

Rio Social Change **(versus outskirts of *Greater Rio*)**

Long Term Retrospective
1970-2010 (versus 2008-2016)

Rio's Social Indicators changed for better in the last 40 years?

- In general, social indicators were and still are better in the capital than in the metropolitan outskirts. But what can be said about the relative trajectory in Rio versus metropolitan area outskirts (control group)?
- Where the relative change was for **better** and for **worse** between 1970 and 2010?
- How the changes pattern varied in these same indicators between 2008 e 2016*?

Rio's Social Indicators changed for better in the last years?

- **Proposed steps:**

a) Assess the relative change in carioca's indicators vis-à-vis the control group in the 40 years between the 1970 and 2010 Census.

b) Repeat the process for the period after the Olympic announcement#.

c) Compare the trends before and after the announcement.

Pre-Olympic Legacy period goes from 2008 to 2016 in income (and to 2014 in all other indicators).

Rio's Social Indicators changed for better in the 40 years before Olympic Announc.? Results for the trajectory of 10 social indicators between both periods:

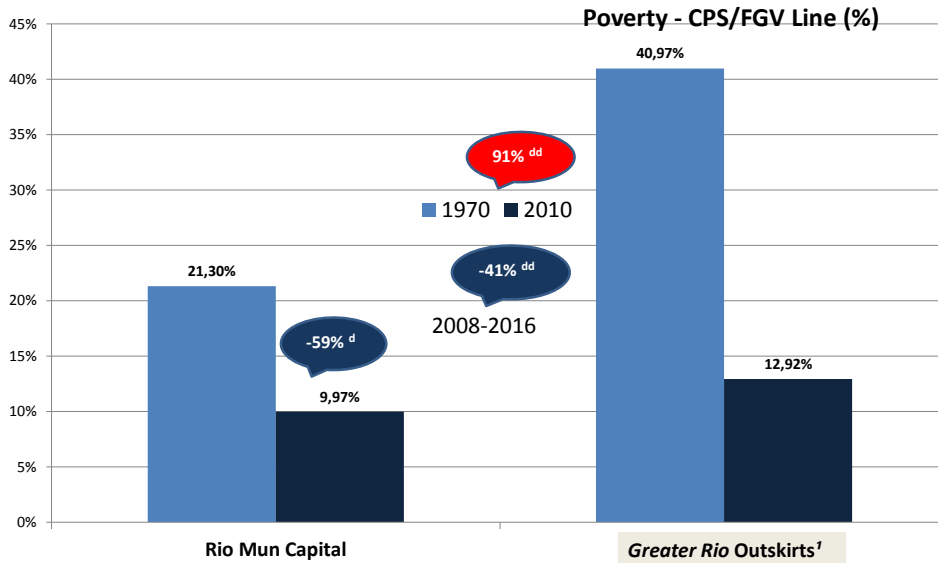
a) There were a **relative worsening bias for Rio** in relation to the control group **in all 10 indicators between 1970 and 2010**.

b) In the other hand, **between 2008 and 2016, the path inverts with Rio's relative improvement in 8 of 10 comparable## indicators**.

c) **There is a clear V shaped long term trajectory marked by a relative worsening before and improvement after the Olympic announcement**.

V in income, poverty, education, housing, public services and **W** in sewerage and car ownership.

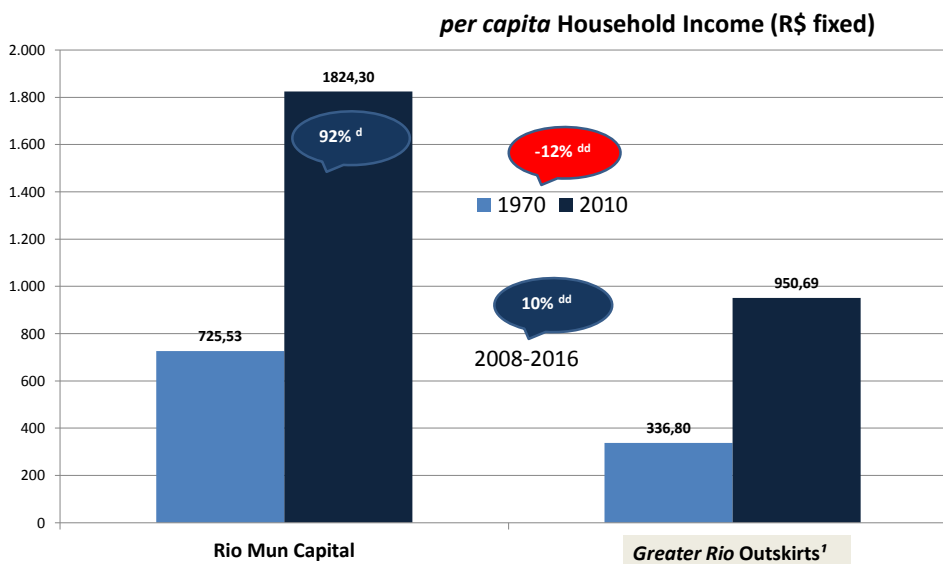
(V) Rio's 1970-2010 performance was **worse** in:
Poverty



Source: FGV Social with Census/IBGE microdata.

Note: odds ratio for Rio's change in time (d) and relative change in time versus ¹other cities in Rio metropolitan area (dd)

(V) Rio's 1970-2010 performance was **worse** in:
per capita Household Income

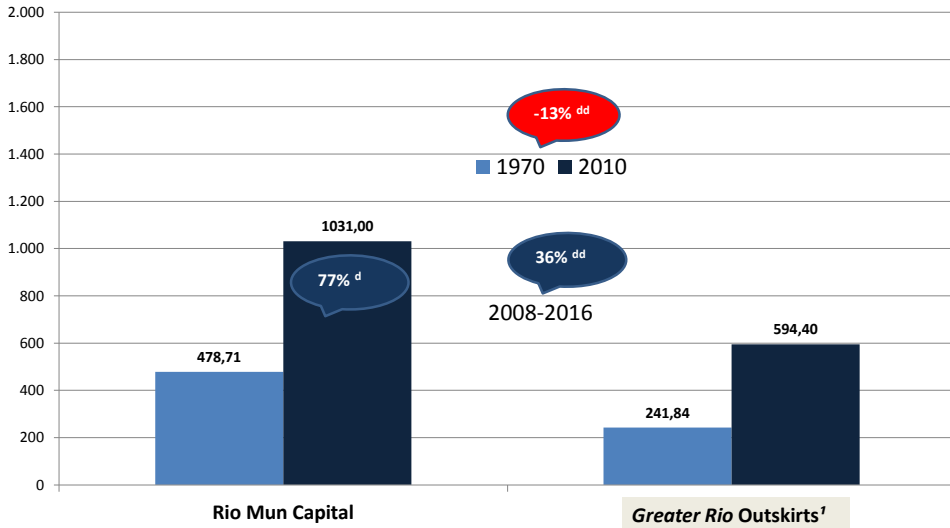


Source: FGV Social with Census/IBGE microdata.

