Urban regeneration and spatial discrimination: the case of Rio's *favelas*

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Introduction

The Rio de Janeiro city's history in the last century cannot be written without considering the *favelas* growth. The urban modernization implemented in the city in the beginning of the century removed "cortiços" residents from the center without a habitation policy oriented to the poorest people. The constraints of an alternative distant habitation, mainly due to transportation costs, lead the population to occupy the vacant hillside shantytown, originating the *favela* phenomenon.

The increasing migration flux from the poorest and agricultural regions of Brazil to the more urban and industrial centers, like Rio, accelerated the *favelas* growth in the 1940's and 1950's. There were some government initiatives to remove part of the population to "proletarian parks", but the public authorities "closed their eyes" to the *favelas* growth. Yet, the functionality of cheap labor to the growing industry and the electoral objectives, lead the consolidation of the cycle of "poverty, rural-urban migration and favelization".

Although the relative size of Rio's economy contrasted to São Paulo decreased along the second half of the last century, the transference of the capital to Brasilia, or the way it was done, contributed even more to the loss of economic dynamism, culminating in a deeper crisis in the 1980's. It is important to notice that this decade registered for the first time in the history a negative net migration to Rio and the *favelas* continued to increase.

Despite numerous attempts to eradicate these handbuilt suburbs, housing the poorest of Rio's residents, they have multiplied over the past century. Yet, the growth rates of population increased faster in *favelas* than in non-favela areas over the 1980's and 1990's. Today, there are around 600 *favelas* all along the city of Rio de Janeiro with more than one million residents in 2000. Approximately 20% of Rio de Janeiro's residents are currently living in *favelas* with infrastructure deficiencies that reduce quality of life and economic productivity while increasing the vulnerability of the poor.

The low fertility rates and the diminishing migration to Rio de Janeiro is changing the population composition to an older profile, weakening the relationship between migration, poverty and *favelization*. The literature is providing with empirical evidences that the characterization of *favela* as an urban space of social exclusion cannot be supported anymore. Yet, there are great heterogeneity between and intra *favelas* residents due to differences related to the history, economic dynamics, local, public policy interventions, cultural expressions, violence, among other aspects.

However, these informal housing settlements lack many of the basic amenities of urban life. Access to good sanitation and utilities such as street lighting and

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telecommunication services are commonly cited as among these problems. Less well understood are the problems associated with a lack of title to property as life in *favelas* comes, in great part of the cases, without an address.

Since 1994 a major programme called *Favela-Bairro* has been underway to transform the *favelas* with infrastructure developments, like the installation of street lighting, sanitation and water supplies, together with improved access to some streets. Parks are being built along the edges of a number of *favelas*, in the hope that these will help draw in outsiders to mix with *favelas* residents. It has also some active labor market measures including, training, job creation and income generation components.

Despite the innovative nature of the programme, the expenditures realized, which are large in terms of the per capita incomes of favela residents, may do little to improve the labor market position of the poor. Spatial discrimination of particular ethnic, cultural or economic groups is a pervasive phenomenon in modern societies. A growing body of literature has focused its lenses on the measurement of the social impacts of more or less structured spatial discriminatory configurations in terms of economic performance, standards of consumption, reproduction of patterns of inequality and welfare in multidimensional ways (including health, education, sanitation, social violence etc.), personal achievement, creation and reproduction of "cultural fundamentalisms" and so on.

Unlike other forms of social intolerance (like racism or xenophobia) spatial discrimination denotes identifiable boundaries, a geography of the distribution of social and economic resources among members of a community that segregates and, sometimes, stigmatizes particular groups, the paroxysm of which has probably been, until very recently, the State sponsored Apartheid in South Africa, and the Ghettos in the United States. Spatially discriminated communities tend to be spatially segregated as well, in terms of the possible access to private and public resources and services.

This paper aims at the analysis of the potential extent of more pernicious labour market process of constrained opportunities and discrimination against *favelas* residents – processes that relates to the residential location of workers living in the *favelas*. We make use of the 2000 Census Demographic and a collected survey (Socioeconomic Research of Low Income Communities) information on the employment and incomes of *favelas* residents, comparing them with similarly workers living in and around Rio. The conclusion we draw from this study is that much work remains to be done both to break down stereotypes held by employers and to provide positive incentives to employ *favelas* residents in jobs which maximize their potential.

1. Empirical Preliminaries

1.1. Data base

Since 1950 the Demographic Censuses incorporate a variable that allows for the identification of "subnormal urban gatherings" in Brazil. In the city of Rio de Janeiro, this classification denotes mainly *favelas*, due to the specific pattern of urbanization and dispersion of the population throughout the geography of the city.

The concept of "subnormal" is constructed in a negative key and refers both to the legal and physical conditions of the household, which is defined as a dwelling in shacks or sheds, constructed *without* official permission in third parties' or unknown owners' land, *absent* of infrastructure and/or public services, among other *non-existing* features[4]. The concept also denotes *favelas* as loci of poverty, defined basically as the *absence* or *lack* of economic and material resources, a perception that has been revised and questioned in more recent literature due to its simplification of a complex phenomenon.

