

Monitoring progress: Race and vaccine equity

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Introduction

In mid-April, Wellesley Institute reported that areas in Ontario with higher rates of COVID-19 had lower rates of vaccination, and that this pattern was greatest in the City of Toronto.¹

Since the publication of that report, a follow-up bulletin described a movement towards greater equity, where the mismatch between vaccination rates and COVID-19 infection rates in Ontario seemed to be diminishing, particularly in the City of Toronto where the disparity was greatest.² The change in equity of vaccination followed Ontario's pivot in strategy which increased the proportion of vaccines available to hot spots, areas with highest rates of COVID-19 infection.

The first report also documented inequities by racial composition of an area: areas that had a higher per cent of Black, South Asian, South East Asian, or Latino populations had lower rates of vaccination, even after taking COVID-19 infection rates into account. This paper revisits the topic of racial inequity, investigating whether associations between racial composition, vaccination rates, and COVID -19 infection rates have changed over time.

Methods

Data on cumulative rates of vaccination and infection for forward sortation areas (FSAs) were accessed from Institute for Clinical Evaluative Sciences (ICES) for seven time points: March 27, April 4, April 18, April 26, May 3, May 8, and May 17, 2021.⁵ These data were linked to 2016 census characteristics for FSAs.^a Correlations between racial composition and vaccination were compared to the cumulative COVID-19 infection rates by neighborhood racial composition. Note that these rates exclude people living in long-term care homes.

Findings

It is unclear whether the focus of vaccination on areas with high infection rates – the hot spot strategy – has succeeded in improving racial equity in Ontario. Results seem to be mixed at best.

There was a strong association between the percentage of each of the Black and South East Asian origin populations in an area and the rate of COVID-19. The higher the percentage of those populations, the higher the rate of COVID-19 infection in an area. This has been consistent over time. At the beginning of the vaccine roll out vaccination rates decreased as the percentage of people from each of these populations increased in an area. The association between low rates of vaccination and the percentage of either Black or South East Asian origin people in an area has persisted. The disparity between need for vaccination and rates of COVID -19 has therefore also persisted for these populations. (see Figures 1, 2).

There is a strong association between the percentage of persons of South Asian origin in an area and the rate of COVID-19 infection; there are higher rates of COVID -19 infection in areas with higher

^a Change in FSA vaccination rate over time was modeled using generalized estimating equations with an auto-regressive error structure – essentially a method that accounts for the inertia of local vaccination rates. These models included an interaction between hot spot status and time, controlling for local age composition, race, COVID-19 rates, and poverty rates. Change in COVID-19 rates over time were modeled with the same strategy, although obviously excluding COVID-19 rate as a predictor.

percentages of persons of South Asian origin. This association has persisted. Rates of vaccination were originally lower in areas with a larger South Asian population and though the link between South Asian population and vaccination rates has improved over time. There are not yet higher vaccination rates in areas with higher South Asian populations. Consequently, there remains a mismatch between vaccination need and vaccination rates for these areas (Figure 3). There are similar findings for the Latino population (Figure 4).

The situation for persons of Chinese origin is different. There are lower rates of COVID-19 infection in areas with higher Chinese origin populations and the rates of vaccination are higher in areas with higher Chinese origin populations (see Figure 5).

Discussion

This report shows that although the hot spot strategy seems to have improved vaccination rates in target areas, there is still considerable progress that needs to be made towards equity for racial and ethnic groups. Areas with higher Black and South East Asian populations have a lower vaccination rate after taking their COVID-19 infection rates into account. We need to consider new strategies that address racial vaccination inequity in Ontario, or these inequities are likely to persist.

Figure 1.