Note: odds ratio for Rio's change in time (d) and relative change in time versus ¹other cities in Rio metropolitan area (dd)

(V) Rio's 1970-2010 performance was **worse** in:
per capita Household Income - 0 to 14 years old

per capita Household Income - 0 to 14 years old (R\$ fixed)

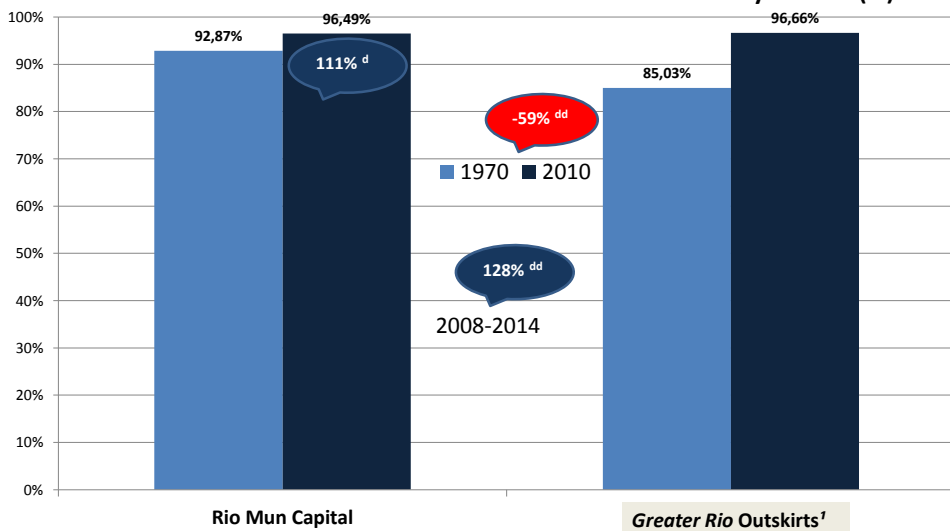


Source: FGV Social with Census/IBGE microdata.

Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

(V) Rio's 1970-2010 performance was **worse** in:
School Enrollment of children from 10 to 14 years old

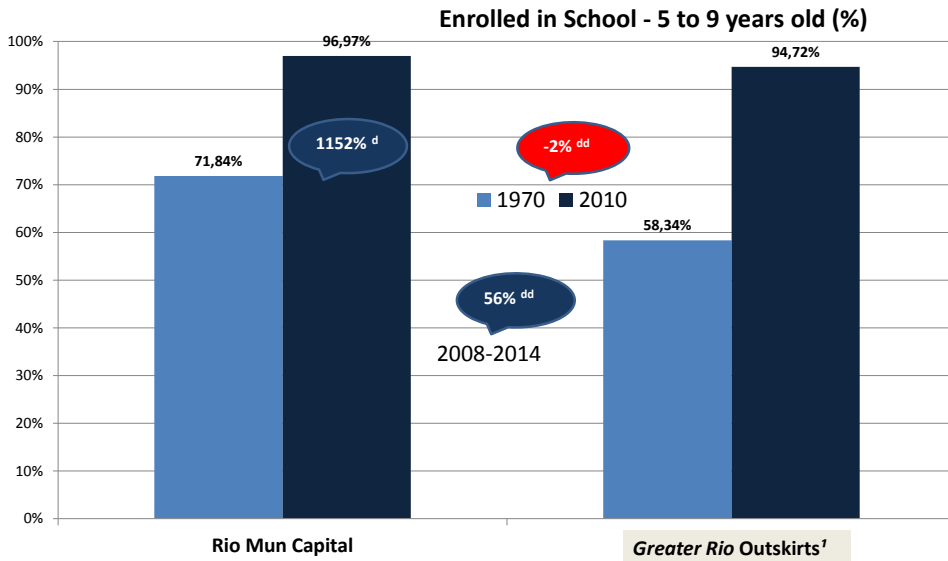
Enrolled in School - 10 to 14 years old (%)



Source: FGV Social with Census/IBGE microdata.

Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

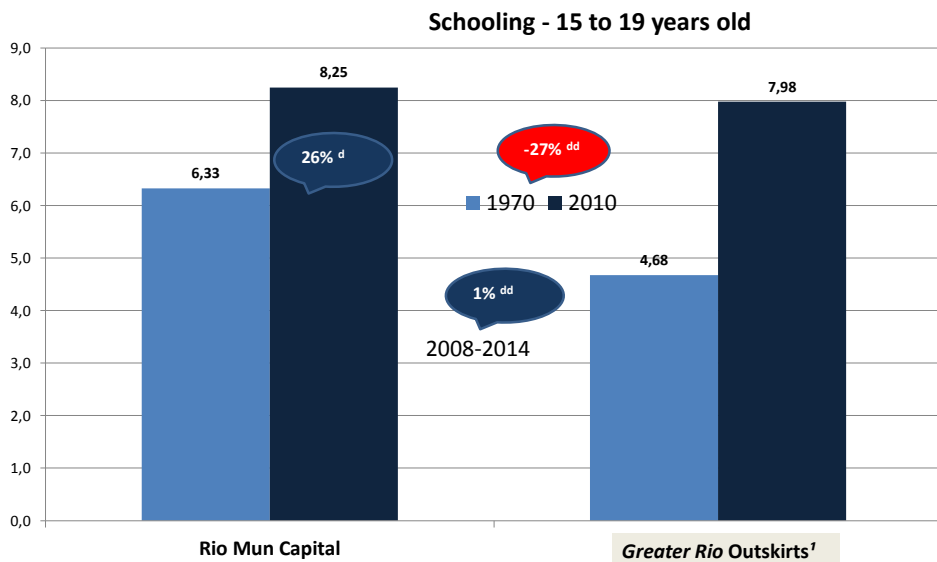
**(V) Rio's 1970-2010 performance was worse in:
School Enrollment of children from 5 to 9 years old**



Source: FGV Social with Census/IBGE microdata.

Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

**(V) Rio's 1970-2010 performance was worse in:
Years of Schooling – people from 15 to 19 years old**

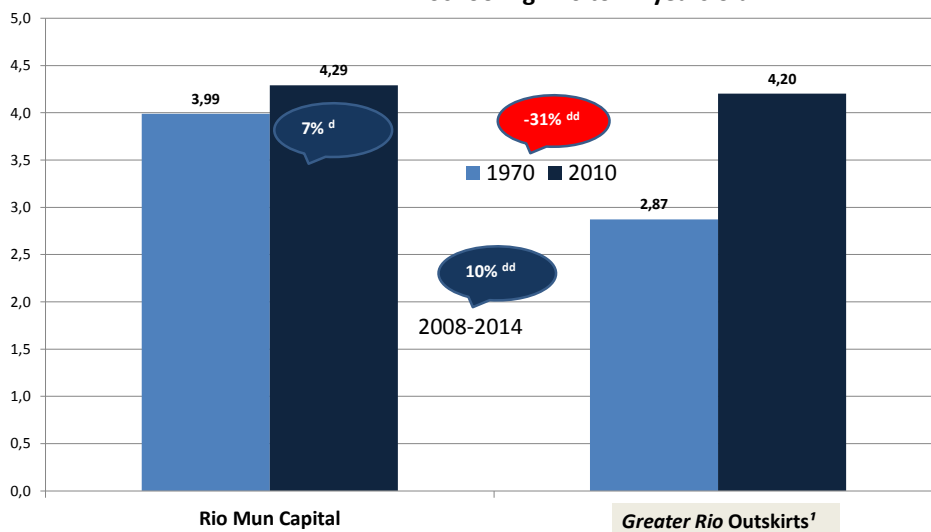


Source: FGV Social with Census/IBGE microdata.

Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

(V) Rio's 1970-2010 performance was **worse** in:
Years of Schooling – people from 10 to 14 years old

Schooling - 10 to 14 years old

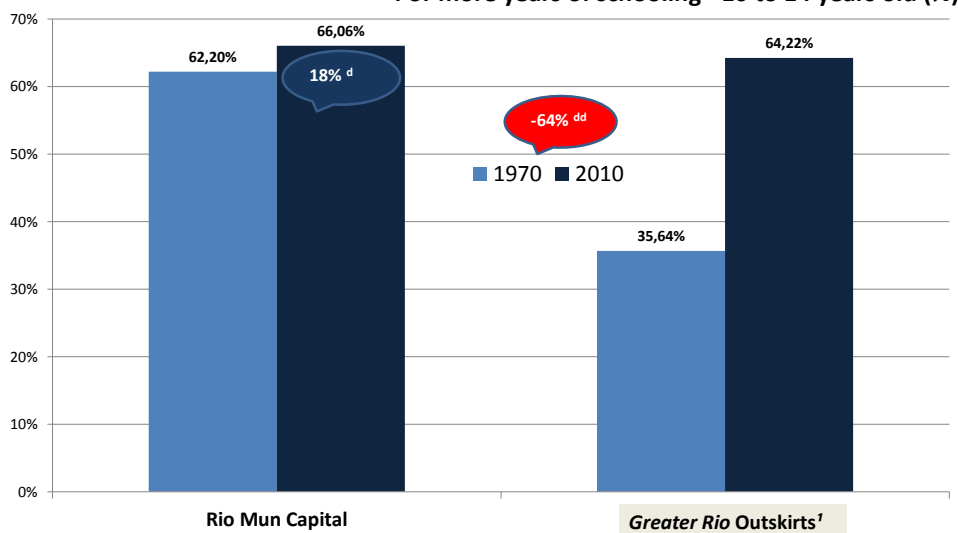


Source: FGV Social with Census/IBGE microdata.

Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

(V) Rio's 1970-2010 performance was **worse** in:
Years of Schooling – people from 10 to 14 years old

4 or more years of schooling - 10 to 14 years old (%)

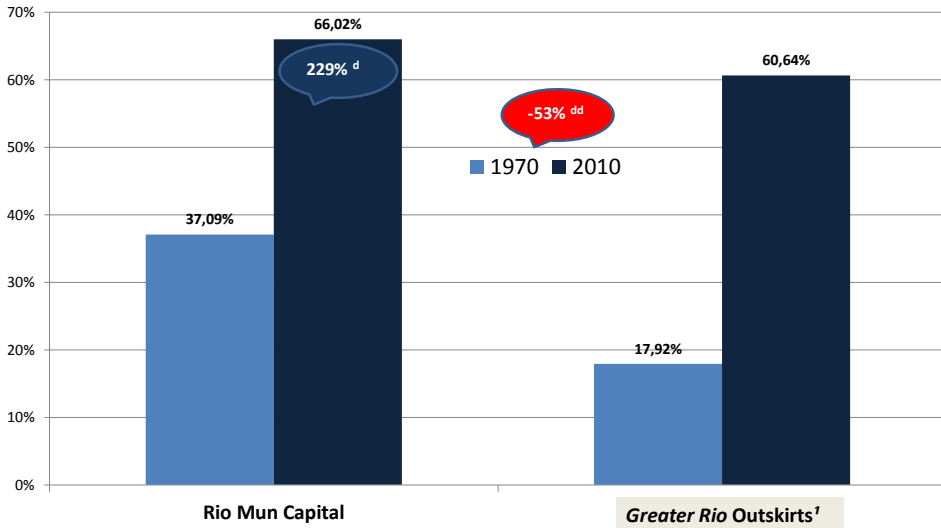


Source: FGV Social with Census/IBGE microdata.

Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

**(V) Rio's 1970-2010 performance was worse in:
Years of Schooling – people from 15 to 19 years old**

8 or more years of schooling - 15 to 19 years old (%)

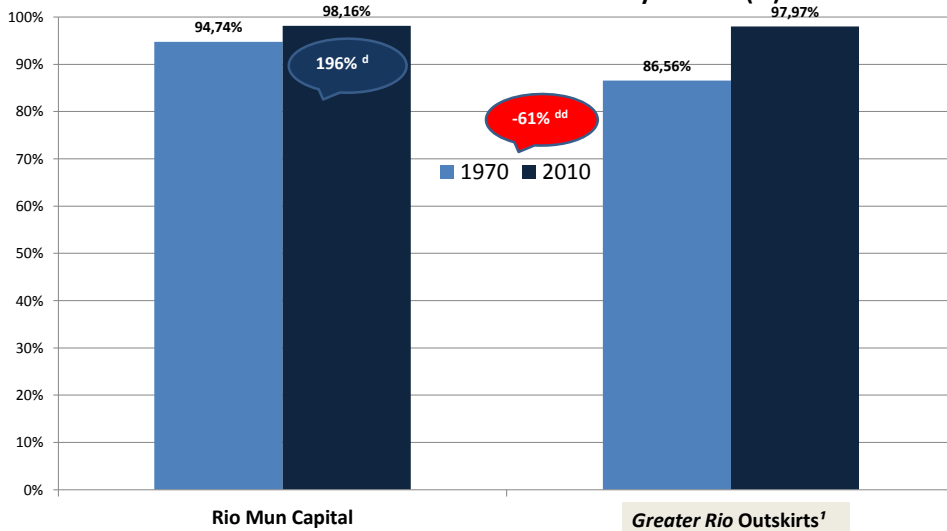


Source: FGV Social with Census/IBGE microdata.

Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

**(V) Rio's 1970-2010 performance was worse in:
Literacy – people from 10 to 14 years old**

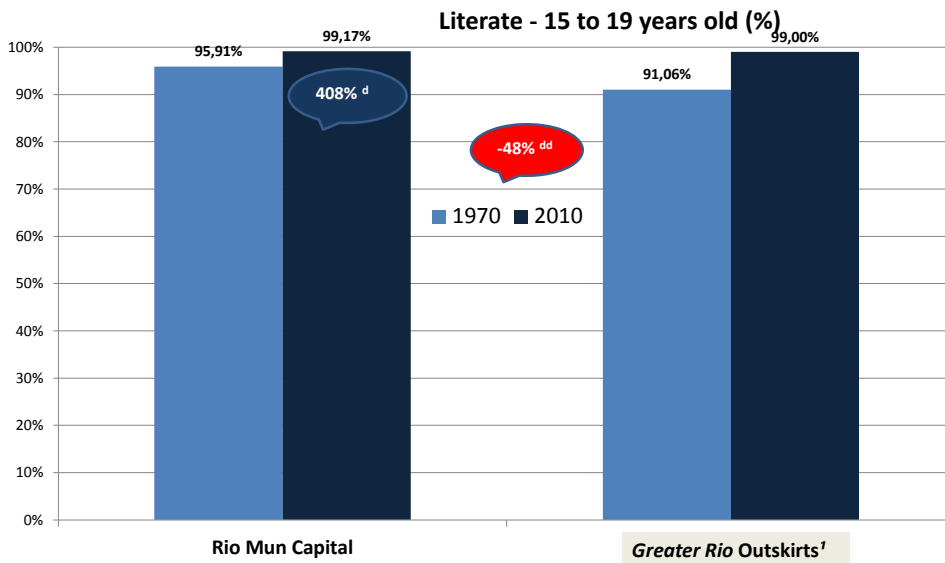
Literate - 10 to 14 years old (%)



Source: FGV Social with Census/IBGE microdata.

Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

**(V) Rio's 1970-2010 performance was worse in:
Literacy – people from 15 to 19 years old**



Source: FGV Social with Census/IBGE microdata.