For instance, Lago (2000) suggests that the reduction of the poor migrants' contingent from Northeast Region of Brazil to Rio de Janeiro in the last two decades weakened the historical relationship between migration, poverty and "favelization". Valladares and Preteceilli (2000) argue that the association of favela as an urban space of social exclusion is not supported by facts and typologies, mostly because there is no specific characteristic to favela that can be distinguished from the urban tissue.[5]

Why, then, study discrimination in the labor market against workers living in Rio's *favelas*? There is empirical evidence that deserves a deeper study. The average income of the *favelas* residents is lower than for the average population in Rio, even after controlling by individual characteristics like age and schooling. Moreover, the employment rate is lower and the average week hours worked is higher for the residents in the *favelas* than for the non-residents.

This result has been found with the information from two different databases. One is the Census 2000, adopting the definition of *favelas* as "subnormal urban gatherings" and non-*favelas* or asphalt as "normal gatherings". The other one is the Socioeconomic Research in Low Income Communities (PCBR) elaborated by the SCIENCE/IBGE between 1998 and 2000 with the sponsorship from the Municipal Office of the Secretary of Labor.[6] To contrast non-favela with this last database it was selected the information from the Monthly Employment Research (PME) of IBGE for the Metropolitan Region of Rio de Janeiro in the corresponding months and years of PCBR.

For instance, figures 1 and 2 show that the employment rate and the average hourly income by age group for workers living in *favelas* using the Census or PCBR is lower than for those not living in Rio's *favelas*. It is important to notice the same pattern for both databases, which adopt different criteria to select the people living in favela. Furthermore, other characteristics like week hours of work and average level of schooling by age groups seem to have very similar patterns when the information of the Census is contrasted with the one of PCBR.

[4] This is how the Census of 1950 defined favelas. See Pino (1997: 38).
[5] See also Silva (2000) and Souto (2001).
[6] It has been interviewed a sample of residents in 51 favelas of the city of Rio de Janeiro benefit from the Favela-Bairro program. Note that it is a very different way to select favela residents than in the Census. T

Figure 1

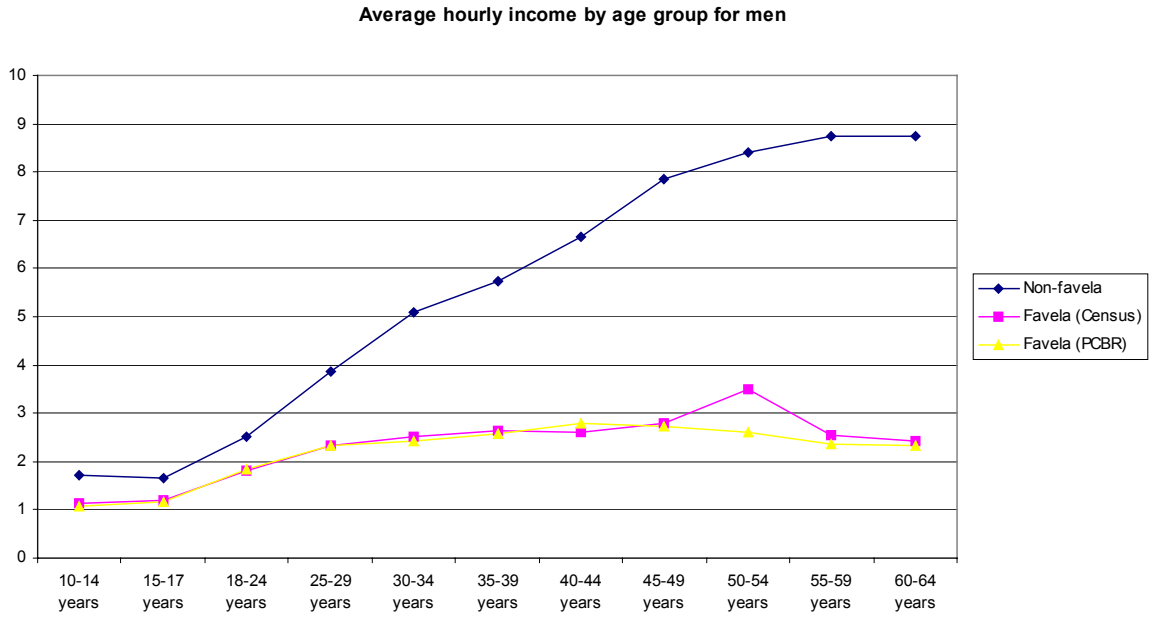
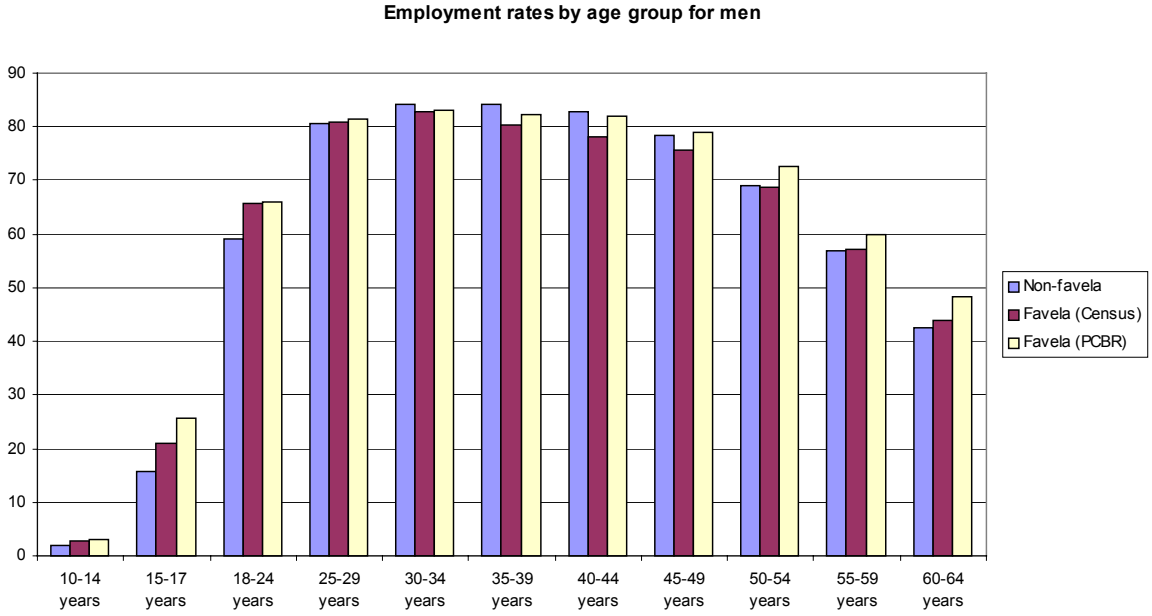