Top panel: Association between per cent Black at the neighborhood (FSA) level and vaccination rate

Bottom panel: Association between per cent Black and COVID-19 rate

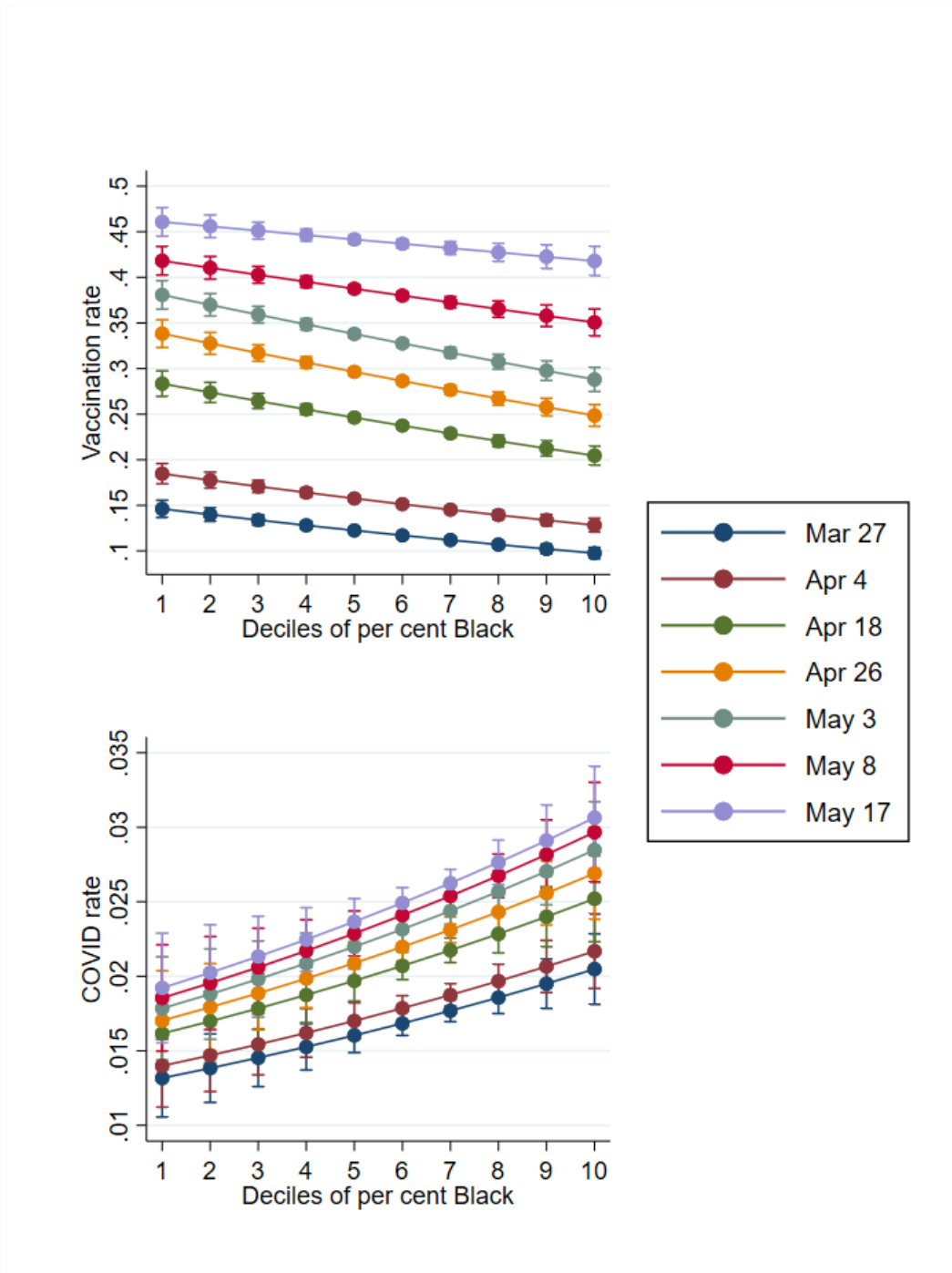


Figure 2.

