

THE COVID-19 LAYOFF HOUSING GAP
Technical Documentation
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Introduction

In March 2020, MAPC's Research Team worked with the City of Boston to develop an analysis that would help quantify the potential need for housing assistance given layoffs related to COVID-19 in Massachusetts and in the City of Boston. Our analysis is based on information from the 2013 – 2017 American Community Survey Public Use Microdata Sample (PUMS), unemployment claims data from the Executive Office of Labor and Workforce Development, and a Living Wage calculator published by MIT. This document describes MAPC's methods for the development of estimated monthly housing assistance needed for Massachusetts under different policy scenarios.

Estimating Unemployment Claims by Occupation

In order to estimate the number of initial unemployment claims by occupation that could be attributable to COVID-19-related work closures, MAPC collected Massachusetts industry-level initial unemployment claimant data for the two weeks ending March 21 and March 28, available from the Massachusetts Office of Labor and Workforce Development:

<https://www.mass.gov/news/massachusetts-weekly-initial-unemployment-claimant-data-04-02-20>. In order to estimate the number of claims by occupation, we applied the most current (May 2018) industry-occupation matrix ("Occupational Employment and Wage Statistics by Industry") available from EOLWD

(<https://lmi.dua.eol.mass.gov/lmi/OccupationalEmploymentAndWageByIndustry>.) We conducted the analysis as follows:

- 1) The industry-occupation matrix was filtered to the two-digit the industry codes included in the initial unemployment claimant data. The matrix was further filtered to only include employment numbers for general occupations, i.e. those with XX-0000 occupation codes, where 'XX' is the two-digit occupation code. Since some industry employment was not assigned to a two-digit occupation category, the employment of the known categories was summed to yield the "enumerated occupational employment." Each occupation's share of enumerated employment within each industry was then calculated. (e.g., 10% of the 'Utilities' industry is made up of 'Architectural and Engineering Occupations.')
- 2) Using Massachusetts weekly initial unemployment claims data for the weeks ending March 21, 2020 and March 28, 2020, we obtained statewide unemployment claims data by industry, totaling 328,967 initial claims over the two week period, classified into 21 industry groupings. There was no industry information on 34,000 claimants, approximately 10% of the total. Furthermore, the 'Agriculture, Forestry, Fishing, and Hunting' industry, which had 682 unemployment claimants, was not found in the industry-occupation matrix list. These uncategorized claimants were distributed across the industries that were found in both the unemployment claims data and the Occupational Employment and Wage Statistics data (19 industry categories) based on the industry's share of all initial unemployment claims where information was available. For example, if 10% of the

unemployment claimants came from industry X, then industry X received 10% of the uncategorized claimants upon allocation. This yields the “adjusted claimants” per industry.

- 3) Assuming that each occupation within a given at-risk industry group was equally likely to experience a layoff, the occupational share within each industry was multiplied by the adjusted claimants per industry group to yield an estimated number of claimants per industry and occupation. (e.g., 10% of the 52 post-allocation unemployment claimants for the ‘Utilities’ industry will be assigned to the ‘Architectural and Engineering Occupations’ in the Utilities industry, yielding five claimants in this industry and occupation.)
- 4) The number of claimants by occupation was summed across industries to obtain a total statewide estimate of claimants per occupation. (e.g., for ‘Architectural and Engineering Occupations’ across *all* industries, the total estimate of unemployment claimants is 1,387.)

Estimation of Post-Layoff Income and Housing Gap

MAPC used Census microdata to estimate the impact that a layoff in a particular occupation may have on the average household and that household’s ability to cover their housing costs after accounting for other basic household needs. All estimates are in 2019 dollar equivalents.

- 1) Using the 2012 – 2017 Public Use Microdata Sample (PUMS) for Massachusetts data, we selected all workers in the 2-digit SOC code occupations with estimated claims for the period under consideration. The analysis was limited to workers that reported earning at least \$3,500 per year, the minimum threshold for unemployment eligibility in Massachusetts.
- 2) The wages of these workers were then aggregated by household id to obtain a total of ‘lost wages’ for any particular household if the worker(s) in a particular occupation were laid off. The total lost wages was subtracted from the household’s income to determine “remaining household income” (from unaffected workers or other sources of income.)
- 3) For each household, housing costs were determined to be either reported Gross Rent (rent plus any tenant-paid utilities) or Selected Monthly Owner costs (mortgage, taxes, insurance, condominium fees, and utilities.)
- 4) For each household, “basic living expenses” were estimated to be \$620/person/month inclusive of healthcare, food, transportation, and other expenses. This figure was based on the Living Wage calculator published by MIT. The calculator publishes household costs by household size and type; \$620 was the lowest per person measure across all household size and types, after excluding housing costs and childcare (not a generally relevant expense for unemployed workers.)
- 5) If the sum of housing costs plus basic living expenses exceeded remaining household income, the household flagged as a “household in need.” The housing costs in excess of the remaining income, minus basic living expenses, were calculated as “housing assistance needed” (this figure exceeds any basic living expenses in excess of the remaining income.)
- 6) The above operations were conducted for each occupation and the average assistance needed per household per occupation was calculated from these households in need using the PUMS household weights
- 7) The results of this analysis are total workers in a particular occupation and tenure status, the number of “households in need,” and the average assistance needed per household.