Figure 2



These results suggest that the "subnormal urban gatherings" represent good proxies to select *favelas*, so we decided to analyze empirically the discrimination in the labor market against workers living in *favelas* with the Census 2000, since it permits a wide possibility of comparison temporally and spatially.

1.2. Universe of analysis

The population living in Rio de Janeiro's state in 2000 is 14,3 million, which represents 8% of total Brazilian population. We restrict the universe of analysis in two ways. First, we considered only people living in the capital of the Rio's state, which represents 40% of the residents in the State of Rio de Janeiro. This restriction is mainly due to the overrepresentation of the *favelas* in the city. As it could be seen in table 1, with the Census classification of "subnormal urban gatherings", 80% of the *favelas* residents are in the Rio's city capital.

Table 1
Population composition in the Rio de Janeiro's state
by favela and non-favela

	City of Rio	*Other cities of Rio*	**State of Rio**
Non-favela	4.699.949	8.210.512	12.910.461
Favela	1.094.922	292.671	1.387.593
Total	5.794.871	8.503.183	14.298.054

Source: Census 2000.

Second, to the analysis of earning differences, we select workers occupied in the labor market with positive income. As can be seen in table 2, these restrictions generate a sample of approximately 223.000 observations, which represents 40% of the residents in the City of Rio de Janeiro.

Table 2
Filters applied to define the universe of analysis

	Non-favela	*Favela*	*Total*
Rio's State	915.886	586.486	1.502.372
Filters			
City of Rio	473.156	113.330	586.486
Occupied	182.623	40.451	223.074

Source: Census 2000.

Before the analysis of labor market conditions for workers living in *favelas*, the next section presents an analysis of some demographic characteristics of the residents in *favelas* contrasting to non-favela residents in the city of Rio de Janeiro.

2. Characteristics of residents in *favelas*

Table 3 presents some characteristics of the residents in *favelas* and non-*favelas* of Rio de Janeiro. The information on household position reveals a higher participation of son in *favelas* contrasting with non-*favelas*, which is coherent with a younger profile of the residents in *favelas*. For instance, while the children with less than 17 years old represent 36% of the population living in *favelas*, this percentage decreases to 26% in non-favela. Moreover, the participation of the older age groups with more than 60 years old is higher in *favelas* than in non-*favelas*. These over-representations of the younger and older groups and sons in *favelas* suggest a higher dependency rate in the *favelas* of Rio de Janeiro.

Table 3
Composition of residents in favela and non-favela by household position, gender, race and age group in Rio de Janeiro

	Favela	*Non-favela*	*Rio de Janeiro*
Household position			
Head	28,0	32,0	31,2
Spouser	18,2	19,5	19,2
Son	41,8	36,7	37,7
Other	12,0	11,9	11,9
Race			
Black	58,6	36,5	40,6
Non-black	41,4	63,5	59,4
Gender			
Female	51,4	53,5	53,1
Male	48,6	46,5	46,9
Age groups			
0 a 6	15,6	9,6	10,8
7 a 10	7,7	5,5	5,9
11 a 14	7,3	5,9	6,1
15 a 17	5,8	4,7	4,9
18 a 24	14,3	12,0	12,5
25 a 29	9,1	7,7	8,0
30 a 39	15,9	15,3	15,4
40 a 49	11,6	14,6	14,0
50 a 59	6,6	10,3	9,6
60 a 64	2,2	4,0	3,7
65 e mais	4,0	10,3	9,1

Source: Table constructed by IETS based on Census 2000.

