The effects of conditional cash transfer programs on AIDS, Tuberculosis, and Child mortality according to socioeconomic conditions: a cohort study of 57 million individuals in Brazil

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Background

- Social vulnerabilities and socioeconomic inequalities are important risk factors for <u>poverty-related diseases and conditions</u>, <u>including HIV/AIDS</u>, <u>Tuberculosis</u> (TB), and child mortality.
- <u>Social Protection policies such as Conditional Cash Transfers</u> (CCT) could mitigate their burden, reducing household poverty levels and improving access to education and healthcare.
- We evaluated the extent to which the world's largest CCT, the Bolsa Família Program (BFP), has effects on AIDS and TB incidence, and on child mortality, among different socioeconomic strata within the poorest 50% of the Brazilian population.



Methods

- We developed a <u>quasi-experimental impact evaluation</u> of the effects of BFP on AIDS using <u>22.7 million individuals</u> (2007-2015), and on TB and child mortality using <u>56.7 million individuals</u> (2004-2013), from the 100 million Brazilians cohort of low-income individuals.
- We compared BFP beneficiaries to non-beneficiaries, using inverse probability of treatment weighting (IPTW) to adjust for selection into receipt of BFP benefits.
- We fitted IPTW multivariable Poisson regressions adjusted for socioeconomic, demographic, and healthcare confounding variables at the individual and municipal level, estimating the effect of BFP for different subgroups of the populat to per capita wealth levels (stratified by deciles).

<u>Descriptive analyses</u> of Bolsa Familia Program (BFP) non-beneficiaries (N-BF) and beneficiaries (BF) on <u>AIDS incidence rate</u>

[95% CI]

Poorest



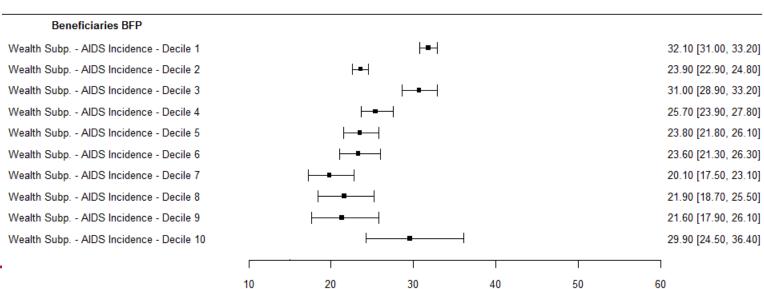
Richest

Poorest



Richest

Non-beneficiaries BFP Wealth Subp. - AIDS Incidence - Decile 1 48.50 [46.90, 50.10] Wealth Subp. - AIDS Incidence - Decile 2 42.90 [41.30, 44.70] Wealth Subp. - AIDS Incidence - Decile 3 31.70 [29.60, 33.90] Wealth Subp. - AIDS Incidence - Decile 4 36.70 [33.90, 39.80] Wealth Subp. - AIDS Incidence - Decile 5 30.30 [28.00, 32.70] Wealth Subp. - AIDS Incidence - Decile 6 23.90 [22.10, 25.90] Wealth Subp. - AIDS Incidence - Decile 7 20.20 [18.60, 21.90] Wealth Subp. - AIDS Incidence - Decile 8 19.10 [17.70, 20.70] Wealth Subp. - AIDS Incidence - Decile 9 20.00 [18.60, 21.60] Wealth Subp. - AIDS Incidence - Decile 10 19.50 [18.10, 21.00]



<u>Descriptive analyses</u> of Bolsa Familia Program (BFP) non-beneficiaries (N-BF) and beneficiaries (BF) on <u>TB incidence rate</u>

