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Economic Report on the Impact of the Coronavirus on the African American Employment in Chicago

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ABSTRACT

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In this report, we investigate the effect of the Coronavirus (named COVID-19) may have had on the state of inequality among the African American labor community using national, state and city level data. This report consists of two distinct essays. The first essay investigates the impact of coronavirus on the national unemployment rates (as well as Illinois unemployment rates) defined by race, and compare it to the those during the two most recent economic recessions: the terrorist attack on September 11, 2001 and the 2008 global financial crisis. The motivation for using these two crises is to explore two different scenarios of the impact of COVID-19. In the second essay, we extend our analysis further and use data for all 77 neighborhood areas of the City of Chicago, to focus our attention on the effect of the virus may have had on the black community in the south and southeast sides of the city of Chicago which are mostly populated by African Americans. Our central finding is that firms do not appear to be treating black and white laborers as homogeneous, as attested by the finding that African American workers suffer from higher unemployment rates with higher volatility, lower median incomes, and they are more likely to work in the service sector, than their white counterparts. These findings have important policy implications.

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Executive Summary

The coronavirus is a rapidly evolving health pandemic that will have repercussions beyond the U.S. healthcare system. It has become clear that the outbreak of COVID-19 has the potential to disrupt the U.S. economy, and its economic impact on the labor market is unprecedented and highly uncertain making it more difficult for policymakers to formulate an appropriate policy response. Over decades, we find no other infectious disease outbreak that had more than a tiny effect on the U.S. labor market. While the virus will affect all households, we anticipate that the economic impact is not likely to be equal on different racial groups among U.S. workers who will experience these disruptions differently.

In this report, our fundamental research question is to examine the effect of the virus may have had on the state of inequality among the African American labor community. Nevertheless, the empirical challenge is that the evolution of the disease and its economic impact is highly uncertain which makes it difficult for policymakers to formulate an appropriate macroeconomic policy response. To better understand the possible economic outcomes, we attempt to quantify the potential economic impact of COVID-19 on the labor market by running two empirical exercises. In our first analysis, we predict the differential impact of coronavirus crisis on the U.S. unemployment defined by race by drawing comparisons to the two most recent economic recessions: the terrorist attack on September 11, 2001 and the 2008 global financial crisis. The rationale for examining historic recessions is to learn how different racial groups might be impacted by exogenous shocks, and therefore, we can predict how different groups might fare from a recession that may follow the COVID-19 pandemic. Under this analysis, we classify COVID-19 as an external shock (i.e., an unplanned and unexpected event) that can have a substantial impact on the labor market defined by race. In the second part of our analysis, we present a comparative income differential analysis across various racial groups in the City of Chicago and apply a traditional earnings function model to understand the net effect of the COVID-19 on the South and Southeast sides of the of City which are populated mostly by African Americans.

Our main finding is that firms in the labor market appear to prefer white employees to African American and Hispanics, suggesting that firms do not treat these laborers from the two markets as homogeneous. This conclusion is attested by several interesting findings that emerge from our national and state analyses. Over the entire full sample period, the level of national African

American unemployment is nearly twice that of the white unemployment, and we have found this condition to be even larger in the City of Chicago. Results show that African American workers in the Southeast and South sides of Chicago suffer from higher unemployment rates with higher volatility, lower median incomes, and they are more likely to work in the service sector, than their counterparts in other parts of the City. Furthermore, while the two examined recession episodes (i.e., the 911 terrorist attack and the 2007-2008 recession) experienced exogenous shocks to the labor market and led to significant increases in the unemployment rates in all sectors, the increase in unemployment rate in the white sector paled to that of the African American sector. Along the same lines, we also find that white unemployment Granger-causes African American unemployment, indicating a long-run association between white unemployment and African American unemployment, in the sense that unemployment is first decreased in the white sector, followed by a lagged unemployment decrease in the African American labor market. This finding suggest that most of the unemployment in the white sector are of the structural and frictional forms, while the African American unemployment is largely cyclical in nature. Put differently, the African American labor market appears to serve as a secondary labor market to the white sector that fills in during expansionary times but suffers great losses during economic downturns.