The prevalence of black people in *favelas* and white in non-*favelas* is well marked, i.e., almost 60% of the residents in *favelas* are black while 63% of the residents in non-*favelas* are non-black. In other words, there is almost an inverse composition by race considering the population living in *favelas* and non-*favelas*. The last analysis in table 1 is the population composition by gender, which shows a higher male participation in *favelas*.

There is a huge literature on the role of educational deficit to explain income inequality and poverty in Brazil.[7] The average years of schooling is around six and is very low even when contrasted to other Latin American countries. The low level of schooling in Brazil from an international perspective is even worst because the poorer the family the lower schooling is. Therefore, since the probability of being poor is strongly determined

[7] A review of this literature can be viewed in Menezes-Filho (2001).

by the educational level, there exists a process of intergenerational transmission of poverty. [8]

Although the population of Rio de Janeiro has the highest average years of schooling, there is a large gap in terms of educational performance between residents in *favelas* and non-*favelas*, as can be seen in table 4. The adults' illiteracy rate in Rio's *favelas* (10%) is more than three times greater than in non-*favelas* (3%). The population with less than 8 years of schooling represents 82% of the favelas residents and 46% between non-favela residents. On the top of the educational structure only 2% of the *favelas* residents go to the university, while this proportion increases to 25% to the other part of the city in Rio.

Table 4
Educational characteristics of residents in *favelas* and non-*favelas* of Rio de Janeiro

	Favela	*Non-favela*	*Rio de Janeiro*
Adults Schooling			
Illiterate rate (more than 15 years)	9,8	2,8	4,0
Average Schooling (more than 25 years)	5,2	9,1	8,5
Schooling groups (more than 25 years)			
Illiterate	12,5	3,8	5,1
1 to 3 years of schooling	18,7	7,4	9,2
4 years of schooling	20,6	14,1	15,1
5 to 7 years of schooling	17,8	8,5	9,9
8 years of schooling	13,0	12,6	12,6
9 and 10 years of schooling	4,6	5,1	5,0
11 years of schooling	10,6	24,0	21,9
More than 12 years of schooling	2,2	24,5	21,0
Child Education			
Illiteracy rate (10 to 14 years old)	3,2	1,3	1,8
School frequency (7 to 14 years old)	94,3	97,6	96,8
Proportion with more than 2 years of schooling gap (10 to 14 years)	19,7	9,8	12,1
Average schooling gap (10 to 14 years)	1,4	0,8	1,0

Source: Table constructed by IETS based on Census 2000.

The differences on children educational performance continue to be large between residents in favela and non-favela but in a lower degree. The illiteracy rate for children living in *favelas* is two times greater than the one for those not living in *favelas* and 94% of the children are in the school. These are good indications that the educational inequality is decreasing among generations. However, the child's educational performance for *favelas* residents continues to be significantly lower. For instance, 20% of the children with 10 to 14 years old have more than two years of schooling gap while this proportion in non-favela is 10%. Moreover, the schooling gap (1,4 years of schooling) is almost two times greater contrasting to those not living in *favelas* (0,8 year of schooling).

[8] Barros et all (2001).

Table 5
Household size and income composition

	Favela	*Non-favela*	*Rio de Janeiro*
Average number of people living in the household	3,6	3,1	3,2
Income composition			
Labor income	81,2	68,4	69,1
Auxiliaries income (pensions, unemployment insurance etc)	15,2	25,9	25,3
Other income	3,6	5,7	5,6

Source: Table constructed by IETS based on Census 2000.

These disadvantages in terms of educational performance and its intergenerational transmission is even more perverse when we take into account the fact that more than 80% of the income for the residents in *favelas* are from the labor market (table 5). This percentage decreases do 68% for non-*favelas* residents, which means that other sources like unemployment insurance, pensions etc benefit relatively more the non-*favelas* residents.[9]

3. Economic situation of *favelas* residents

As we would expect from the greater importance of labor earnings in total income for *favelas* residents, table 6 shows that the participation rate is higher for them. Yet, the participation rate is always higher for the *favelas* residents considering household condition, gender and schooling level, but not by age group. The youngest and the oldest groups present higher participation rates contrasted to those not living in *favelas*. On the one side, it means for the youngest groups that they enter earlier in the labor market, which have consequences on the educational performance with implications in the income over the productive life cycle. On the other side, the lower perspective of rising income over the life cycle and the ineffective social pension system have impacts on the choice of a later leaving of the labor market.

The unemployment rate for the workers living in *favelas* is 20%, which is considerably higher than for those not resident in favela (15%). And this can be seen when it is analyzed by household condition, gender, age group and schooling level. It is a strong result to sign some discrimination effect with respect to employ people living in *favelas*, with the concerned fact that the highest difference is for the household head unemployment rate.

[9] Ferreira e Barros (1999) have empirical evidence that the proportion of other income in total income of the poor is lower than for non-poor population in Brazil.

Table 6
Labor market characteristics (more than 15 years old)

	Favela	*Non-favela*	*Rio de Janeiro*
Participation rate	66,4	60,2	61,3
Unemployment rate	19,7	15,2	16,0
Type of employment			
Formal employee	52,0	47,3	48,1
Informal employee	26,7	25,1	25,4
Self-employed	19,9	21,8	21,5
Employer	0,6	4,5	3,8
Non-income	0,7	1,3	1,2
Average week hours work	45	42	43
Average income	482	1.416	1.251

Source: Table constructed by IETS based on Census 2000.

