

## Patterns of Spatial Inequity: Negative Employment Impacts of the COVID-19 Pandemic

February 2021

### Introduction

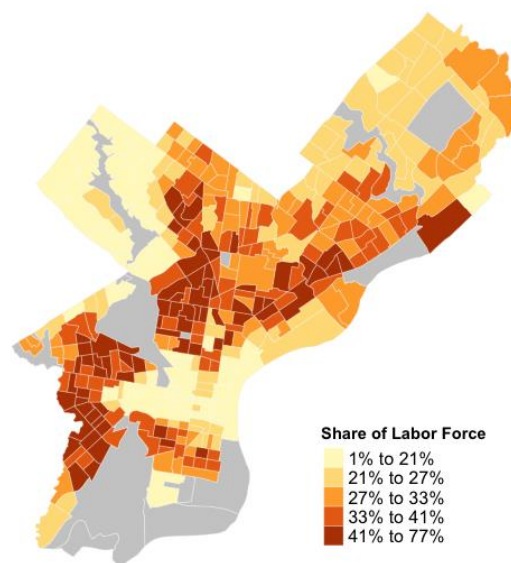
The COVID-19 pandemic and resulting economic crisis have had significant impacts on Philadelphia’s workforce. As reported previously in *Increasing Inequities*, analysis conducted by Philadelphia Works has found that the most severe burdens have fallen on already disadvantaged populations. By race and ethnicity, industry of employment, and where workers call home, the unevenness of the COVID-19 economic crisis is exacerbating existing inequities.

Following these findings, this research supplement focuses on the spatial impacts of the current crisis in Philadelphia. Using initial unemployment claims data from the State of Pennsylvania as well as tract-level tabulations from the 2015-2019 American Community Survey, a series of maps illustrates how the current employment crisis has followed existing spatial patterns of economic exclusion.

For example, In Figures One and Two, tract-based relationships appear to exist between the relative rate of initial claims filed from March 15 to December 4, 2020, and the share of individuals living in poverty prior to the COVID-19 crisis. Where we see higher rates of poverty before the pandemic, we see larger shares of the labor force filing claims for unemployment during the pandemic. Similar patterns exist by race and ethnicity, labor force participation, and educational attainment.

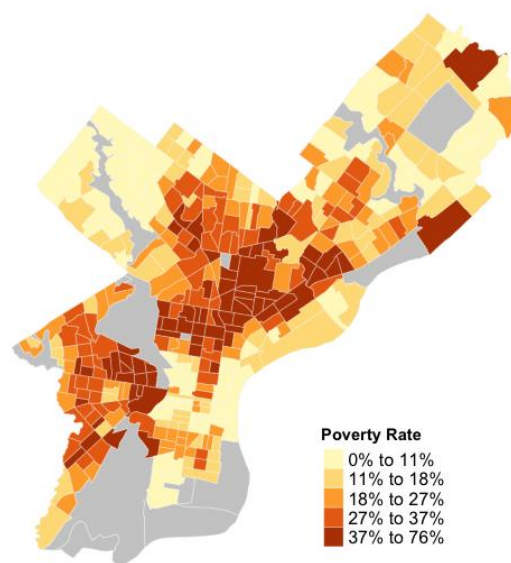
To quantitatively test for significance, Pearson correlation coefficients and associated p-values were calculated. Results show that these relationships are not occurring randomly. Workers in areas of Philadelphia with lower rates of labor force participation, lower educational attainment, higher rates of poverty, and higher concentrations of non-white residents prior to the pandemic have filed initial unemployment claims during the COVID-19 crisis at significantly higher rates than workers residing in other areas of the city.

**Figure 1: Initial Unemployment Claims by 2019 Labor Force, March 15 to December 5, 2020**



Sources: PA CWDS Initial Unemployment Claims;  
 US Census Bureau, American Community Survey 2014-2019 Estimates

**Figure 2: Individual Poverty Rates, 2019 Estimates**



Source: US Census Bureau, American Community Survey 2014-2019 Estimates

As seen in Figures One and Two, both pre-pandemic rates of poverty and initial unemployment claims filed through the beginning of December 2020 were concentrated in areas of North and West Philadelphia. These same concentrations were mirrored in mapped analyses of labor force participation, race and ethnicity, and educational attainment.