Our findings have important policy implications. There is a great opportunity for local, state, and national leadership to alleviate the burden that the African Americans carry. To alleviate this expected hardship, targeted public policy should be introduced so that we must allocate funding and resources to where they are most needed, and policy recommendations must be reflective of this reality. A uniform policy approach will not address the varied needs of racial groups who will experience these disruptions differently. Hence, we propose two targeted policy recommendations. First, we recommend stimulating private fixed capital formation in African American communities through providing guaranteed heavily subsidized loans to those investing in African American communities. An increase in capital expenditures in largely African American communities will increase economic output, household income, and local tax revenues. Our second recommendation is to enforce fair wages to ensure equitable wages across the labor markets. Unfair, below-market, wages to African Americans leads to a reduction in income, expenditures and savings in the African American community, which in turn reduces expected free cash flows to potential investors in the community, making investments less attractive. This contributes to an increase in unemployment and a further decrease in household income, a vicious cycle.

Part 1. The Impact of COVID 19 on Unemployment Inequality: Lessons from History

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1.1 Introduction

COVID-19 is a rapidly evolving health pandemic that will have repercussions beyond individual health and our U.S. healthcare systems. We anticipate that there may be a significant household and macroeconomic impact as this virus, and necessary social distancing precautions, disrupts the workforce and slows the economy. We classify COVID-19 as an external shock event, which is an unplanned and unexpected change that can have a substantial impact on measures of economic performance, such as unemployment, consumption, credit and inflation. These external shocks have wide and lasting effects on the supply and demand side of the economy and can ripple through many sectors, triggering a recession. We anticipate that the COVID-19 shock will affect household income and household expenditures, and further, that low, moderate, and high-income households and racial groups will experience these disruptions differently. This essay has two main aims. First, we examine the structural and dynamic relationship between competing labor markets defined by race. Second, we examine historical recessions for indicators of how different racial groups might be impacted by the exogenous shocks. Our goal is to learn from the 9/11 recession and the 2007-2008 recession to predict how different racial groups might fare from a recession that may follow the COVID-19 pandemic.

The remainder of this essay is organized as follows. Section two reviews the literature. Section three outlines the econometric methodology which we employ. Our data and variables are presented in Section four. Sections five reports and discusses our empirical results.

1.2 Literature review

Differences in unemployment rates between African American and whites have been ongoing discussion and research topic. Lynch and Hyclak (1984) analyze the various groups in the labor market to explain disparities among them and analyze changes in the natural rate of unemployment over time. They found that the level of the natural rate of unemployment has changed over time and a rising labor force participation among non-traditional groups in the labor market. Robinson (2010) explains differences in the levels of unemployment between Blacks and whites from a

cultural perspective while coining a new phrase he refers to as “infotainment.” Employers engage in employment discrimination based on tastes derived from infotainment to bias their hiring practices and contribute to the wage gap between the two groups. Mouw (2000) uses a fixed effects model to explain the increase in unemployment gap between minority groups using the spatial mismatch hypothesis. This theory hypothesizes that residential segregation and job decentralization combine to adversely affect employment opportunities of minorities.

Realizing that the unemployment gap is only one facet of the overall inequities that occur between racial communities, researchers have incorporated many factors in attempt to explain overall inequities. Raymond (2018) utilizes simple OLs regression models to control for various factors and find that race remains the strongest predictor of persistent negative equity in the southeastern United States. As an extension to the African American studies, researchers have delved into the concept of whiteness and its impact in human resources pf American companies. Nkomo and Ariss (2014) point to the historical origins of white privilege to explain persistence in the racial divide in organizations and the American labor market.