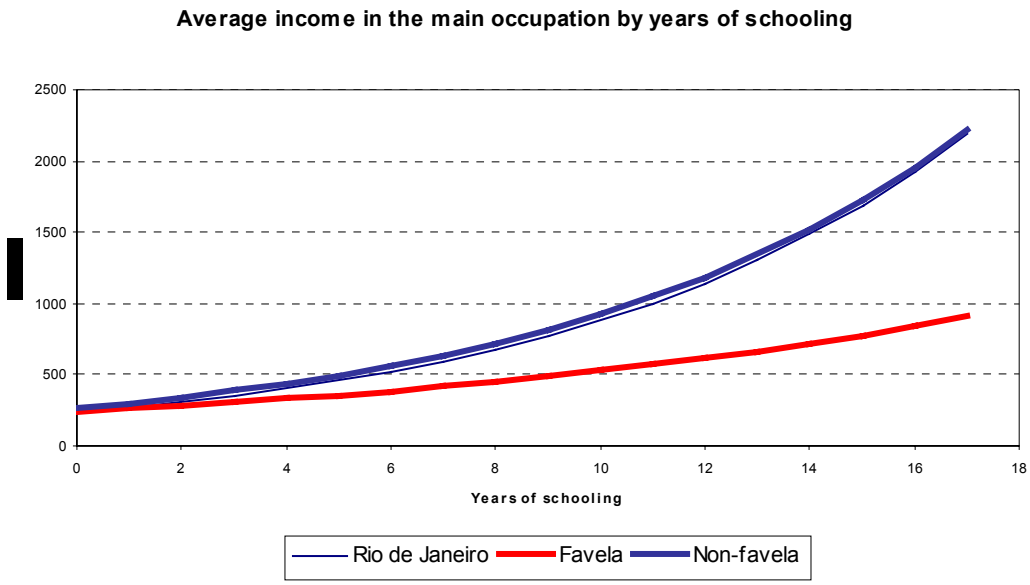
The low-income life cycle whilst the higher difficulties to find a job could explain, at least in part, the "dream" with a formal labor contract, which is seemed as a guarantee of a higher degree of job stability.[10] In fact, table 6 shows that the proportion of formal employees is higher for *favelas* residents (52%) contrasting to non-residents (47%), but also the informal employee (27%). In other words, almost 80% of the residents in *favelas* are employees.

The counterpart of the composition by type of employment is the greater participation of self-employed and employer for the workers living outside *favelas*. As can be seen in table 6, the proportion of employers not living in *favelas* is more than seven times greater than for the *favelas* residents. The decision or the chance to be an entrepreneur is based upon the capital disposable, both human and physical, for the business. The educational and training disadvantages together with the credit restrictions to people with low income is in the root of the problem on job and income opportunities and poverty in Rio. It is important to notice, however, that almost 20% of the workers residents in *favelas* are occupied as self-employed, which means most of the time a stronger income variation from selling low quality services or products.

Finally, the *favelas* residents work, in average, more hours per week (45) than those not living in *favelas* (42). Nevertheless, the mean income for the workers not living in *favelas* (R$1.400) is three times greater than for the *favelas* residents (R$480). Even after controlling by year of schooling the income gap between workers living or not living in *favelas* persists. Looking at the figure 3 it is clear that the income gap increases significantly with schooling. [11]

[10] More details on that can be seen in Rezende e Burgos (1997).
[11] This is the same when we considered the hourly income.

Figure 3



It is interesting to notice that until four years of schooling (the fundamental or basic schooling) there is no significant income difference between workers living or not living in *favelas*. For instance: the income difference is 33% for workers with four years of schooling, 60% with eight years of schooling and 84% for those with eleven years of schooling. As schooling is the main isolated variable to explain income differences, these results lead the suspicion on the existence of some kind of discrimination against people living in Rio's *favelas*.

However, the lower income of workers living in *favelas* even after controlling by years of schooling may reflect demographic differences – like the higher participation of young people – and/or the black people over-representation, but not discrimination against *favelas* residents. In this sense, the next section presents a more appropriated empirical analysis to evaluate if there are signs of earning differences due to living in *favelas*.

4. Earning differences

Discrimination in the labor market can be defined as the situation when equally productive workers receive different earnings due to demographic or innate characteristic, like gender or race. There are two prominent ways of discrimination. The first way occurs when the employers pay lower earnings, say, for women than for men, although they have the same schooling and experience, work on equal conditions and do the same job. This is called earning discrimination. The second way arises when the productive potential and the skills, say again, for women are oriented to a limited range of occupations with lower earnings and/or lower degree of responsibility or decision making, but not for men. This last type of discrimination has been called professional segregation.

If there exists earning differences between workers equally productive living or not living in *favelas*, should we call that discrimination? On the one side, live in or outside *favelas* cannot be considered as an innate characteristic of the individuals, but maybe a demographic phenomenon as it is associated to decisions related to the local of the residence. On the other side, it is well characterized in the literature the growth habitation in *favelas* as a more complex socioeconomic phenomenon tightly connected to the migration flows, specially from Northeast, to a modern city with a declining economy and without an habitation policy to define and to guarantee property rights to the poor. Therefore, at least in the initial stages of growth, the *favelas* was an alternative of residence to the poor, so it has concentrated lower skilled workers occupied mainly in manual jobs. In this sense the earning differences between workers residents or not in *favelas* may be well designed as a professional or spatial segregation.