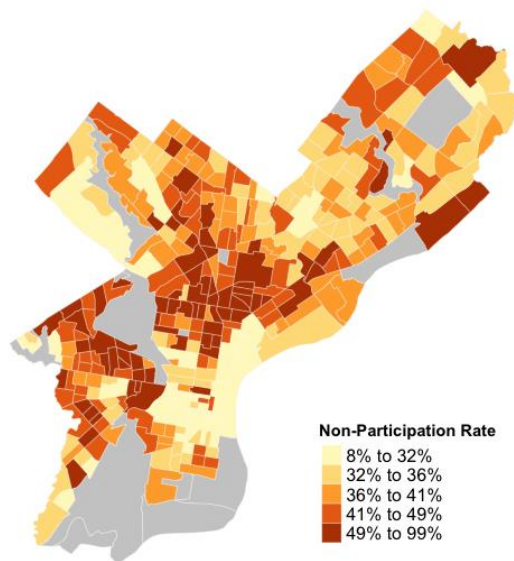
### Labor Force Participation

In 2019, low rates of labor force participation were primarily concentrated in North and West Philadelphia. In some tracts, estimates show that more than half of the working age population was not in the labor force—neither employed nor looking for employment—prior to the pandemic (Figure 3). While the factors contributing to non-participation are complex, disconnection from the labor market is associated with negative economic outcomes.<sup>i</sup>

### Race and Ethnicity

As reported in *Increasing Inequities*, while people of color across Philadelphia have experienced outsized impacts, Black and African American workers have faced the greatest burdens. Spatially, as of 2019, Black and African American populations as well as non-white populations more broadly were concentrated in portions of North, Northeast, and West Philadelphia. However, as seen in Figures Four and Five, Black and African American populations were hyper-concentrated in the north and west. Both patterns mirror the spatial distribution of relative unemployment claims filed during the pandemic as seen in Figure One.

Figure 3: Labor Force Non-Participation Estimates, 2019

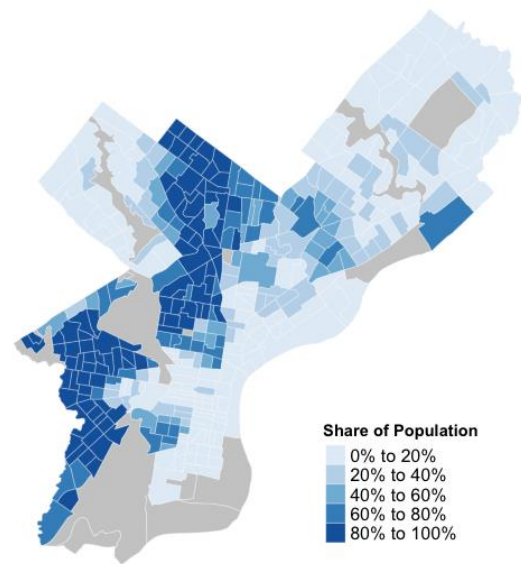


Source: US Census Bureau, American Community Survey 2014-2019 Estimates

### Educational Attainment

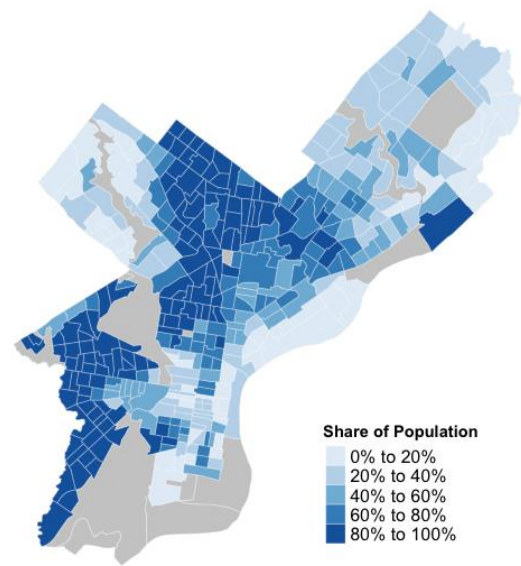
Historically, employment outcomes have been highly uneven by educational attainment. As educational attainment increases, so too do employment rates.<sup>ii</sup> Prior to the COVID-19 crisis, Philadelphians with at least a bachelor’s degree were concentrated spatially in the central and the northwestern portions of the city, where relative unemployment claims during the pandemic have been lowest (Figure 6). Residents with at least a high school diploma are distributed in a similar pattern (Figure 7).

Figure 4: Black and African American Population, 2019 Estimates



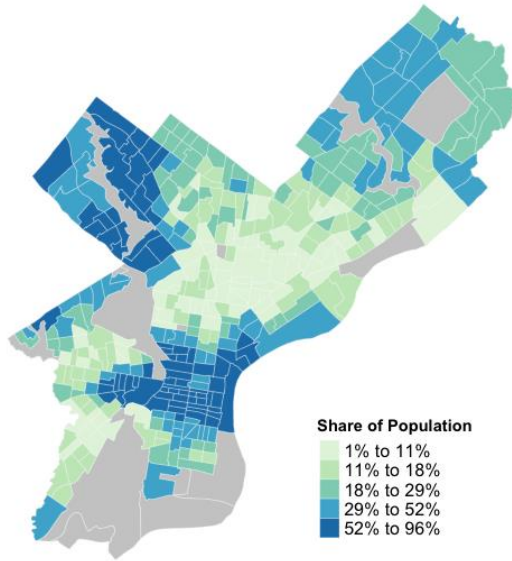
Source: US Census Bureau, American Community Survey 2014-2019 Estimates