Estimating the Effect of Multiple Layoffs per Household

The current crisis may affect multiple earners in different occupations in each household. For some households, the loss of one worker's income may not mean the household needs assistance, but the loss of two workers' incomes may push them over the edge. For other households, the loss of any income may mean the household cannot make rent, and as a result, such households may be double counted in the analysis above as the same household loses workers across occupations.

In order to account for this complexity in our analysis, we estimated average post layoff income and housing assistance needed for each of the 22 2-Digit SOC Code occupations individually. Then we estimated the average income impacts and housing assistance needed assuming layoffs across all occupations. The total number of households impacted in this all-occupation analysis was then compared to the sum of households impacted for each individual occupation. The ratio of these values was used as a multiplier to either boost or discount the number of estimated households impacted by each industry's layoff amounts.

To determine the total number of households and amount of assistance associated with the reported unemployment claims, we multiplied the number of claims for each occupation by the occupation- and tenure-specific estimates of impacted households and average assistance needed per laid off worker. The multiplier described above was then applied to yield a total estimate of impacted households and assistance needed for each occupation. These estimates were summed across occupations to yield a total value for housing assistance needed.

CARES Act Analysis

To estimate effect of federal relief provided through the CARES Act, two modifications were made to the model assumptions:

- 1) Before individual incomes were aggregated to the household level to determine "lost income," we applied unemployment assumptions. For workers making less than the current unemployment cap (\$85,592), lost wages were calculated as 50% of a worker's wage; and the \$600 per week CARES Act benefit was added to the resulting unemployment income. For workers making above the unemployment cap, lost wages were estimated as their current wages minus the maximum allowed under unemployment payouts; again the \$600 per week CARES Act benefit was then added.
- 2) To estimate the value of direct payments made available through the CARES Act, we estimated each household's adjusted gross income (AGI). Each household was assumed to have used the standard deduction allowed in 2017: \$12,700 for married couples, \$9,350 for head of households, \$6,350 for other individuals, and \$1,050 for each child. These deductions were subtracted from the total household income in PUMS to estimate a household AGI.

The one-time stimulus payment was then estimated as follows:

- If a household is a married couple with an AGI of \$150,000 or less, the household receives \$2,400 in payments plus \$500 for each child; otherwise
- If the household is unmarried and with an AGI of \$75,000 a year or less, the households receives \$1,200 for each adult and \$500 for each child; otherwise
- If the household AGI is between \$75,000 and \$112,500 and the head of household is unmarried with children the household receives \$1,200 per adult and \$500 per child; otherwise
- If the remaining households have an AGI of more than \$75,000, their stimulus check is \$1,200 minus their income above \$75,000*5%, until that value reaches 0.

Caveats

In such a rapidly evolving crisis, there is much that is not known about the workers who are affected, the other expenses and resources that will help or hinder their ability to maintain housing stability, and the extent to which federal assistance will help to close the gap. In general, we have generally made more conservative assumptions that do not inflate the estimated impact or need for housing assistance, though in some cases there is little option but to use an approach that likely overestimates the need.

We have limited information about the specific occupations that have been affected by layoffs and must assume that all occupations within an industry are affected equally, and that all workers within an occupation are equally at risk for job disruptions. As a result, we may be underestimating the extent to which more junior, lower paid workers may be disproportionately affected by layoffs.

Our analysis is also focused on those workers who applied for unemployment insurance between March 16 and March 28, which excludes self-employed workers not eligible for unemployment insurance until the CARES Act was adopted as well as workers who are not reporting to work but who have not been officially laid off or furloughed. As a result, we are most certainly underestimating the number of affected workers and households.

Our analysis of the eligibility for one-time direct payments is imprecise due to the mismatch between a Census 'household' and a tax-filing unit. Many 'households' in PUMS likely file their taxes separately and classify themselves as more than one household for tax purposes. For example, three adult roommates each making \$50,000/ year would have an estimated AGI of \$127,950. This household would then be ineligible for stimulus payments. However, in reality if each roommate filed their taxes separately, they would all be eligible, and the household would receive \$3,600 in stimulus checks. This is likely to underestimate households who would receive the one-time direct payments authorized by the CARES Act.

The estimates of basic living expenses are clearly a broad generalization that do not account for different household circumstances or the extent to which the current crisis has affected spending patterns. Since these average expenses include both high- and low-income households, and since the reduction in travel has reduced direct transportation and leisure expenses, the estimates likely overestimate necessary spending for low-income households. On the other hand, we have not estimated the increase in health insurance costs that many households may face when they have to transition off their employer-provided plan. This would underestimate the need for additional support.

We have not made any allowances for other forms of public support that are contingent on income such as housing subsidies or food assistance. Nor have we accounted for the ability of some households to draw on savings to cover immediate expenses. In both cases, the result would be to overestimate the amount of new housing assistance needed.