We will not going to distinguish these two kinds of discrimination in the earning equation to measure the "favela-cost". In other words, if there is some negative effect on the earnings of workers residents in *favelas* it will not be possible to distinguish if that is due to discriminatory attitude of the employers, clients and/or other employees or to the over-representation of lower skilled occupations.

4.1. Earning equation

When we start to estimate the "favela-cost" in the log hourly earning regression with several variables related to individual characteristics, the negative coefficient suggesting the existence of "favela-cost" has not a trivial interpretation. At first, it seems to have an easy reading that, even after controlling by schooling, age, gender, race etc, the workers residents in *favelas* receive lower earnings. But is it true that, for instance, there is a higher participation of residents in *favelas* in locals distant from the richest zone of the city increasing the labor costs with the transport payments? Is this "favela-cost" or "distance-cost" from the dynamic economic center?

To clarify the interpretation of the coefficient we divided the city of Rio de Janeiro in six areas by geographic proximity[12], which is clearly related to economic dynamics, although the high disparities in the socioeconomic development indicators inside the areas. As we would expect, south zone has the highest average earnings for workers residents in *favelas* and non-favela and the highest earning difference between then too. It is important to notice that there are no significant differences in the average earnings for residents in *favelas* contrasting the other areas. The earnings of non-favela workers can better distinguish the economic difference between areas.

[12] Barros (2000) defined this area division in the analysis of the Human Development Report for the city of Rio de Janeiro.

Table 7
Average earnings (R$) and population composition by area of residence

Area of residence	*Favela*	*Non-favela*	*Total*	*Dif(%)*
Average earnings				
1. South zone	437	2.476	2.173	566,6
2. North zone	361	1.284	1.179	355,7
3. Near suburb	382	880	694	230,4
4. Distant suburb	363	728	655	200,6
5. Jacarepaguá	391	896	806	229,2
6. West zone	368	564	542	153,3
Population composition				
1. South zone	2,4	13,8	16,2	464,7
2. North zone	1,9	14,9	16,8	674,7
3. Near suburb	5,3	8,8	14,0	65,9
4. Distant suburb	3,1	14,6	17,7	364,8
5. Jacarepaguá	2,6	11,9	14,4	359,3
6. West zone	2,3	18,4	20,7	698,0

Source. Census 2000.

Moreover, still in table 7, there are higher proportions of workers residents in *favelas* in near and distant suburbs. The over-representation of *favelas* in near suburb is due the presence of two complexes of *favelas*, *Complexo do Alemão* and *Complexo da Maré*, and other huge favela called *Jacarezinho*. The west zone is the poor one but has the lowest participation of *favelas* residents.

Again, the term to measure the "favela-cost", even after controlling by area of residence, is not easy, mainly because the composition effect. Therefore, the "favela-cost" will be estimated by area of residence, which has a more clear interpretation: Is there any earning difference between residents and non-residents in *favelas* considering the same geographic are in the city of Rio de Janeiro after controlling by individual characteristics?

Formally, let the following equation represent the interactions between the log hourly earnings, w, and a set of characteristics for individual i:

$$\text{Ln}\,(w_i) = \alpha + \beta\, X_i + u_i$$

where β is a vector of coefficients and X is the vector of independent variables including the following dummies:

a) Gender;
b) Race: black and non-black[13];
c) Physical disability;
d) Illiterate;
e) Youngest child with less than four years old;
f) Years of schooling;
g) Age group of five years for persons with more than 10 years old;
h) Area (without favela) and favela area.

[13] In Brazil there is a question in the Census about the persons' color. The persons who answer that they are white or "yellow" represent the non-black group. Those who declared black or "brown" are in the black group. This is a very common classification in the literature.

Table 8 calls for several interesting remarks. First, racial discrimination coefficient is significant and negative for black and "pardo". For women, the earning difference with respect to men is stronger and significant. Have some physical disability is associated to lower earnings. Workers who do not know how to read or write also have earning disadvantages. But, in some sense surprisingly, women with the youngest child with less than four years old have, in average, positive effect on earnings contrasting to those who do not have.