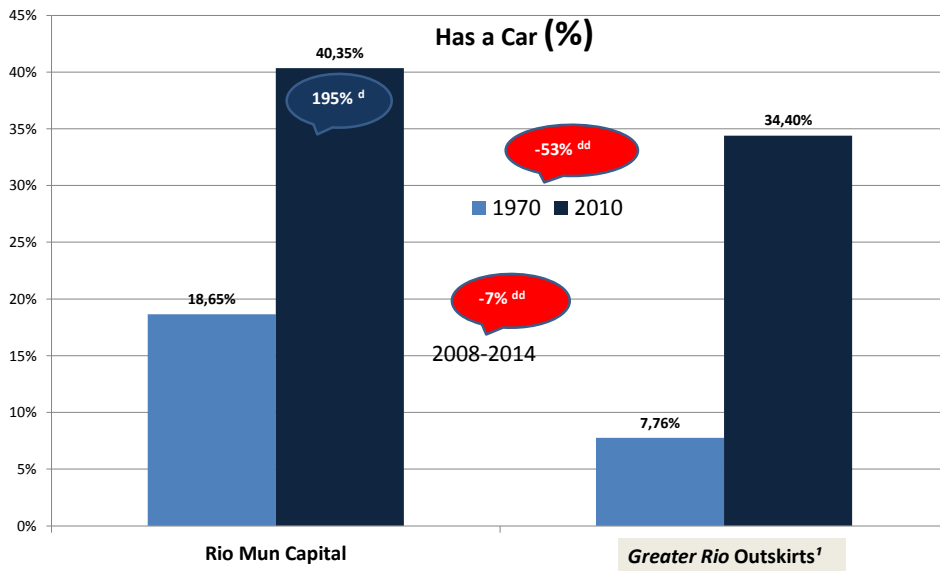
Note: odds ratio for Rio's change in time (d) and relative change in time versus ¹other cities in Rio metropolitan area (dd)

Where Rio's Social Indicators worsened or improved?

- We return to the simple evolution of indicators also looking for 5 city Planning Areas (APs).
- From 1970 to 2010, we see an upward or downward trend for the social indicators in Rio? **Answer:** between 1970 and 2010 we observed an improvement in all 10 comparable indicators for the city, although lower than in periphery.
- And in the Planning Areas? For example, where education has changed the most? In the North Zone, South Zone or in the city's West Zone? **Direct response:** there was an improvement in all indicators and in all areas of the city, but in general lower than the periphery. An exception is car ownership in Barra da Tijuca.

(//) Rio's 1970-2010 performance was worse in:

Has a Car

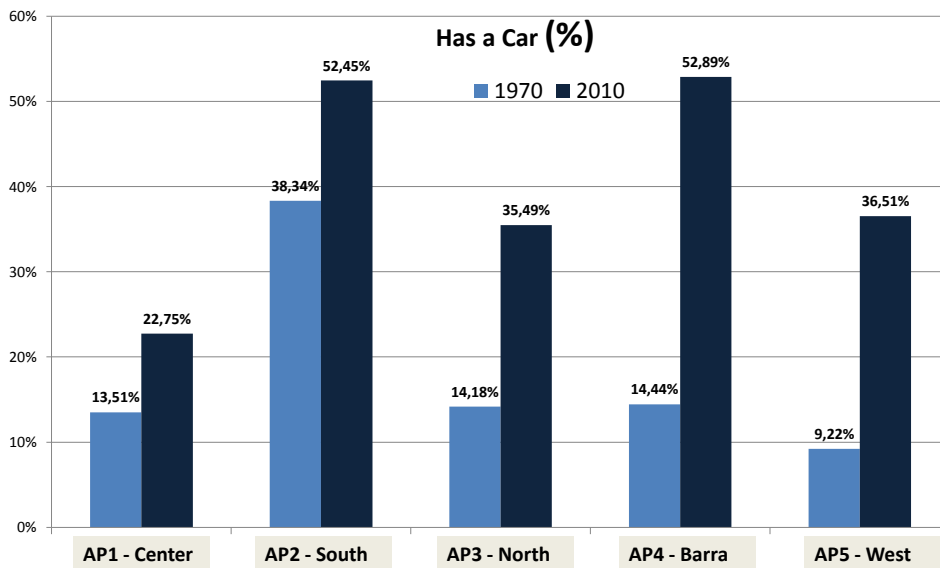


Source: FGV Social with Census/IBGE microdata.

Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

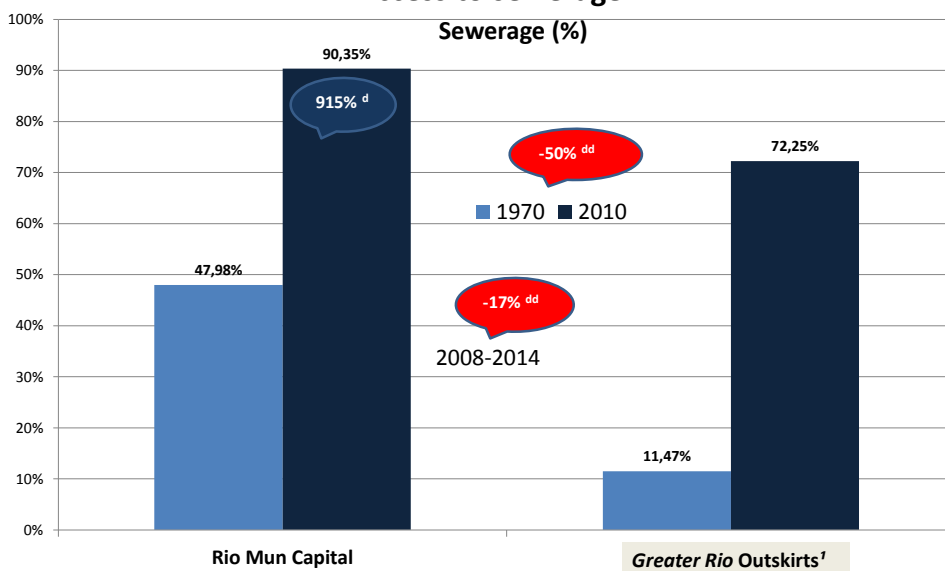
Rio Municipality Opening in Planning Areas (APs)

Has a car



Source: FGV Social with Census/IBGE microdata.

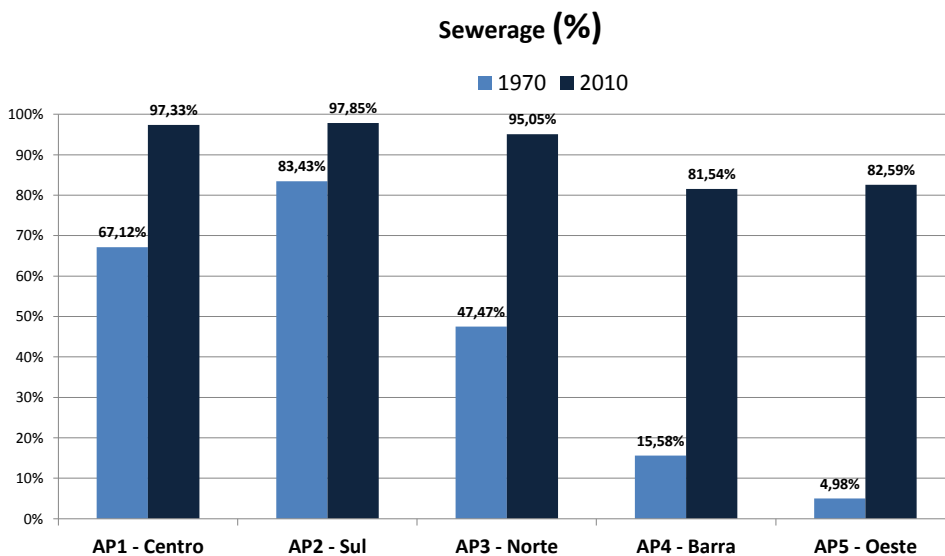
**(//) Rio's 1970-2010 performance was worse in:
Access to sewerage**



Source: FGV Social with Census/IBGE microdata.