Top panel: Association between per cent Southeast Asian at the neighborhood (FSA) level and vaccination rate

Bottom panel: Association between per cent Southeast Asian and COVID-19 rate

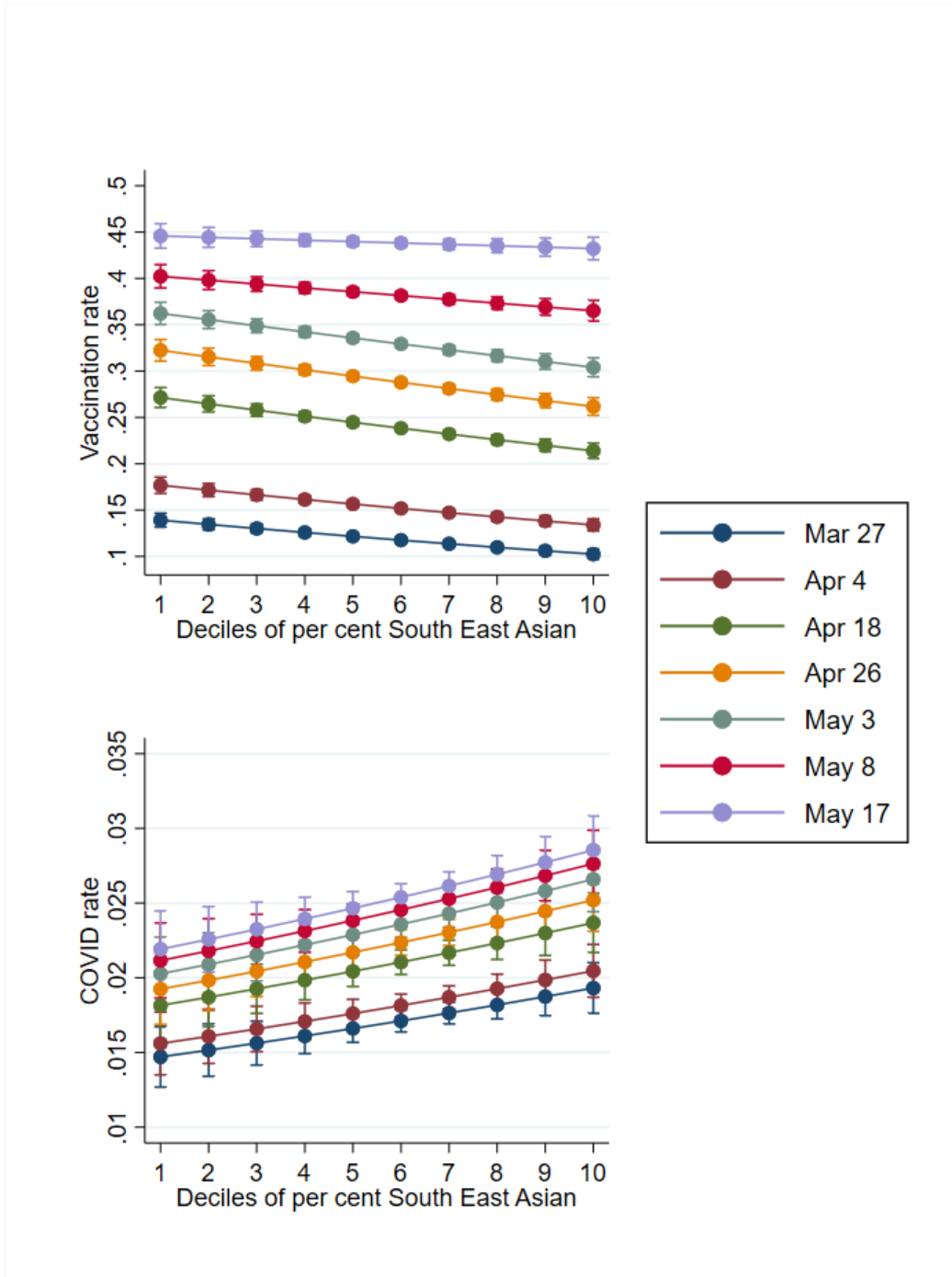


Figure 3.

