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## Cahier 06-2020

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# Labor Supply in the Time of COVID19

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## Executive Summary

In the face of the COVID19 crisis, some industries have seen their markets disappear leading them to lay-off large fractions of their workforce. Other industries find that the demand for their services has expanded sharply and are struggling to keep up. At the same time, the ability to work is hampered by social distancing, the closing of schools and day cares, and the need to especially protect those with underlying conditions. The result is that some industries will likely face shortages in the coming weeks and months, even while there is mass unemployment from others.

We find:

- Roughly a quarter of the workforce has young children at home and may therefore be constrained from full-time work. Rates are slightly higher in essential industries, and highest in healthcare where 5.6 million workers have at least one child under 12. Health care workers are also more likely to be single parents, and especially single mothers.
- About one-fifth of the workforce is in an at risk group or lives with someone who is more likely to suffer severe consequences from COVID19. In healthcare, 25% of workers fall into this category. Overall, 18.5 million essential (non-health) workers and 4.6 million healthcare workers are in a high risk group that limits their ability to contribute to the economy in order to protect themselves or a family member with underlying conditions.
- The reserve pool of potential health care workers that might be recalled to address shortages is relatively small after accounting for risks they face. We estimate that if every one-time nurse not currently in nursing was recalled, this would increase the number of nurses by 27%. More generally in health care, the potential pool could add up to 40% more healthcare workers. However, two-thirds of these are either in a high-risk group or live in a household with a member from a high-risk group.

## 1 Introduction

The COVID19 crisis and its policy response affects the labor market in many ways. Some industries have seen their markets disappear leading them to lay-off large fractions of their workforce. Other industries find that the demand for their services has expanded sharply and are struggling to keep up. In addition, scores are being prevented from working in non-essential industries as restrictions are being put in place to prevent the spread of the novel coronavirus. On the supply side, social distancing and especially the self-isolation of workers with underlying conditions represents a contraction of supply across industries. And, school and

daycare closures have made it substantially more difficult for some workers to go to work. These factors combined makes it likely that some industries will face shortages in the coming weeks and months even while there is mass unemployment in others.

Roughly 60% of employment is in “essential” industries.<sup>1</sup> Health care workers are of particular importance as they sit on the front lines as society battles COVID-19. State governments are increasingly restricting the sets of people who can work outside the home. An important factor limiting the labor supply of people who *can* work outside the home is childcare. Another factor that limits the ability to return to work is the fear of endangering household members who are particularly at risk from COVID-19 infections.

How large are these constraints on labor supply, especially in essential industries? As the crisis unfolds, current health care providers especially find themselves under tremendous stress. One policy response is to encourage former nurses and healthcare workers to return from retirement and other jobs, based on the dramatic need for workers in healthcare. In other sectors, workers are being asked to work from home as a way to minimize the spread of the virus while still supporting the economy. How large are these mitigating efforts to keep the healthcare system and the economy as a whole afloat?

This memo uses data from the Survey of Income Participation (2008-2013), the American Community Survey (2017), and the National Health and Interview Survey (2017) to inform on the magnitude of some of the factors weighing on the labor market. We hope this snapshot glimpse will provide policy makers with an idea of how significant constraints on labor supply are likely to be.

We consider three aspects of the current situation.

1. Child-care needs: What share of the workforce has young children at home? Does this vary across essential and non-essential industries?
2. At risk populations in the work force: what fraction of the workforce is either personally in a high-risk category or lives in a household with somebody in a high-risk category and how does this vary across essential and non-essential industries?
3. Potential supply of nurses and other health care workers: How large is the potential pool of health care providers, and specifically nurses, not currently working in health care that might provide a reserve to relieve some of the pressures on health care providers?
4. Working from home: what fraction of the workforce is able to accomplish their regular responsibilities while working at home and how does this vary across essential and non-essential industries?

## 2 Child care

One barrier to providing essential work is childcare. With schools and daycares closing all across the country, parents of young children have to fill these roles take some time away from work. Because of social distancing, grandparents, friends, and neighbors are unlikely to be able to take up any of the slack.