Figure 5: Non-White Population, 2019 Estimates



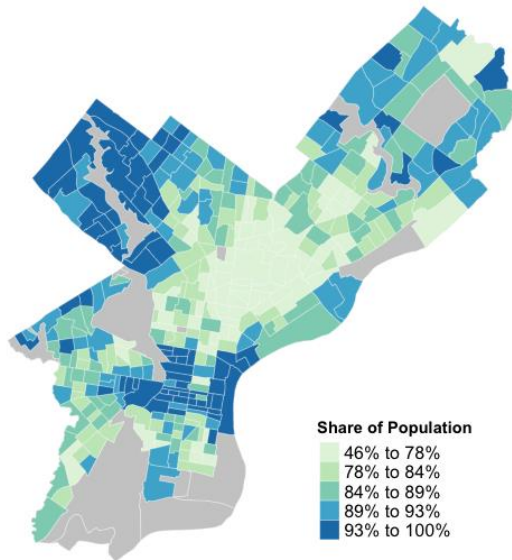
Source: US Census Bureau, American Community Survey 2014-2019 Estimates

**Figure 6: Population with at least a Bachelor’s Degree, 2019 Estimates**



Source: US Census Bureau, American Community Survey 2014-2019 Estimates

**Figure 7: Population with at least a High School Diploma, 2019 Estimates**



Source: US Census Bureau, American Community Survey 2014-2019 Estimates

**Testing Significance: Pearson Correlation**

Overall, each of the above maps depict similar patterns. Initial unemployment claims are concentrated in the northern and western parts of the city of Philadelphia: areas that previously had lower levels of labor force participation and educational attainment and higher rates of poverty. These areas also have large populations of residents of color.

To confirm that these observed patterns are significant, Pearson correlation coefficients and associated p-values were calculated for each variable relationship. Displayed in Table One, these results show that the relationship between each of the pre-pandemic characteristics and the current rate of claims is significant and strong.

**Table 1: Pearson Correlation Results**

Variable	Coefficient	P-value
Poverty	0.60	<.001
Non-Participation	0.63	<.001
Non-White	0.59	<.001
Bachelor’s Degree	-0.58	<.001
High School Diploma	-0.77	<.001

Source: Philadelphia Works analysis of the U.S Census Bureau’s American Community Survey 2014-2019 Estimates and PA CWIA’s Unemployment Claims data

Positive coefficients suggest a positive relationship, and those above 0.5 or below -0.5 indicate a strong association. For example, the .60 coefficient for poverty shows us that as poverty rates increase, so too do rates of initial claims. Conversely, the negative relationships between education and the rate of initial claims suggest that areas with greater shares of high-school- and college-educated individuals are likely to have lower rates of initial unemployment claims.

For each variable, the low associated p-value indicates that the relationship expressed through the correlation coefficient is statistically significant. Said another way, we can be confident that these patterns are not occurring randomly.

Though not presented here, it is worth noting that nearly all of the pre-pandemic characteristics were significantly correlated with one another. Additionally, each presents a high degree of autocorrelation, suggesting statistically significant and non-random spatial concentrations.

These relationships speak to the systemic barriers many Philadelphians face. Spatially, we can clearly see—and statistically, we can further prove—that economic exclusion and segregation are connected.

## Conclusion

Negative labor market effects of the COVID-19 pandemic are widespread, and residents across Philadelphia have been affected. However, disproportionate impacts are occurring in areas with existing barriers to employment.

Neighborhoods with lower rates of labor force participation, lower educational attainment, higher rates of poverty, and higher concentrations of non-white residents prior to the pandemic are more likely to be affected by the current employment crisis.

As Philadelphia navigates recovery, community and business leaders can help make progress against these trends and obtain resources for their communities by engaging with [Philadelphia Works](#) and the [Philadelphia PA CareerLink®](#) system.

*For more information about this content or to contact us with any questions, please reach out to [data@philaworks.org](mailto:data@philaworks.org).*

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<sup>i</sup> **Labor Force Participation:** Here, we refer to the body of literature around labor force participation and the long-term unemployed that have involuntarily left the labor force. One recent report [Labor Force Nonparticipation: Trends, Causes, and Policy Solutions](#) published by the Brookings Institution discusses labor force participation in the United States prior to the COVID-19 pandemic. While some individuals choose to not seek employment, deciding instead to care for family members, falling demand and wages for low-skill workers (those with no college education) have forced many out of the labor force involuntarily.

<sup>ii</sup> **Education and Employment Outcomes:** In 2019, Philadelphians with a college degree were much more likely to participate in the labor force and much less likely to be unemployed. For example, according to American Community Survey estimates, while the unemployment rate for those with bachelor's degree was 4%, the rate for those with less than a high school diploma was 16%. This pattern has largely been exacerbated by the current employment crisis, as low-skill employment has been disproportionately affected.