Top panel: Association between per cent South Asian at the neighborhood (FSA) level and vaccination rate

Bottom panel: Association between per cent South Asian and COVID-19 rate

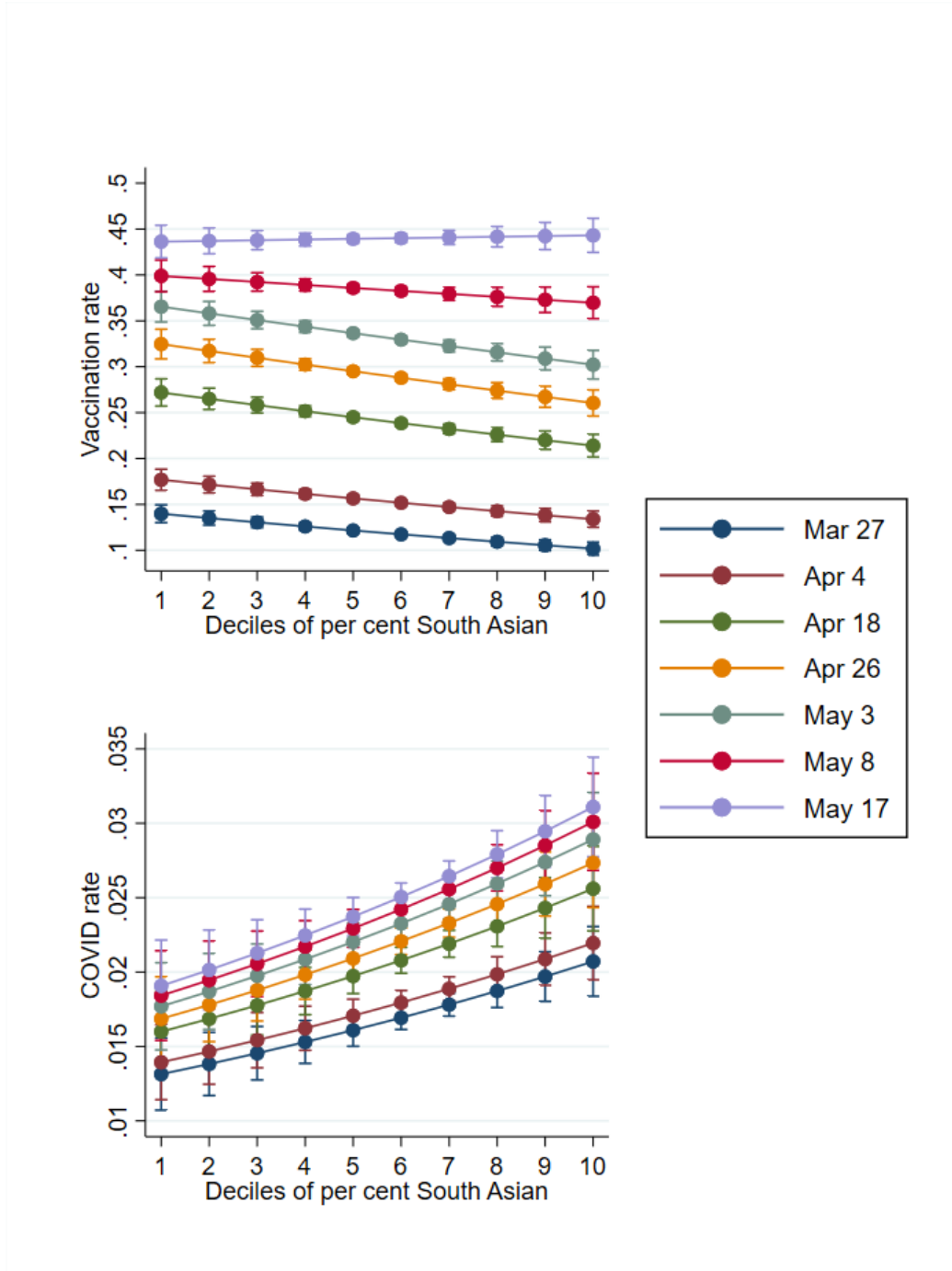


Figure 4.

