Wage Determinant Estimation, males 15-65
with college education

Dependent Variable: ln wages	(1)	(2)	(3) Model (2) with controls	(4) Model (3) with interactive terms
Afro	-0.010**	-0.034	0.021	0.135
	(0.067)	(0.065)	(0.068)	(0.200)
Potencial Experience		0.035***	0.036***	0.036***
		(0.005)	(0.006)	(0.006)
Potencial Experience Squared		-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)
reg1: Caribbean			-0.113***	-0.064***
			(0.043)	(0.044)
reg2: Oriental			-0.308***	-0.289***
			(0.048)	(0.048)
reg3: Central			0.088***	0.049***
			(0.063)	(0.062)
reg5: Pacifica			-0.149***	-0.191***
			(0.091)	(0.106)
reg6: Antioquia			-0.099***	-0.060***
			(0.053)	(0.053)
reg7: Valle Cauca			-0.113**	-0.101***
			(0.050)	(0.051)
reg8: San Andres y Providencia			0.178	0.103
			(0.352)	(0.474)
reg9: Orinoquia y Amazonia			-0.056	-0.112
			(0.123)	(0.121)
cohabitation			-0.137	-0.132
			(0.048)	(0.047)
married			0.104***	0.111***
			(0.044)	(0.043)
widow			-0.120***	-0.153***
			(0.228)	(0.223)

Continua…

Separated/Divorced			-0.135	-0.172
			(0.063)	(0.062)
afroreg_1				-0.016
				(0.236)
afroreg_2				-0.093
				(0.328)
afroreg_3				1.358
				(0.548)
afroreg_4				0.056***
				(0.259)
afroreg_6				-0.576
				(0.323)
afroreg_7				-0.206*
				(0.228)
afroreg_8				-0.008
				(0.711)
afroreg_9				-
afro_informal				-0.116
				(0.168)
informal				-0.376***
				(0.037)
Number of Persons in Household				-0.059***
				(0.009)
Constant	8.479***	8.073***	8.153***	8.448***
	(0.016)	(0.042)	(0.045)	(0.056)
Number of observations	3791	3784	3784	3784
Adjusted R2	0.00	0.05	0.07	0.11

Source: Author's calculations based on LSS (2003)

Note: standard deviation in parentheses. * significant at 10%; ** significant at 5% , *** significant at 1%. OLS estimations.

Chart A7
Ordered Probit for Income Deciles

Dependent Variable: income decile	Ordered Probit (1)	Ordered Probit (2)
afro	-0.375***	0.119***
	(0.001)	(0.005)
years of education		0.124***
		(0.000)
potexp		0.025***
		(0.000)
potexpsq		-0.000***
		(0.000)
Caribbean		-0.555***
		(0.001)
Oriental		-0.416***
		(0.001)
Central		-0.627***
		(0.001)
Pacifica		-0.731***
		(0.001)
Antioquia		-0.260***
		(0.023)
cohabitation		-0.348***
		(0.001)
married		-0.131***
		(0.001)
widow		-0.148***
		(0.001)
sep/div		-0.140***
		(0.001)
Agri		-0.731***
		(0.003)
manuf		-0.302***
		(0.002)
afroreg_1		-0.245***
		(0.005)
afroreg_2		0.586***

Continua…

		(0.007)
afroreg_3		-0.021**
		(0.009)
afroreg_4		-0.009*
		(0.005)
afro_informal		-0.000
		(0.002)
informal		-0.261***
		(0.001)
enrolled		0.311***
Total people at home		(0.001)
Total de personas del hogar		-0.135***
		(0.000)
/cut1	-1.301	-1.657
/cut2	-0.833	-1.119
/cut3	-0.502	-0.706
/cut4	-0.224	-0.361
/cut5	0.023	-0.041
/cut6	0.272	0.286
/cut7	0.538	0.636
/cut8	0.837	1.043
/cut9	1.257	1.613
Log Likelihood	-73425889	-51960434
note: .01 - ***; .05 - **; .1 - *		

Source: Author's calculations based on LSS (2003)

Note: standard deviation in parentheses. * significant at 10%; ** significant at 5% , *** significant at 1%.