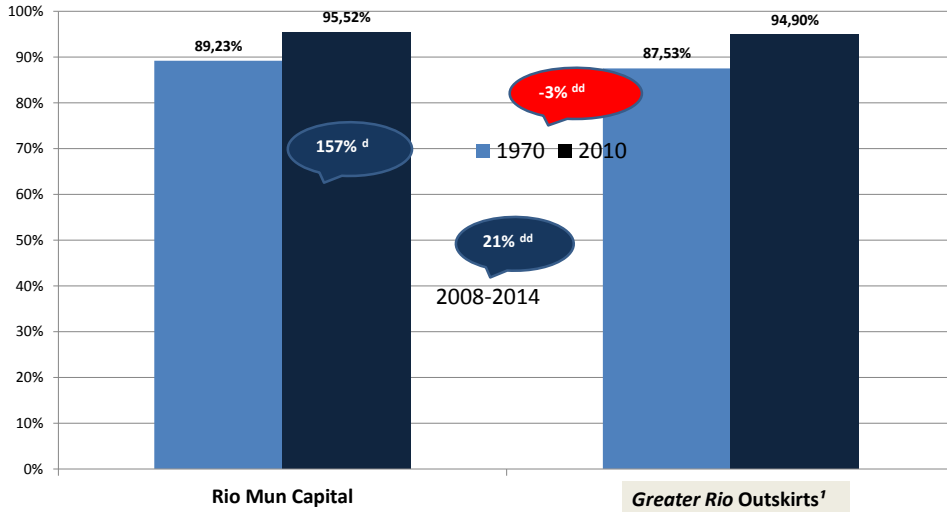
Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

**Rio Municipality Opening in Planning Areas (APs)
Access to Sewerage**



Source: FGV Social with Census/IBGE microdata.

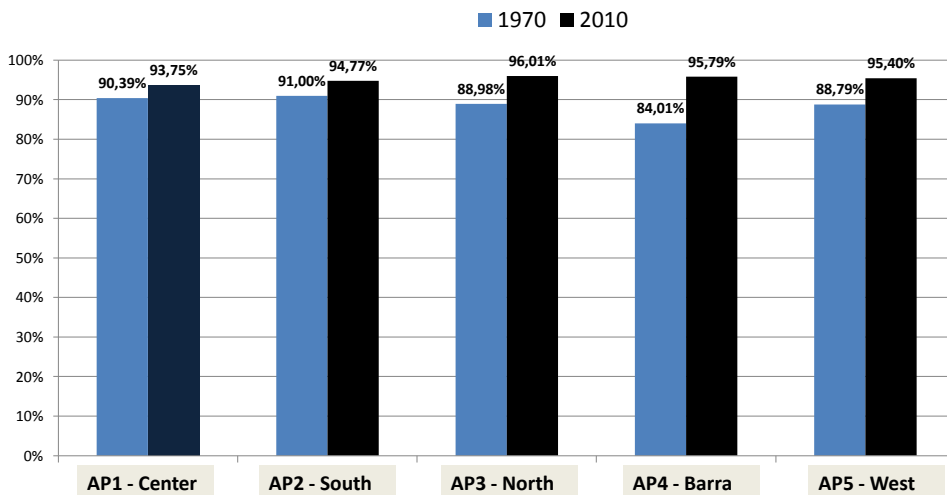
(V) Rio's 1970-2010 performance was worse in:
Access to Housing
Lives in own house or rented (%)



Source: FGV Social with Census/IBGE microdata.

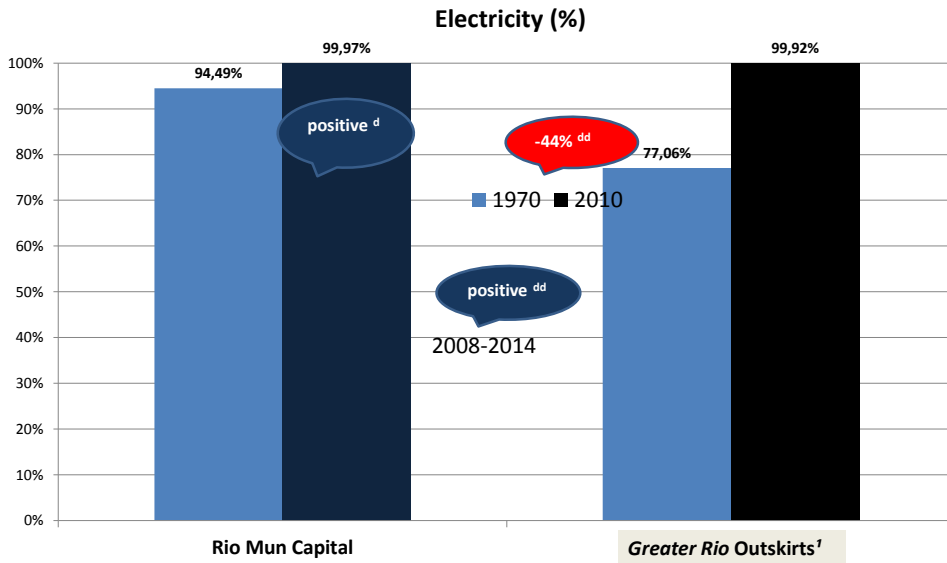
Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

Rio Municipality Opening in Planning Areas (APs)
Access to Housing
Lives in own house or rented (%)



Source: FGV Social with Census/IBGE microdata.

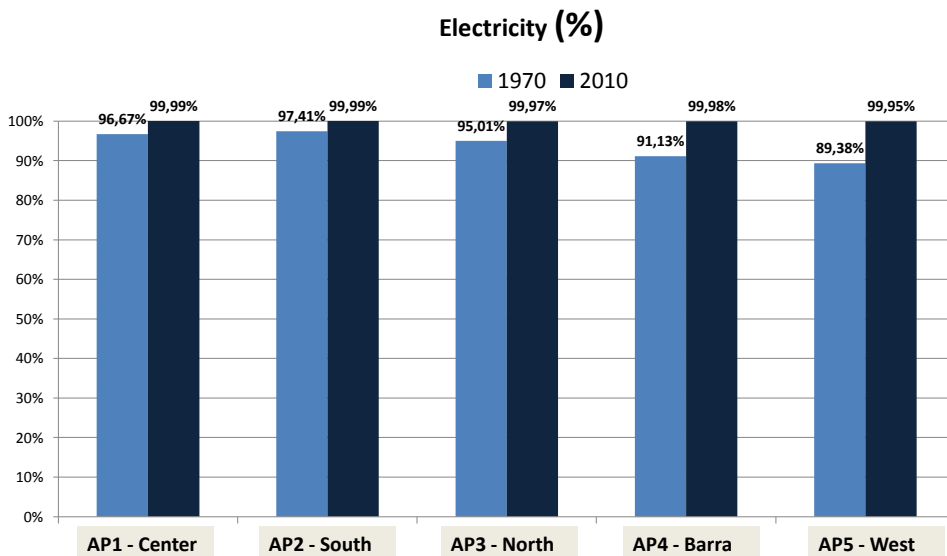
(V) Rio's 1970-2010 performance was worse in:
Access to Electricity



Source: FGV Social with Census/IBGE microdata.