There is a large swath in the literature that focus on the lack of job opportunities in African American communities that contribute to increased levels of long-term unemployment in the African American. Kaplan (1999) examines the number of job opportunities within very small neighborhoods. The results of their study find that they do not vary much from neighborhood to neighborhood among white neighborhoods, but that African American communities fall short of their white counterpart. This report brings to the literature a theoretical and quantitative approach to shed light on what has already been stated in the literature. We employ contemporary econometric techniques to analyze level differences and the dynamics that exist between the various sectors of the labor market.

1.3 Methodology

1.3.1 Quantifying the Impact of COVID-19 on Labor Market: Crisis Analysis

A common feature of the crises of the last few decades has been the rapid spread from one country to others in a process that has come to be known as “contagion”. The 1997–1998 Asian crisis began in Thailand with the collapse of the Thai Baht and spread rapidly into neighboring countries. The last time the world suffered a global shock was in the aftermath of the 2007–2008 financial

crisis that hit the world as a result of the implosion of the U.S. mortgage market was followed by a series of collapses in major world markets. As another very recent evidence on the contagious crises, the Novel Coronavirus was first seen as a China shock, then as an Asian regional shock, and then it spreads around the world to become a global and common shock. Hence, it has become clear that COVID-19 has the potential to derail the U.S. economy, where the outbreak of coronavirus has dramatically disrupted the U.S. economy as evidenced by the recent volatility levels in the financial markets that have surpassed those last seen in October 1987 and December 2008 and, before that, in late 1929 and the early 1930s.

Our goal is to examine the economic impact of COVID-19 by drawing comparisons to the recent recessions. We will consider the impact of coronavirus crisis on the African American labor markets nationally (as well as in Illinois) and compare it to the those during the two most recent economic recessions: the terrorist attack on the US on September 11, 2001 and the 2007-2008 recession. The motivation for using these two crises as examples is to explore two different scenarios of how COVID-19 might evolve in the coming year. It is important to analyze the impact of both recessions impact separately, because this gives us a more clear-cut explanation of how two crises with different reasons may have different impact on the same employment market.

While both exogenous shocks to the economy have had deleterious effects on the unemployment rates in general, their duration, and obviously causes, are different. On one hand, the 911 crisis, political in nature, was unexpected by the population at large. Its aim was to place fear in the hearts of the American people. The political reaction was swift as the Federal government moved to restructure the political structure to ensure safety to the American people. Although the memories may be everlasting, the economy rebounded relatively quickly. As the unemployment data would suggest, the average unemployment rates of the sectors took approximately 45 months to return to its pre-911 levels. This was in all account, a purely exogenous shock to an economy that was humming along. Unlike the 2008 recession that covered more than 12 months, the analysis of the September 11, 2001 terrorist attack covers only a few months. Hence, the uncertainty of coronavirus crisis is larger comparing to the September 11, 2001 recession that was caused by shorter analysis time. The goal is to provide guidance to policy makers to the economic benefits of globally-coordinated policy responses to tame the virus.

On the other hand, the 2007-2008 crisis is one of the most devastating crises in modern history which severely impaired the functioning of global markets and created the greatest financial dislocations since the Great Depression. This painful shock was an endogenous event that began in the real estate market and manifested into the global economy, and it took 92 months for the economy to return to its pre-shock level of unemployment. So, the endogenously caused shock is approximately twice as long for the labor markets to return to their long-run equilibrium levels. As in the 2008 market downturn, the COVID-19 crisis has consumers and firms all around the world putting off spending; they are in wait-and-see mode.

1.3.2 Labor Model

We begin with a typical firm's Cobb-Douglas production function with constant returns to scale of a firm at any given time can be expressed as:

$$(1.) \qquad Y_t = {A_t}^{\gamma} {K_t}^{\alpha} {H_t}^{\beta} {L_t}^{1-\gamma-\alpha-\beta}$$

Where Y is each firm's temporal output; A is the level of multifactor productivity; H is the level of human capital embodied and L is the level of employment. Each factor exhibits diminishing returns. That is: $\gamma, \alpha, and\ \beta\ are < 1$.