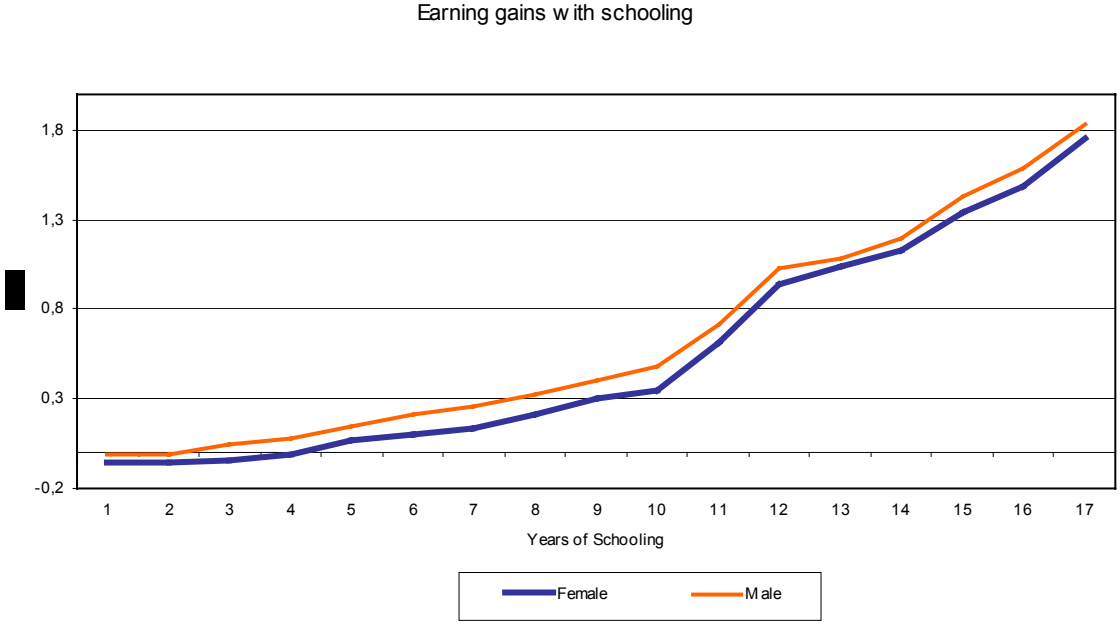
Table 8
Earning equation using OLS

	Coefficients	*Std. Error*	*t*	*Sig.*
(Constant)	0,627	0,011	58,353	0,000
WOMEN	-0,284	0,001	-275,015	0,000
BLACK	-0,132	0,001	-123,370	0,000
PHYSDIS	-0,173	0,008	-20,757	0,000
ILITERAT	-0,199	0,004	-44,527	0,000
CHILD	0,098	0,002	41,613	0,000
SCHOOL1	-0,030	0,005	-5,623	0,000
SCHOOL2	-0,026	0,005	-5,076	0,000
SCHOOL3	0,014	0,005	2,801	0,005
SCHOOL4	0,047	0,005	10,436	0,000
SCHOOL5	0,116	0,005	23,764	0,000
SCHOOL6	0,166	0,005	32,903	0,000
SCHOOL7	0,211	0,005	43,050	0,000
SCHOOL8	0,283	0,004	62,957	0,000
SCHOOL9	0,367	0,005	71,111	0,000
SCHOOL10	0,431	0,005	87,865	0,000
SCHOOL11	0,677	0,004	154,035	0,000
SCHOOL12	0,999	0,005	184,688	0,000
SCHOOL13	1,069	0,005	200,273	0,000
SCHOOL14	1,180	0,005	222,321	0,000
SCHOOL15	1,402	0,005	305,653	0,000
SCHOOL16	1,556	0,005	321,108	0,000
SCHOOL17	1,808	0,005	349,911	0,000
SCHOOLND	0,326	0,009	37,324	0,000
SCHOOLAL	-0,077	0,017	-4,411	0,000
AGE2	-0,081	0,011	-7,612	0,000
AGE3	0,119	0,010	12,056	0,000
AGE4	0,355	0,010	35,798	0,000
AGE5	0,495	0,010	49,912	0,000
AGE6	0,561	0,010	56,680	0,000
AGE7	0,627	0,010	63,217	0,000
AGE8	0,701	0,010	70,589	0,000
AGE9	0,727	0,010	72,859	0,000
AGE10	0,750	0,010	74,388	0,000
AGE11	0,735	0,010	71,753	0,000
AGE12	0,723	0,010	70,418	0,000
AREAS2	-0,295	0,002	-159,690	0,000
AREAS3	-0,408	0,002	-186,887	0,000
AREAS4	-0,473	0,002	-241,833	0,000
AREAS5	-0,406	0,002	-201,393	0,000
AREAS6	-0,551	0,002	-288,466	0,000
FAVELA1	-0,472	0,004	-134,498	0,000
FAVELA2	-0,603	0,004	-155,871	0,000
FAVELA3	-0,621	0,003	-232,884	0,000
FAVELA4	-0,646	0,003	-202,292	0,000
FAVELA5	-0,564	0,003	-163,443	0,000
FAVELA6	-0,646	0,004	-179,395	0,000
R-squared	0,499			
F-test	48.881,21			

Source: Census 2000.

The estimated effect of schooling on individual earnings shows an interesting pattern. The first two years of schooling has negative effect on earnings. After the third year of schooling there are positive effects on earnings, especially when the 2nd cycle of secondary was completed and after the entrance at the university. This pattern can be seen for men and for women, as figure 4 reveals. Age coefficients have the expected effect on earnings, drawing almost an inverted-U curve.

Figure 4



Finally, the geographic area effects are significant and negative. As the omitted dummy was south zone without favela, the richest area of Rio, the other areas are associated with negative effect on earning and even more negative is the favela variable (area considering only favela space). For instance, the "favela-cost" in south zone have a negative effect of 0,47 on earnings, which means that workers residents in *favelas* receive, on average, 47% less than those with similar characteristics in terms of gender, race, schooling and age, but not living in the *favelas* of south zone.