Table 1 summarizes the magnitude of this effect on labor supply. Here we show the fraction of workers with young children (under 12) in their families. Nearly a quarter of essential (non-health) workers fall in this category, compared to a somewhat smaller 22% of non-essential workers. Healthcare workers, who are

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<sup>1</sup>See for instance Governor Cuomo’s list of essential industries for New York State. <https://www.governor.ny.gov/news/governor-cuomo-issues-guidance-essential-services-under-new-york-state-pause-executive-order>

of particular focus, have a slightly larger 26%. That is, 5.6 million health care workers have young children at home who may require some of the time away from work in the coming weeks and months.

Single parents, and especially single mothers, are especially constrained without a second parent to take on some of the childcare responsibility. We find that 6% of essential (non-healthcare) workers are single parents to young children, about a percentage point more likely than non-essential workers. Roughly 3.5% of workers in either group are single mothers. These rates are higher in healthcare where 8.4% of workers are single parents. Because healthcare is predominantly female, the rate of single mothers to young children, 7.7% , is double that of the workforce in the rest of the economy. Single mothers are more likely to be the primary care provider to their children. The closing of schools and day cares likely poses an important constraint to the 2.6 million essential (non-health) workers and the 1.7 million healthcare workers who are single mothers to young children.

Table 1: **Share of workers with young children at home**

	Workers by Sector		
	Non-essential	Essential (non-health)	Healthcare
Children under 12 in the family	0.218 (0.413)	0.239 (0.427)	0.259 (0.438)
Single parents of children under 12	0.0525 (0.223)	0.0612 (0.240)	0.0839 (0.277)
Single mothers of children under 12	0.0351 (0.184)	0.0347 (0.183)	0.0771 (0.267)
Population Size	58,982,320	75,503,599	21,610,433

Note: American Community Survey 2017 data. Sample is restricted to those currently employed. Children variables only consider children in the same family. Essential sectors defined in New York State as of March 22, 2020.

### 3 The 'At Risk' Workforce

Currently, policy responses have largely been to restrict work by industry. Moving forward, it might be advisable to implement policies that instead depend on individuals' own risk profiles. For instance, workers in at risk populations, such as the elderly and those with underlying immuno-compromising conditions, may need to socially isolate for longer than the general population. The same might apply to those living with at risk household members.<sup>2</sup> What impact would such a policy have on the workforce across essential and non-essential sectors?

The CDC advises that people meeting the following criteria are at higher risk for severe illness: people age 65 and older, people with chronic lung disease or moderate-to-severe asthma, people with serious heart conditions, people who are immuno-compromised including those undergoing cancer treatment, people with severe obesity (a body mass index of at least 40), and people with certain other underlying medical conditions such as diabetes, renal failure, or liver disease.<sup>3</sup> We measure whether individuals meet these criteria or have

<sup>2</sup>This isolation might be achieved by prohibitions but, maybe preferably, through voluntary means by providing incentives for these groups to abstain from returning to work for longer.

<sup>3</sup>These guidelines are as of March 26, 2020: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html>

family members who meet these criteria, as best we can, using NHIS data.

Table 2 gives the fraction of the workforce that falls into 3 risk categories, as well as their combined total. First, we report whether the individual is age 65 or older. In the second row, we give the fraction that have underlying conditions, as best we can discern. Finally, we give the fraction of individuals who have another member in the household that meets any of the at risk conditions.

The table shows that there are indeed substantial fractions of the workforce that fall into one of these groups. Notably, in Health Care we observe that almost a quarter of the workforce falls into one of these risk categories. One of the main driving factors are the high rates of gross obesity (BMI $\geq$ 40), especially among workers in the health care sector.

Therefore, while it might be advisable to limit exposure to individuals in at risk households, *even if* their industry is deemed essential, we would lose a large chunk of employment. By our estimates, 18.5 million essential (non-health) workers and 4.6 million healthcare workers fall into the group of workers that should possibly be induced to refrain from returning to the workforce because of risks to themselves or a family member.

Table 2: **Share of workers in at risk or with at risk family members<sup>a</sup>**

	Workers by Sector		
	Non-essential	Essential (non-health)	Healthcare
Fraction age 65+	0.067	0.053	0.050
Individuals with underlying conditions	0.057	0.046	0.079
Household member above age 65 or with condition	0.162	0.164	0.164
Any Risk Category <sup>b</sup>	0.237	0.224	0.247
Population Size	51,010,000	82,388,000	18,480,000

a National Health and Interview Survey 2017 data. We classify individuals as having an underlying condition if they have a BMI of 40 or above, or report health limitations due to obesity, lung disease (including asthma), diabetes, heart conditions, or stroke.

b Respondents can be in multiple risk categories, therefore the above risk categories do not sum to the total report in this row.