Except for their racial makeup, workers are homogeneous. The firm's labor force is diverse and consists of a vector of races and nationalities:

$$(2.) \qquad L_t = {L_t}^{AA} + {L_t}^{W} + {L_t}^{L} + {L_t}^{O}$$

To analyze the production function's short-run dynamics, we take logs and differentiate equation (1) w.r.t. to time. This yield:

$$(3.) \qquad \frac{\dot{Y}}{Y} = \gamma \frac{\dot{A}}{A} + \alpha \frac{\dot{K}}{K} + (1-\gamma-\alpha-\beta)\frac{\dot{L}}{L} + \beta \frac{\dot{H}}{H}$$

Taking time derivatives of equation (2) and dividing by L_t yields:

$$(4.) \qquad \frac{\dot{L}}{L} = \frac{\dot{L^{AA}}}{L} + \frac{\dot{L^{W}}}{L} + \frac{\dot{L^{L}}}{L} + \frac{\dot{L^{O}}}{L}$$

Substituting equation (4.) into equation (3.) yields Equation (5.):

$$(5.) \qquad \frac{\dot{Y}}{Y} = \gamma \frac{\dot{A}}{A} + \alpha \frac{\dot{K}}{K} + (1-\gamma-\alpha-\beta)\left(\frac{\dot{L^{AA}}}{L} + \frac{\dot{L^{W}}}{L} + \frac{\dot{L^{L}}}{L} + \frac{\dot{L^{O}}}{L}\right) + \beta \frac{\dot{H}}{H}$$

Rearranging Equation (5.) for the employment growth of African American employment leaves:

$$(6.) \qquad \frac{\dot{L}^{\dot{A}A}}{L} = \frac{1}{(1-\gamma-\alpha-\beta)}\frac{\dot{Y}}{Y} - \frac{\gamma}{(1-\gamma-\alpha-\beta)}\frac{\dot{A}}{A} - \frac{\alpha}{(1-\gamma-\alpha-\beta)}\frac{\dot{K}}{K} - \frac{\dot{L}^{\dot{W}}}{L} - \frac{\dot{L}^{L}}{L} - \frac{\dot{L}^{o}}{L} - \frac{\beta}{(1-\gamma-\alpha-\beta)}\frac{\dot{H}}{H}$$

As Equation (6) indicates, except for output growth, the coefficients of all the right-hand-side variables are negative. Holding all other factors constant, an increase in output brings about an increase in the growth of employment of African American employees. Because the level of employed labor is fixed any point in time, an increase in the employment rate of African Americans can only come from a reduction of employment in the other sectors, holding output constant.

The purpose of this labor market study is two-fold. First, we analyze the differences in unemployment rates among three sectors of the labor market: African Americans, Whites, and Latin. Second, we test for differential effects on unemployment rates resulting from exogenous shocks in the economy. To accomplish this, we will decompose the time into three periods around two monumental crises in contemporary American history. We will look at unemployment levels surrounding the 911 terrorist attack and the 2008 recession, and then test for changes in the mean unemployment rates before and after exogenous shocks from the two crises.