Table 9
"Favela-cost" by geographic area of residence

	Total	*Women*	*Men*
1. South zone	-0,47	-0,39	-0,53
2. North zone	-0,31	-0,29	-0,33
3. Near suburb	-0,21	-0,20	-0,22
4. Distant suburb	-0,17	-0,15	-0,19
5. Jacarepaguá	-0,16	-0,16	-0,16
6. West zone	-0,10	-0,09	-0,10
Total	-0,18	-0,17	-0,19

Source: Census 2000.

However, the negative effect of living in *favelas* on earnings decreases with the distance from south zone. The "favela-cost" is -0,31 in north zone decreasing until -0,10 in the west zone. This result is, more or less, expected since the geographic distance from the most dynamic center may contribute to discriminatory attitude in a way more or less independent from the residence or not in *favelas*.

Concluding remarks

The "favela-cost" estimated in the earning regression analysis are significant and could be revealing some type of earning discrimination against workers living in the *favelas* of Rio de Janeiro. If this is the case both process of professional segregation and employer discrimination is interacting to generate this negative effect of living in favelas on earnings.

However, the "favela-cost" deserves a more carefully analysis mainly for two reasons. First, the importance of the quality of education increases with schooling in a double process: by the maintenance of the children for a longer time in the school (diminishing the repetence and evasion) and, after, by signalizing the skills and professional formation to the labor market. This is particularly important when we considered the access to the university. If *favelas* residents have higher constraints to access the best universities, this will have negative effects in the earnings as they tend to be allocated to lower quality jobs, although the same number of schooling years. One related aspect is that the barriers to enter in better universities are stronger for professions with higher earnings in the labor market, leaving more chances to the entrance in lower earnings professions, and generating a segregation process.

Second, it is important to consider some selection bias, since the person who achieves high schooling and earnings tends to leave the *favela*. Therefore, the residents in favela are, in some magnitude, a selected group that cannot achieve some level of earnings to guarantee the same life conditions outside *favela*s. This is clearly not true for the persons who live the history of the *favela*, mostly known in and abroad the relationship to the samba culture. And certainly there are other situations as the heterogeneity of the residents in favelas is increasing over time.

Finally, consider that even after controlling by quality of education the negative effect of favela on earnings persists. In this case, there are signs of discrimination in the labor market against workers residents in favelas. This is a result to think about beyond the improvement of education quality, incorporating multisectoral and specific policies to the favelas residents.

Bibliographic references

Barros, R., Henriques, R. and Mendonça, R. "Education and equitable economic development". Economia, vol.1, 2000.

Barros, R. "Human Development Report of the city of Rio de Janeiro", PNUP/IPEA/Prefeitura do Rio de Janeiro, mimeo, 2000.

Barros, R., Mendonça, R. Santos, D and Quintaes, G. "Determinantes do desempenho educacional no Brasil". Pesquisa e Planejamento Econômico, vol.31, n.1, April 2001.

Behrman, J., Birdsall, N. and Székely, M. "Intergenerational mobility in Latin America: Deeper markets and better schools make a difference". In: Birdsall, n. and Graham, C. (eds), **New markets, new opportunities? Economic and social mobility in a changing world**, Brooking Institution Press, 2000.

Behrman, J., Gaviria, A. and Székely, M. "Intergenerational mobility in Latin America". Economia, vol.2, n.1, 2001.

Burgos, M. B. "Dos parques proletários ao Favela-Bairro – as políticas públicas nas *favelas* do Rio de Janeiro". In: Zaluar, ª and Alvito, M. (orgs). **Um século de favela**. Rio de Janeiro, Fundação Getúlio Vargas, 1998.

Ferreira, F.H.G. and Barros, R.P. "The slippery slope: explaining the increase in extreme poverty in urban Brazil, 1976-96", Brazilian Review of Econometrics, vol.19, n.2, 1999.

Lago, L. C. **Desigualdade e Segregação na Metrópole**: **O Rio de Janeiro em tempo de crise**. Rio de Janeiro: Ed. Revan /FASE, 2000.

Menezes-Filho, N. A. "Educação e desiqualdade," In: **Microeconomia e Sociedade no Brasil**. Ed. FGV, 2001.

Rezende, M.A. and Burgos, M.B. "Notas sobre o trabalho em *favelas* do Rio de Janeiro". In: **Rio 97. O Mercado de Trabalho no Rio de Janeiro**. Prefeitura da Cidade do Rio de Janeiro, Secretaria Municipal do Trabalho, 1997.

Silva, J. S. "Por que uns e não outros? Caminhada de estudantes da Maré para a Universidade". Tese de doutorado, Departamento de Educação da Pontifícia Universidade Católica do Rio de Janeiro, 1999.

Souto, J. "Barreiras, transgressões e invenções de mercado: a inserção econômica dos jovens pobres". Tese de doutorado, UERJ, 2000.

Valladares, L. and Preteceille, E. "Favela, *favelas*: unidade ou diversidade da favela carioca". In: Ribeiro, L.C. (org) O futuro das metrópolis: desigualdades e governabilidade. Editora Revan, 2000.