Top panel: Association between per cent Latino at the neighborhood (FSA) level and vaccination rate

Bottom panel: Association between per cent Latino and COVID-19 rate

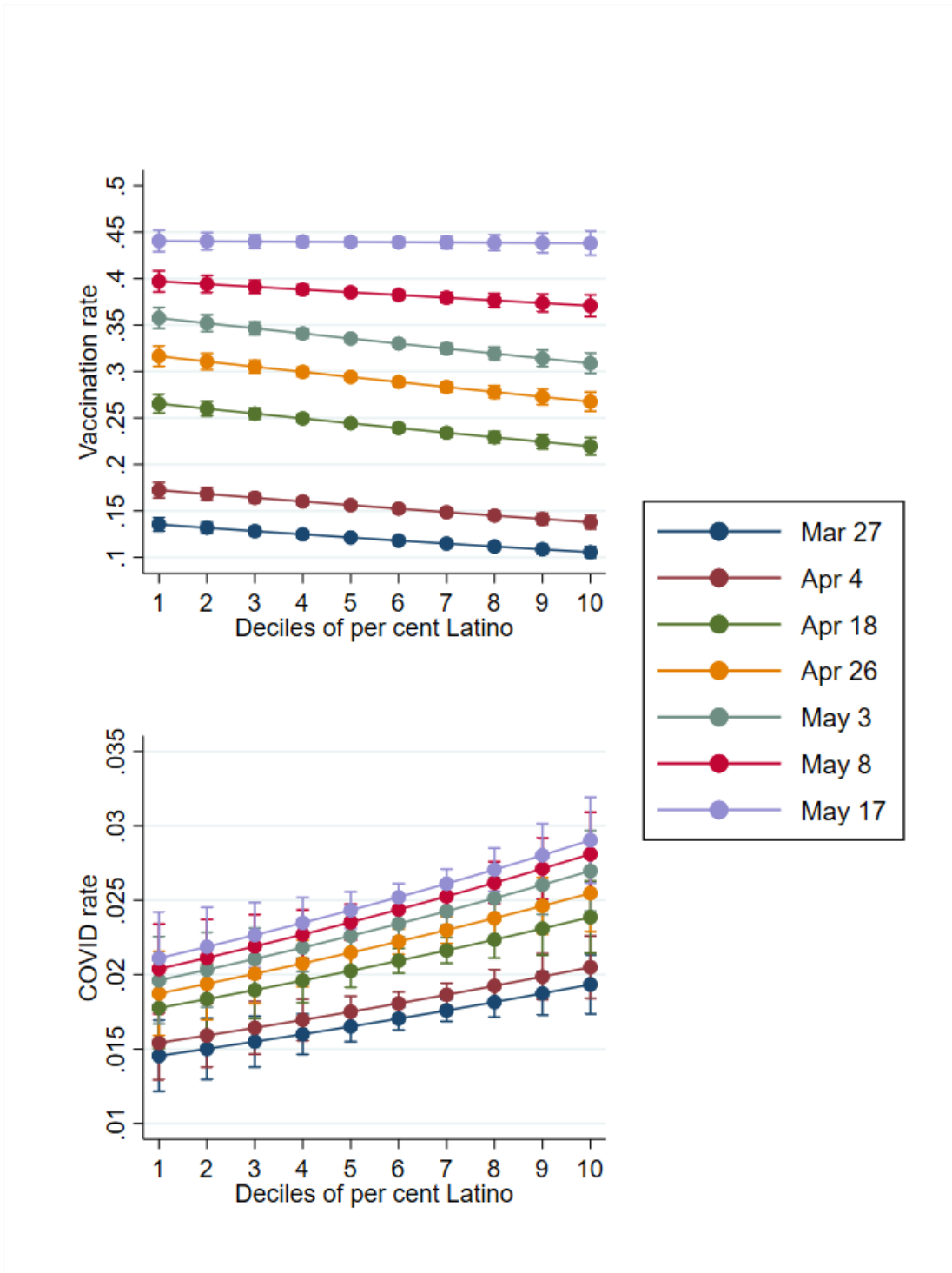
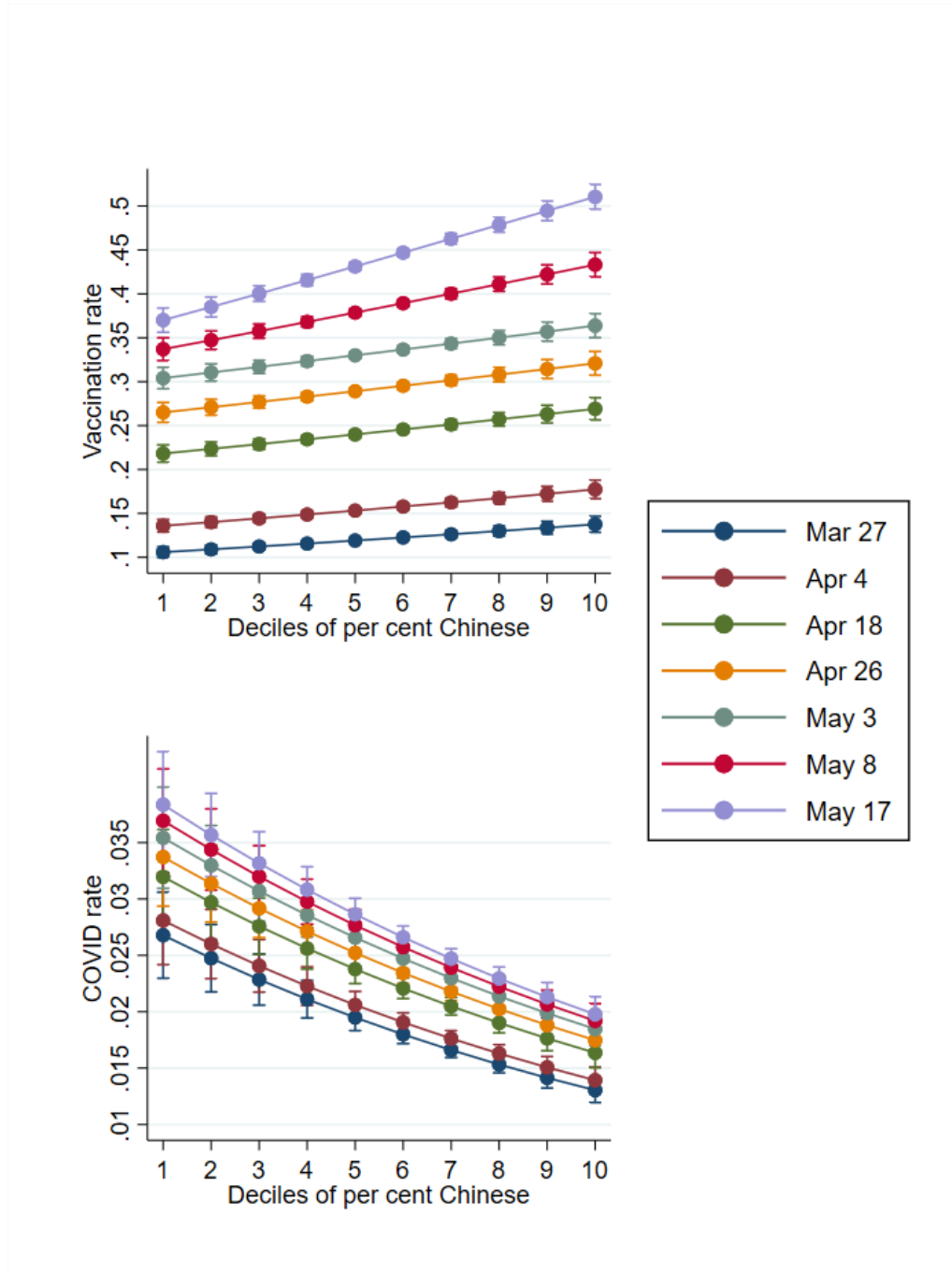


Figure 5.

Top panel: Association between per cent Chinese at the neighborhood (FSA) level and vaccination rate

Bottom panel: Association between per cent Chinese and COVID-19 rate



References

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