[95% CI] **Poorest** Non-beneficiaries BFP ┢ Wealth Subp. - TB Incidence - Decile 1 89.00 [88.10, 89.90] Wealth Subp. - TB Incidence · Decile 2 74.40 [73.10, 75.80] Wealth Subp. - TB Incidence - Decile 3 78.00 [76.00, 80.10] Wealth Subp. - TB Incidence - Decile 4 85.20 [82.40, 88.10] Wealth Subp. - TB Incidence - Decile 5 80.70 [78.10, 83.40] Wealth Subp. - TB Incidence - Decile 6 79.00 [76.40, 81.70] Wealth Subp. - TB Incidence - Decile 7 77.50 [75.00, 80.00] Wealth Subp. - TB Incidence - Decile 8 74.40 [72.20, 76.70] Wealth Subp. - TB Incidence - Decile 9 66.20 [64.30, 68.20] Richest Wealth Subp. - TB Incidence - Decile 10 61.40 [59.70, 63.10] **Beneficiaries BFP** Poorest Wealth Subp. - TB Incidence - Decile 1 49.40 [49.00, 49.90] Wealth Subp. - TB Incidence - Decile 2 44.10 [43.40, 44.90] Wealth Subp. - TB Incidence - Decile 3 **├**■┤ 49.90 [48.70, 51.20] Wealth Subp. - TB Incidence - Decile 4 52.00 [50.40, 53.70] Wealth Subp. - TB Incidence - Decile 5 51.50 [49.90, 53.30] Wealth Subp. - TB Incidence - Decile 6 53.40 [51.50, 55.30] Wealth Subp. - TB Incidence - Decile 7 53.90 [51.80, 56.10] Wealth Subp. - TB Incidence - Decile 8 53.80 [51.60, 56.10] Wealth Subp. - TB Incidence - Decile 9 54.30 [51.90, 56.70] Richest Wealth Subp. - TB Incidence - Decile 10 55.60 [53.10, 58.30]

60

70

80

90

<u>Descriptive analyses</u> of Bolsa Familia Program (BFP) non-beneficiaries (N-BF) and beneficiaries (BF) on <u>Child mortality rates</u>

