

Rio Olympic Legacy: research highlights local social transformations during the seven years preparation cycle before Rio2016

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The social impact of the Olympics is hard to identify because there are several influences operating simultaneously. Strictly speaking, it is not possible to distinguish the external effect of the sports megaevent from the internal effect of its management. What we can only do is to assess what happened after the Olympic announcement and make a comparison with what was happening before it. This simple exercise proved to be a powerful tool to assess Rio2016 social legacy. To a large extent Rio won the 2016 Olympic Games host site dispute against global cities such as Chicago, Madrid and Tokyo not due to its already established infrastructure or economy. But by the power of the Olympics to revert the previous decaying trend of Rio municipality and leave a legacy for its citizens, nicknamed as cariocas.

The current research from Getulio Vargas Foundation was based on microdata from the National Survey by Household Sample (PNAD and Continuous PNAD) previously unexplored at Rio municipality level. The research also takes advantage of the Brazilian demographic Census data with longer time horizons and finer spatial details. Allowing a territorial zoom in the changes occurred since 1970, opening for locations such as North, South and West Zones; as well as Copacabana, Madureira, Barra and so on. The research team was led by Marcelo Neri, Brazilian former Minister of Strategic Affairs and current director of FGV Social/CPS. The research website provides bilingual contents, with texts, slides, videos and interactive datasets. These user-friendly devices allow to cross-tabulate indicators by various attributes (income classes, gender, age, type of housing, etc.), turning them into tailor made practical knowledge.

One advantage of using public use microdata is its scientific replicability. Another is the possibility of applying demographic controls in the comparison with other geographical areas. As a competitive athlete: it is not enough to improve, you have to improve more than others in your own class. We define the other municipalities of the Greater Rio (Rio metropolitan area) as a control group, because they are contiguous territories subject to similar influences, as the climate and the state administration, for example. Transforming a long history into a short one: the Olympics in Rio reversed a negative trend of growth for the social indicators in the city between 1992 and 2008. The 24 indicators comparable before and after the Rio2016 announcement followed a

V-shaped trajectory, that is, before the announcement was recorded ten times more setbacks than after Rio2016 was announced. Advances increased from 7 to 18 social indicators.

If we look at the wider empirical horizon provided by the 1970 and 2010 Censuses, we observed that among 10 social indicators analyzed, all 10 showed relative setbacks for Rio between 1970 and 2010 in comparison with control group. In the Rio2016 post-announcement period, the score was reversed to 8-2 in favor of the *cariocas* (Rio municipality inhabitants). Several other comparisons with different databases and methods produced similar results. In general, we do not reject a V-shaped trajectory for the majority of indicators, with a pre-olympic announcement period setback followed by a period move forward.

Using a series of broader indicators that describes only the pre-Olympic social legacy of the city, taking into account comparable attributes such as gender, age, immigration, education, among others; progress was made in 36 of the 38 indicator areas such as education, employment, housing, public services, digital inclusion and social development. The negative highlight is in the transportation sector, where house to work commuting time increased 17% between 2008 and 2014. The most positive element is perhaps related to the household income of the locals. The growth of mean *per capita* household income from all sources in Rio reached 30.3%, when comparing the first quarters of 2008 and 2016, going from R\$ 1,515 to R\$ 1,974, adjusted for inflation. The same growth figure for Brazil as a whole was 19,6% and 18,8% for the State of Rio. Labor earnings increased in Rio since 2013 more in Rio municipality than any other 27 Brazilian states capital cities. This evidence is consistent with the idea that the Olympics have helped maintain Rio inclusive growth in action while there was social decay at the country level due to the current economic crisis.

Detailing the indicators controlled trend based on per capita income before and after the Olympic announcement. In the forty years before the announcement of the 2016 Olympic host city, household income in Rio grew six times more at the top of the income distribution than at the bottom. Furthermore, all the lower income vintiles obtained relative falls in comparison with the outskirts of Greater Rio. These relative falls diminish as we move from the bottom to the top of the income distribution, stage where they are reversed. The elite located in the 5% richest *cariocas* had relative gains 14.9% higher than their peers in other municipalities of the Greater Rio. This explains why the city of Rio de Janeiro, whether metropolis or just the capital, earned in this interim the nickname "divided city". During this long period, the income inequality levels found in the interior of Rio's borders reached higher levels than the Brazilian borders. Between 2008 and 2016, per capita labor earnings of the poorest 5% grew 29.3%, while of the richest 5% increased 19.96%, with relative gains for Rio vis-à-vis the control group in all vintiles. Controlling for equivalent observable characteristics,

poverty headcounts (using a line of R\$ 206 per month in current prices) rise 7.9% between 1970 and 2010, but fall 36.8% between 2008 and 2016. In absolute terms, poverty reduced from 5.71% to 2.09% of the population after the Olympic announcement. Using the UN metric of the Millennium Development Goals (MDGs), who proposed a 50% drop in poverty in 25 years, Rio's poverty fell 63.4% in 8 years.

What about the post Rio2016 period? The prospective scenario for Rio municipality is worrisome. First, because the project that united the private sector with the State, there including integration between the three levels of government, rare for local standards, ends with the realization of the Olympic dream. The Rio de Janeiro State financial failures and oil revenues fall, its main fuel, will create difficulties even when we just look at the old Guanabara, meaning Rio municipality. In 2016, Rio's working age population already started to decrease, resulting in a fall of 7.8% in the labor income until 2065, when the city will celebrate its 500th birthday. Not to mention the impacts of the unavoidable national social security reform in Rio, with different spatial impacts. Copacabana will have in 2065, 51,8% of the population above 65 years. Japan, known as the land of the elderly, will have a smaller proportion, 41.8%. The current age/gender structure of Copacabana will be most similarly to the one to be observed in Brazil only in 2058. Copacabana, from the sinuous sidewalk at the beach to the *favela*, so beautifully portrayed in the Olympic opening ceremony, is the future of Rio. While Rio wrinkles today mirror the image of Brazil tomorrow.