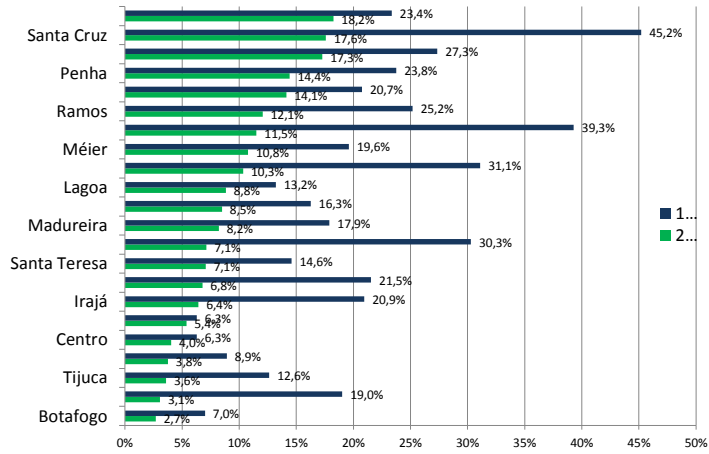
Note: odds ratio for Rio's change in time (d) and relative change in time versus other cities in Rio metropolitan area (dd)

Rio Municipality Opening in Planning Areas (APs)
Access to Electricity



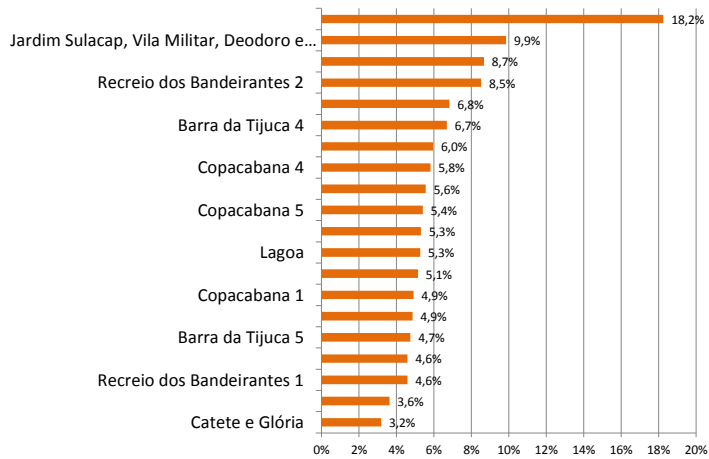
Source: FGV Social with Census/IBGE microdata.

Poverty in Administrative Regions (RAs) of Rio (1970-2010)



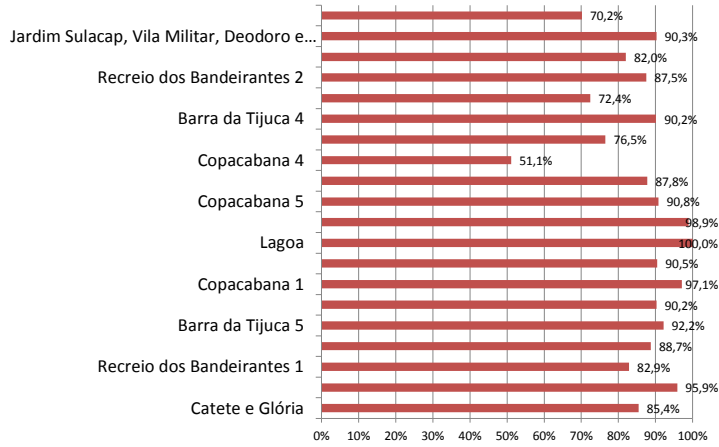
Source: FGV Social with microdata from IBGE Census. Note: CPS/FGV poverty line.

Poverty in census areas around olympic areas 6 years ago (2010)



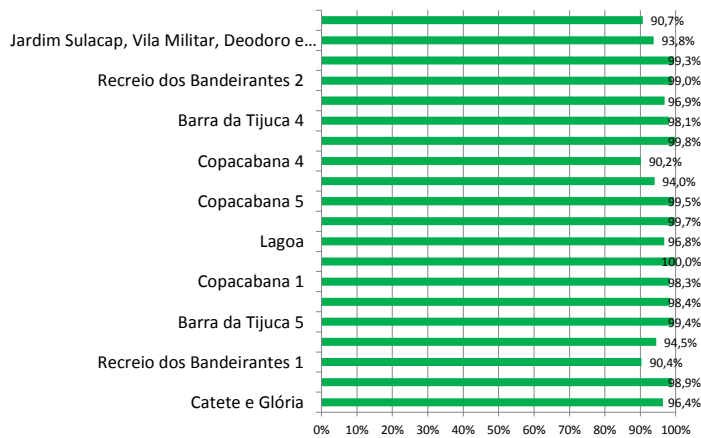
Source: FGV Social with microdata from IBGE Census. Note: CPS/FGV poverty line.

Garbage collected daily in olympic areas 6 years ago (2010)



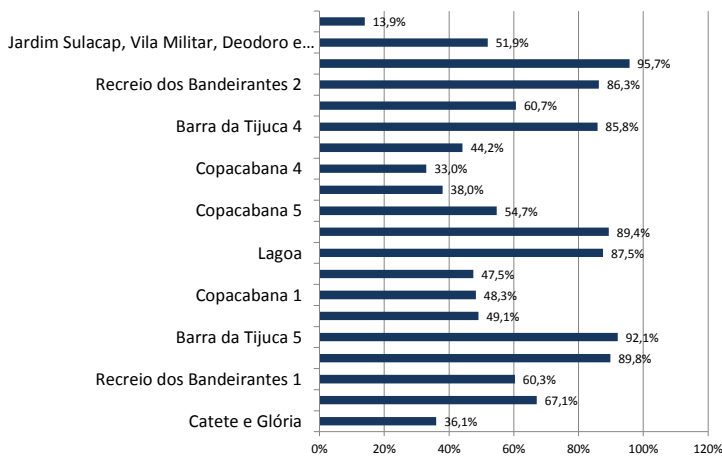
Source: FGV Social with microdata from IBGE Census.

House with brick walls covered in olympic areas 6 years ago (2010)



Source: FGV Social with microdata from IBGE Census.

Household with a car in olympic areas 6 years ago (2010)



Source: FGV Social with microdata from IBGE Census.