There is potential to mitigate this risk if these essential workers can work from home. Remote work arrangements would let them perform essential duties without exposing themselves or family members. Using the American Time Use Survey in 2017 and 2018 we examine who reports the ability to work from home and who actually works from home—with the major caveat that those who work from home in normal times may be only a subset of those who can feasibly work from home in more extreme times.

We see that workers in essential industries and non-essential industries work from home at roughly the same proportions. Health care workers are an important exception, who work from home considerably less than in other industries. Table 3 summarizes this data using two measures of the ability to work from home: whether they “can” work from home and whether they also work from home exclusively some days per week.

Table 3: Work from home arraignments in essential and non-essential industries<sup>a</sup>

	Non-essential	Essential (non-health)	Healthcare
Can work from home <sup>b</sup>	0.301	0.301	0.204
Can and does work from home <sup>c</sup>	0.130	0.176	0.080

a American Time Use Survey, pooling data from 2017 and 2018 and restrict our sample to those currently employed.

b Fraction responding yes that as part of their main job, they “can” work from home.

c Fraction responding that they “can” work from home and that there are days they work exclusively from home.

## 4 Nurses: the potential to expand the supply by recalling nurses from other professions?

In the coming weeks, the workforce in the health care sector will come under tremendous strain. This is both because of a substantial increase in patients requiring intensive care, but also because of a likelihood that health workers themselves become infected. Infection rates may be high given the widely reported shortages of protective equipment.

One response to this strain is to try to expand the pool of health care providers by recalling individuals that are retired or have withdrawn from health professions.

Using the 2008 panel of the Survey of Income and Program Participation, about 3% of the labor force is currently employed as a nurse. But, using its panel, we can estimate the size of the pool of nurses that is currently not employed in nursing, either because they are retired or because they work in other occupations. In Table 4, we take all workers who have been nurses within 4 years and then tally their current economic activity. About  $\frac{1}{4}$  of people with recent nursing experience are not currently employed as nurses. And of that group of former nurses, about twice as many are still working but in other professions than are not employed.

There is an interesting age pattern to the whereabouts of these current and potential nurses shown in Figure 2. Nursing is a relatively old profession, with the fraction of nurses in the labor force increasing with age. In the middle of work life, from about 30-55, there is a fairly constant fraction of former nurses working in other occupations. After 60, there are nearly as many former nurses who are retired as there are currently working.

The health care industry as a whole, is considerably bigger, nearly 13% of the labor force in the 2008 panel is currently employed in that sector. Those who worked in the sector in the recent past, however, is considerably larger, about 18%, and of those about one in five. Figure 1 shows that these are spread between the older, retired set and workers younger than 35 who may be less attached to the labor force. Compared to nurses, narrowly defined, the health care industry as a whole pulls in workers with less specialized skills who may cycle in and out. This suggests a relatively large pool of potential workers in the health care industry who have worked there in the past and are not currently employed in another area.

One consideration in drawing on the reserve pool of past health care workers is whether these are themselves among those in the high risk categories. The National Health and Interview Survey provides us with some information on what fraction of the reserve pool either has a underlying health condition, is over age 70, or lives in the same household as somebody with either of those characteristics.

Not surprisingly, a large fraction of the reserve pool are part of this group with elevated risk. 63% of those who report as their last industry the health care sector but are currently unemployed or not in the

Table 4: The employment status of experienced nurses and health care workers

	Currently employed in X	Employed elsewhere	Non-employed, $\leq 65$	Non-employed, $> 65$
Nursing	2.65 %	0.469%	0.292%	0.0837%
Health care	13.0%	2.13%	3.14%	0.0346%

Of the labor force, this is the percentage who are currently employed in X, a nurse or in health care, used to be employed there, but now employed another occupation or sector or are non-employed. The fourth column lists those who are over 65 and not currently working in nursing or health care. Columns add to the total labor force of experienced workers in nursing or health care. We tag workers as a “nurse” if they are a registered nurse, practical nurse or physician’s assistant. Health care is NAICS 7970-8390. Data from the Survey of Income and Program Participation 2008 panel covering 2008-2013.