Poorest



Richest

Poorest



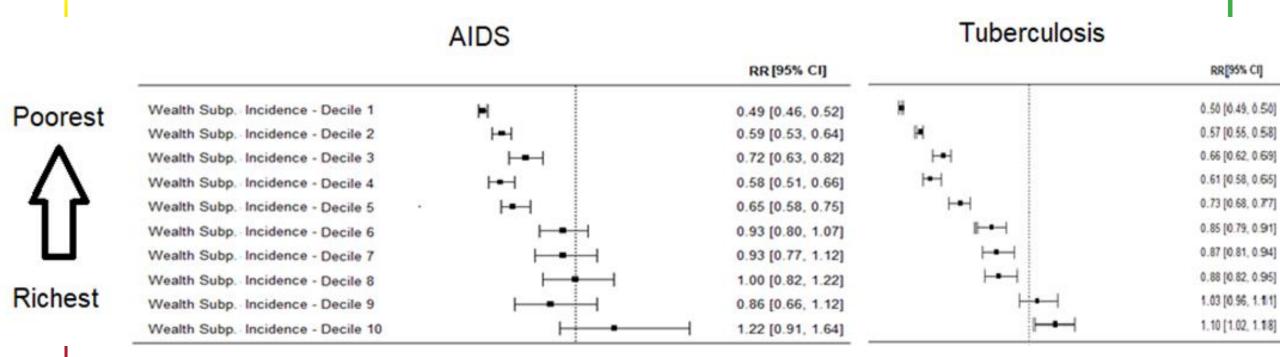
Richest

		[95% CI]
Non-beneficiaries BFP		
Wealth Subp Child Mortality - Decile 1	 ■ 	1.09 [1.06, 1.1
Wealth Subp Child Mortality - Decile 2	├ -	1.12 [1.07, 1.1
Wealth Subp Child Mortality - Decile 3	 ■ 	0.79 [0.74, 0.8
Wealth Subp Child Mortality - Decile 4	⊢• ─	0.95 [0.89, 1.0
Wealth Subp Child Mortality - Decile 5	├	1.39 [1.33, 1.4
Wealth Subp Child Mortality - Decile 6	 ■ 	1.14 [1.08, 1.2
Wealth Subp Child Mortality - Decile 7	 ■ 	0.94 [0.88, 0.9
Wealth Subp Child Mortality - Decile 8	├ ■─┤	0.89 [0.84, 0.9
Wealth Subp Child Mortality - Decile 9	. • 	0.76 [0.71, 0.8
Wealth Subp Child Mortality - Decile 10	⊢•-	0.78 [0.73, 0.8
Beneficiaries BFP		
Wealth Subp Child Mortality - Decile 1	Н	0.35 [0.34, 0.3
Wealth Subp Child Mortality - Decile 2	= 	0.34 [0.32, 0.3
Wealth Subp Child Mortality - Decile 3	=	0.30 [0.28, 0.3
Wealth Subp Child Mortality - Decile 4	 ■ 	0.46 [0.43, 0.9
Wealth Subp Child Mortality - Decile 5	 =	0.47 [0.45, 0.4
Wealth Subp Child Mortality - Decile 6	 = 	0.47 [0.44, 0.4
Wealth Subp Child Mortality - Decile 7	 = 	0.45 [0.43, 0.4
Wealth Subp Child Mortality - Decile 8	 ■ 	0.47 [0.44, 0.5
Wealth Subp Child Mortality - Decile 9	 ■ 	0.49 [0.45, 0.
Wealth Subp Child Mortality - Decile 10	├≖ ┤	0.56 [0.51, 0.6

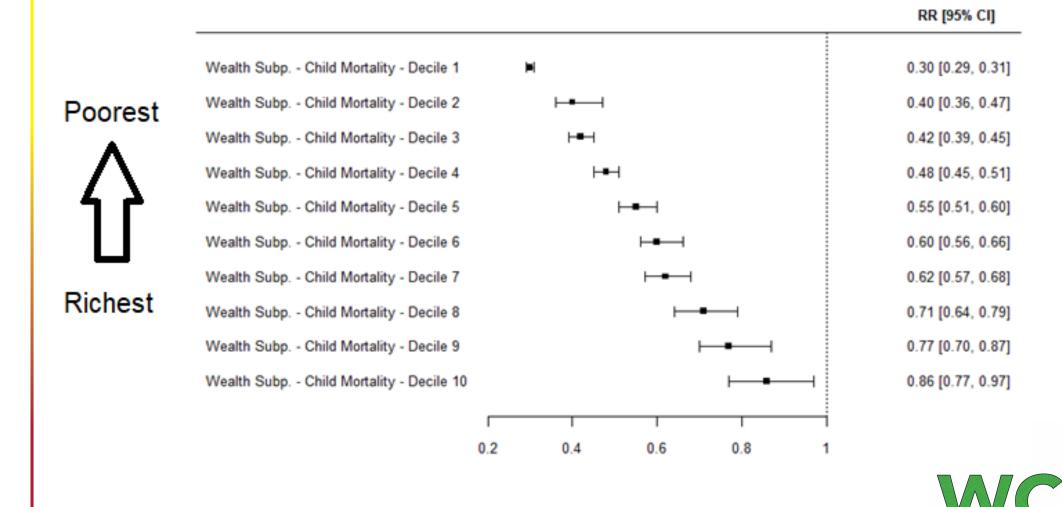
0.5

1.5

<u>Effects</u> of the Brazilian CCT, expressed in adjusted Rate Ratios from IPTW multivariable Poisson Regression, <u>on AIDS and Tuberculosis incidence</u>



Effects of the Brazilian CCT on **Child Mortality**, expressed in adjusted Rate Ratios from IPTW multivariable Poisson Regression.



Discussion and Conclusions

• BFP was able to significantly decrease the AIDS and TB incidence, and child mortality rates, among very low-income populations, with a marked dose-response effect based on the level of socioeconomic vulnerability of the beneficiaries, playing an important role in reducing health inequities in the Brazilian society.

• Given the growing poverty and inequality in the current polycrisis era, the expansion and strengthening of CCT in Low- and Middle-income countries has the potential to contribute to the achievement of the Sustainable Development Goals linked to AIDS, TB, and child mortality by 2030, and to contribute to the reduction of health inequalities world.







Thank you

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