Scoreboard of Social Condit. Changes in Rio Municipality 1970-2010

Area	Indicators	1) Carioca Evolution	2) Cariocas Controlled# Change	3) Relative Controlled# Changes versus Control Group (GC)##					
				3) Capital x GC	Rio Municipality Opening by Planning Areas (APs)				
					3A) AP1 - Center & Port x GC	3B) AP2 - South Zone x GC	3C) AP3 - North Zone x GC	3D) AP4 - Barra & Jac. x GC	3E) AP5 - West Zone x GC
Public Serv.	Sewerage	↑	↑	↓	0	↓	↑	↑	↑
Housing	Own House	↑	↑	↓	↓	↓	↓	↓	↓
Transport	Has a Car	↑	↑	↓	↓	↓	↓	↓	↓
Education	Goes to School - 5 to 14 years old	↑	↑	↓	↓	↓	↓	↓	0
Labor	Microentrepreneur	↑	↑	↓	↓	↓	↓	↑	0
Social Develop.	Household Income pc - All Sources (Gains)	↑	↑	↓	↓	0	↓	↑	↓
Social Develop.	Poverty - CPS/FGV Line	↑	↓	↓	↓	↓	↓	↓	↓

Olympic Change

by sex, age, color, immigration, household size, parents education
Metropolitan Area of Rio de Janeiro (Greater Rio) outskirts

**When We Test *Long-Term Changes in 7 Indicators*,
The Downward Trend Hypothesis (↓) Before the Olympic Announcement Remains?**

Final Scoreboard – Long Term Results Before  Announcement (1970-2010)


1) Carioca Simple Evolution: 7↑ x 0↓ (means 36 improvements and 2 setbacks)

2) Cariocas Conditional Changes: 6↑ x 1↓ without statistical draws

3) Cariocas Relative Conditional Changes: 0↑ x 7↓
 ↳ Opened by Rio Municipality 5 Planning Areas (APs):

3A) AP1: 0↑ x 6↓ and 1 draw 3C) AP3: 1↑ x 6↓ 3E) AP5: 1↑ x 4↓ and 2 draws

3B) AP2: 0↑ x 6↓ and 1 draw 3D) AP4: 3↑ x 4↓





Scoreboard of Social Changes in Rio Municipality 1970-2010									
Area	Indicators	1) Carioca Evolution	2) Cariocas Controlled# Change	3) Relative Controlled# Changes versus Control Group (GC)##					
				3) Capital x GC	Rio Municipality Opening by Planning Areas (APs)				
				3A) AP1 - Center & Port x GC	3B) AP2 - South Zone x GC	3C) AP3 - North Zone x GC	3D) AP4 - Barra & Jac. x GC	3E) AP5 - West Zone x GC	
Public Serv.	Sewerage	11.4430**	6,06171**	0,6347**	1,0705	0,6144**	1,2916**	1,1794**	4,6875**
Housing	Own House	3.06197**	3,38651**	0,88834**	0,83248**	0,63008**	0,94975**	0,70407**	0,96408**
Transport	Has a Car	3.12620**	2,1669**	0,51806**	0,32143**	0,36927**	0,53797**	0,81681**	0,76845**
Education	Goes to School - 5 to 14 years old	5.87846**	6,14042**	0,64622**	0,62627**	0,32995**	0,61362**	0,80617**	0,96253
Labor	Microentrepreneur	1.49768**	1,73**	0,93**	0,74**	0,91**	0,93**	1,06**	0,98
Social Develop.	Household Income pc - All Sources (Gains)	0.7547***	0,1611***	-0,1595***	-0,2395***	0,002	-0,2012***	0,2096***	0,1759***
Social Develop.	Poverty - CPS/FGV Line	0.43178**	1,07916**	1,89900**	1,98708**	2,19205**	2,18508**	1,04929**	1,44370**

Controlled Changes Rio Mun. X Control Group Between 1970 and 2010 -

RAs Ranking - per capita Household Income			RAs Ranking - Has a Car			RAs Ranking - Sewerage			RAs Ranking - Own House		
Position	RA Name	Gain	Position	RA Name	Odd Ratio	Position	RA Name	Odd Ratio	Position	RA Name	Odd Ratio
1	Jacarepaguá	0,2426	1	Campo Grande	0,94621	1	Ilha de Paquetá	27,2028	1	Santa Cruz	1,34297
2	Botafogo	0,1412	2	Jacarepaguá	0,88077	2	Santa Cruz	25,7008	2	Madureira	1,16543
3	Lagoa	0,0795	3	Anchieta	0,85284	3	Anchieta	19,8501	3	Vila Isabel	1,09759
4	Tijuca	0,0625	4	Bangu	0,79822	4	Campo Grande	10,1114	4	Ilha de Paquetá	0
5	Vila Isabel	-0,0215	5	Irajá	0,76388	5	Bangu	9,5172	4	Portuária	0
6	Ilha do Governador	-0,0343	6	Santa Cruz	0,74318	6	Botafogo	4,1775	4	Rio Comprido	0
7	Irajá	-0,0488	7	Penha	0,63281	7	Ilha do Governador	3,8796	5	Anchieta	0,93643
8	Copacabana	-0,0643	8	Madureira	0,63263	8	Copacabana	3,8668	6	Ilha do Governador	0,92452
9	Campo Grande	-0,1035	9	Méier	0,58044	9	Irajá	3,7923	7	Irajá	0,91226
10	Méier	-0,1165	10	Vila Isabel	0,53006	10	Portuária	3,5622	8	Ramos	0,87747
11	Bangu	-0,1275	11	Ilha do Governador	0,51093	11	Ramos	3,0015	9	Campo Grande	0,87534
12	Santa Teresa	-0,1357	12	Portuária	0,47932	12	Santa Teresa	2,5426	10	Méier	0,84574
13	Ilha de Paquetá	-0,1428	13	Botafogo	0,44064	13	Centro	2,0372	11	Santa Teresa	0,84388
14	Centro	-0,1746	14	Tijuca	0,44063	14	Jacarepaguá	1,5977	12	Bangu	0,83654
15	Santa Cruz	-0,1800	15	Rio Comprido	0,41727	15	Madureira	1,5825	13	Penha	0,79448
16	Rio Comprido	-0,1839	16	Santa Teresa	0,37741	16	Vila Isabel	1,5614	14	São Cristóvão	0,72641
17	Penha	-0,1981	17	Centro	0,37227	17	Méier	0	15	Tijuca	0,72242
18	Madureira	-0,2036	18	São Cristóvão	0,35754	17	Penha	0	16	Jacarepaguá	0,68557
19	Ramos	-0,2278	19	Ramos	0,34684	17	Rio Comprido	0	17	Centro	0,68476
20	Anchieta	-0,2474	20	Lagoa	0,33155	17	São Cristóvão	0	18	Lagoa	0,54361
21	São Cristóvão	-0,2561	21	Copacabana	0,27613	18	Lagoa	0,6725	19	Botafogo	0,51854
22	Portuária	-0,2567	22	Ilha de Paquetá	0,1398	19	Tijuca	0,6571	20	Copacabana	0,40378

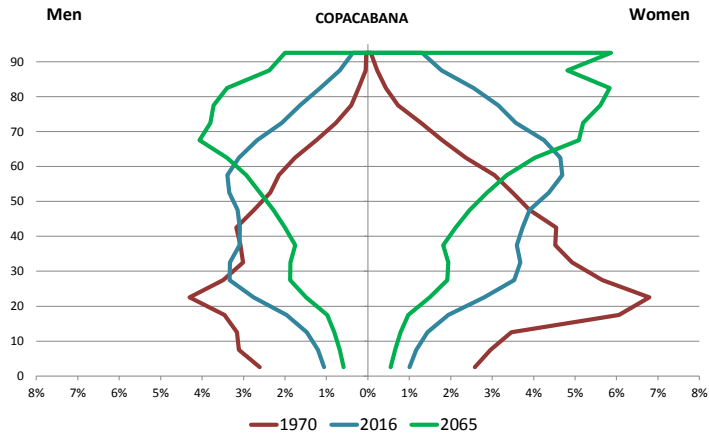
Controlled Changes Rio Mun. X Control Group Between 1970 and 2010 -