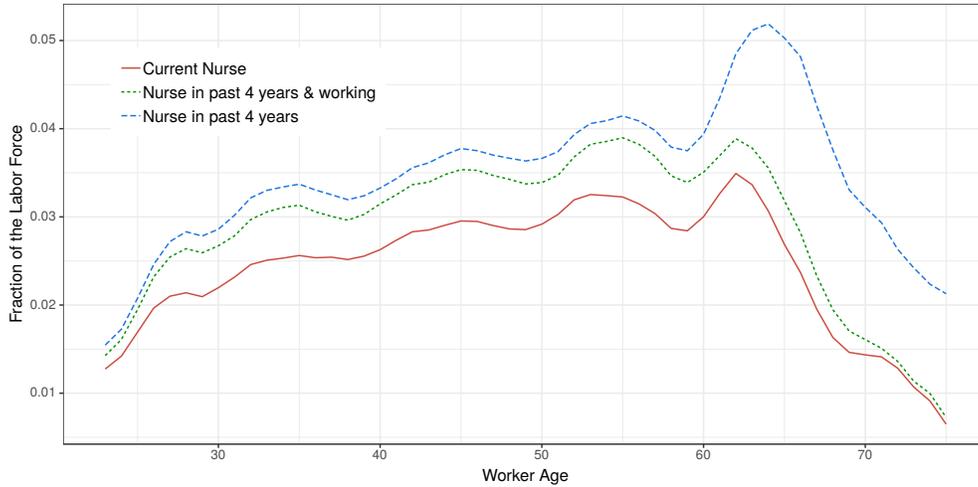


Figure 1: The fraction of the labor force working as a nurse, those who were nurses and work elsewhere and no longer working. Data from the Survey of Income and Program Participation 2008 panel covering 2008-2013.

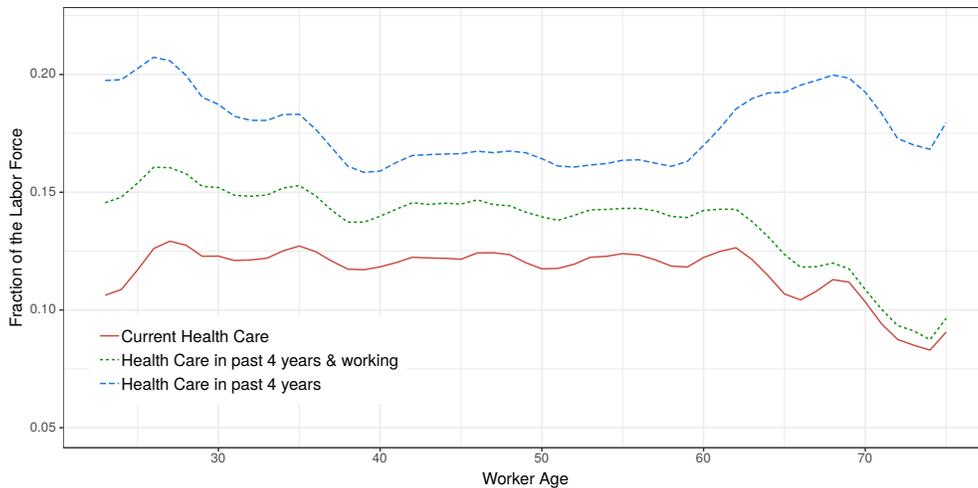


Figure 2: The fraction of the labor force working in health care, those who were in health care and work elsewhere and no longer working

labor force are either over 65, have an underlying health condition, or a household member for which one of these is true. Among those younger than 65, the share of high risk defined in this broad manner is still 37%. The size of the reserve pool is thus sharply curtailed by the risk factors associated with COVID mortality.

To be sure, any worker in healthcare that can and will return to the workforce will be important for relieving strains in the industry. However, what we see here suggests that the number of such workers is curtailed by their age distribution and the prevalence of underlying conditions amongst themselves and those they are residing with. And, as table 3 confirms, the inherent need to perform healthcare on site reduces the ability to use such returnees in remote locations.

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