RAs Ranking - Entrepreneurship		
Position	RA Name	Odd Ratio
1	Jacarepaguá	1,07
2	Anchieta	0
3	Bangu	0
4	Botafogo	0
5	Campo Grande	0
6	Ilha de Paquetá	0
7	Ilha do Governador	0
8	Irajá	0
9	Lagoa	0
10	Madureira	0
11	Méier	0
12	Vila Isabel	0
13	Rio Comprido	0,67
14	Centro	0,75
15	Santa Teresa	0,75
16	Santa Cruz	0,78
17	São Cristóvão	0,79
18	Portuária	0,81
19	Ramos	0,81
20	Tijuca	0,82
21	Penha	0,87
22	Copacabana	0,91

RAs Ranking - Poverty: FGV Social Line		
Position	RA Name	Odd Ratio
1	Copacabana	3,11386
2	Portuária	2,83752
3	Anchieta	2,73079
4	Penha	2,66517
5	Méier	2,47312
6	Lagoa	2,36171
7	São Cristóvão	2,15958
8	Centro	2,07765
9	Botafogo	1,80959
10	Madureira	1,79185
11	Vila Isabel	1,67745
12	Santa Teresa	1,55719
13	Ramos	1,42904
14	Ilha do Governador	1,42188
15	Rio Comprido	1,38131
16	Bangu	1,35827
17	Santa Cruz	1,32258
18	Tijuca	1,26833
19	Irajá	1,25474
20	Campo Grande	1,20172
21	Jacarepaguá	0
22	Ilha de Paquetá	0,47512

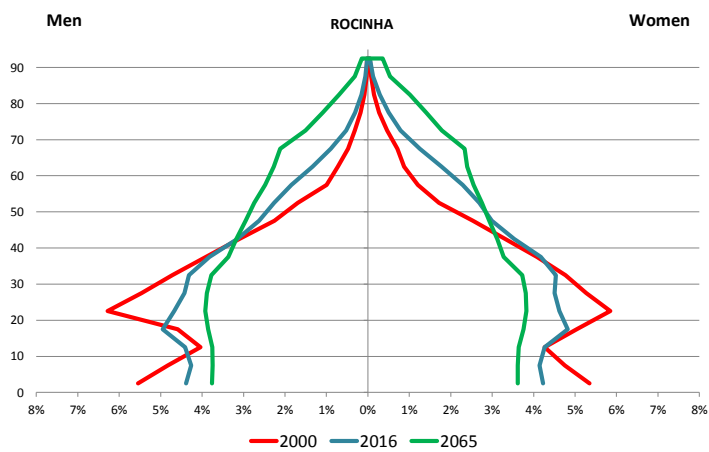
RAs Ranking - Years of Schooling: 5 to 14 years old		
Position	RA Name	Odd Ratio
1	Santa Cruz	-0,0993
2	Penha	-0,1056
3	Campo Grande	-0,1086
4	Bangu	-0,1241
5	Irajá	-0,1251
6	Jacarepaguá	-0,1275
7	Anchieta	-0,1305
8	São Cristóvão	-0,1419
9	Méier	-0,1524
10	Santa Teresa	-0,1540
11	Portuária	-0,1596
12	Madureira	-0,1598
13	Ramos	-0,1602
14	Ilha do Governador	-0,1744
15	Rio Comprido	-0,1919
16	Lagoa	-0,1938
17	Tijuca	-0,1962
18	Centro	-0,2060
19	Botafogo	-0,2140
20	Vila Isabel	-0,2638
21	Ilha de Paquetá	-0,2819
22	Copacabana	-0,2941

Population by age and sex in Copacabana (1970-2016-2065)



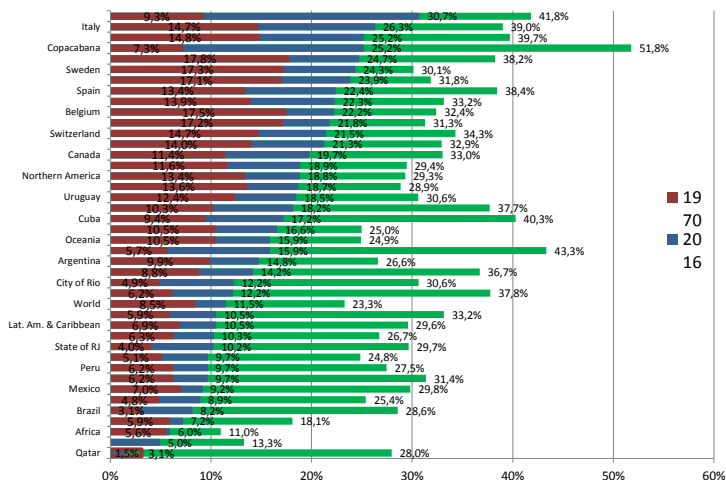
Source: FGV Social with microdata from IBGE Census and demographic projections by Beltrão and Sugahara (2016).

Population by age and sex in Rocinha (2000-2016-2065)



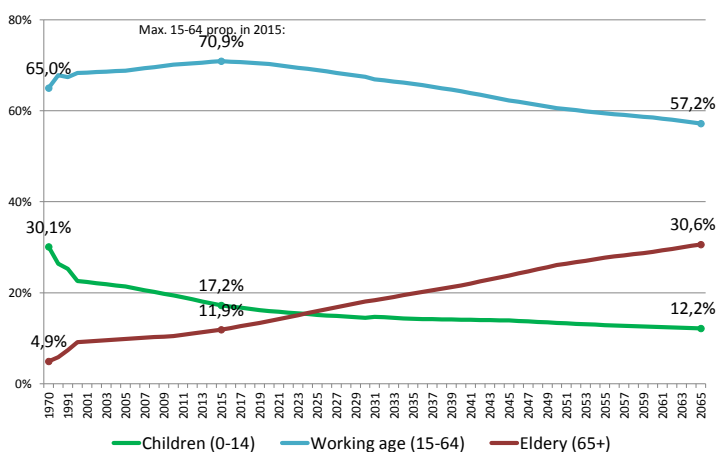
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Aging in Rio and around the world (1970-2016-2065)



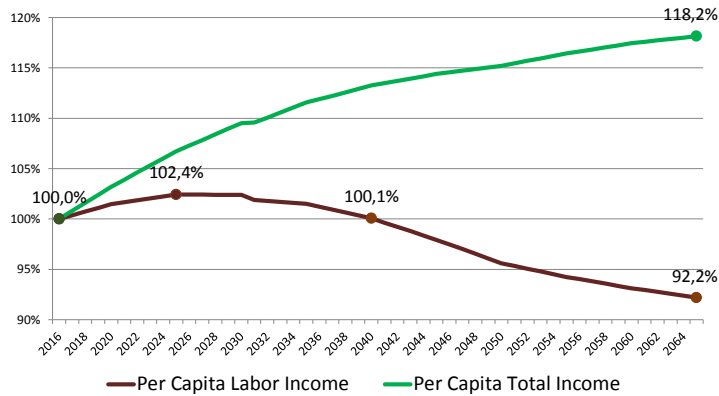
Source: FGV Social with microdata from IBGE Census and projections by Beltrão & Sugahara (2016) and UN (2016).

Aging in Rio (1970-2015-2065)



Source: FGV Social with microdata from IBGE Census and demographic projections by Beltrão and Sugahara (2016).

Per capita incomes in Rio if levels of 2014 by age and sex were kept constant (2016 = 100%)



Source: FGV Social with microdata from IBGE Census and demographic projections by Beltrão and Sugahara (2016).

According to demographic forecasts, the problem is the proportion of the working-age population, is now dropping from 2016. **Rio needs a new Post-Olympic project** which improves the quality of education through integral schools and nurseries for the disadvantaged kids. Other line is to attract talents from outside the state a task that the Olympic event might help to achieve.

AREAS ANALYZED