1.3.3 Unemployment Rate Levels Analysis

Let ${\bar{\mu}_{t-j,t}}^{i}$ = average unemployment rate for the ith sector of the labor market from time t-j to t and ${\bar{\mu}_{t,t+k}}^{i}$ = average unemployment rate for the ith sector from the time of event, t, to time t + k, a later date. If the fiscal and monetary stimuli work well to restore the labor market sector equilibrium from an exogenous shock, then ${\bar{\mu}_{t-j,t}}^{i} \neq {\bar{\mu}_{t,t+k}}^{i}$. For example, suppose the unemployment rate in a labor market is a%. As a result of an exogenous shock, the unemployment rate rises above a% to b%. If the government and central bank prescribe the exact amount of intervention in the financial and capital markets, the average unemployment rate will be restored to a%. If workers are homogeneous, then the net effect on this sector should be the same for all other sectors of the labor market -- that is, ${\bar{\mu}_{t-j,t}}^{i} - {\bar{\mu}_{t,t+k}}^{i} = {\bar{\mu}_{t-j,t}}^{o} - {\bar{\mu}_{t,t+k}}^{o}$. If the market values one sector of the market over the other for any reason, then the differences in each unemployment level for the sectors will not converge. In this case, it may be that ${\bar{\mu}_{t-j,t}}^{i} -$

$\bar{\mu}_{t,t+k}{}^{i} > \bar{\mu}_{t-j,t}{}^{o} - \bar{\mu}_{t,t+k}{}^{o}$. It is also expected that the dynamics within the labor market may not be contemporaneous. If the shock is a negative, then unemployment will increase in the non-preferred sector of the labor market followed by an increase in the preferred. Because negative exogenous shocks are typically followed by fiscal and monetary policies of the governments and the Federal Reserve Bank, this will lead to an immediate reduction in the preferred sector of the labor market followed by a reduction in the non-preferred sector. Therefore, exogenous negative shocks and subsequent positive fiscal treatments affect both sectors in magnitude and speed of adjustments. Negative shocks begin with increase in unemployment rates of the non-preferred leading to increases in the unemployment rates of the preferred sector. Positive treatments affect the market in the opposite direction. A decrease in the unemployment rate of the preferred sector causes a reduction in the non-preferred later. This is known as feedback effect between the two sectors of the labor market.

The dynamics of the labor market will be analyzed with a system of equations. Two non-stationary variables are cointegrated of order 1 if their levels are nonstationary and stationary in their first difference. If the variables are cointegrated of order 1, CI (1,1), we can use the Johansen Method to test for the rank of the system of equation to determine long-run relationship. If there is a long-run relationship, then a Vector Error-Correction Model (VECM) will be used to establish the long-run and short-run causality between the variables. If the system is cointegrated, an error correction model of the form:

$$\Delta\bar{\mu}_t{}^{i} = \alpha + \beta_0 ec_{t-1} + \beta_1 \Delta\bar{\mu}_{t-1}{}^{i} + \beta_2 \Delta\bar{\mu}_{t-1}{}^{o} + e_t \quad (7.)$$

If the variables are not cointegrated, then we can establish a vector autoregression (VAR) model to test for short-run causality.

$$\bar{\mu}_t{}^{i} = \gamma + \beta_3 \bar{\mu}_{t-1}{}^{i} + \beta_4 \bar{\mu}_{t-1}{}^{o} + e_t \quad (8.)$$

This will be followed by the impulse response function, establishing in the time domain the effect of an exogenous variable on the other variables.

1.4 Data

All unemployment rates data are obtained from the Bureau of Labor statistics. The national data span the period from January 1989 to February 2020. Table 1.1 provides some descriptive statistics for the full sample and by race. The annual unemployment rates for various sectors for the state of Illinois covers the period from 1976 to 2019. Although we examine the unemployment rates over the full sample period, we focus our analysis on the periods before and after the terrorist attack on September 11, 2001 and the 2008 recession, as the two key events. For this, we examine two separate sub-periods around each crisis. These sub-periods are: (1) the pre-9/11 crisis period covers the period from January 1st, 1989 to September 11th, 2001; (2) the post-9/11 crisis period spans the period from September 11th, 2001 to February 1st, 2008; (3) the pre-2008 crisis period covers the period from January 1st, 2008 to November 1st, 2010; (4) the post-2008 crisis period spans the period from November 1st, 2010 to February 1st, 2020. Both Illinois and national unemployment rates are depicted in the Figures 1.1 and 1.2, respectively.

Figure 1.1: Illinois Unemployment Rates by Race

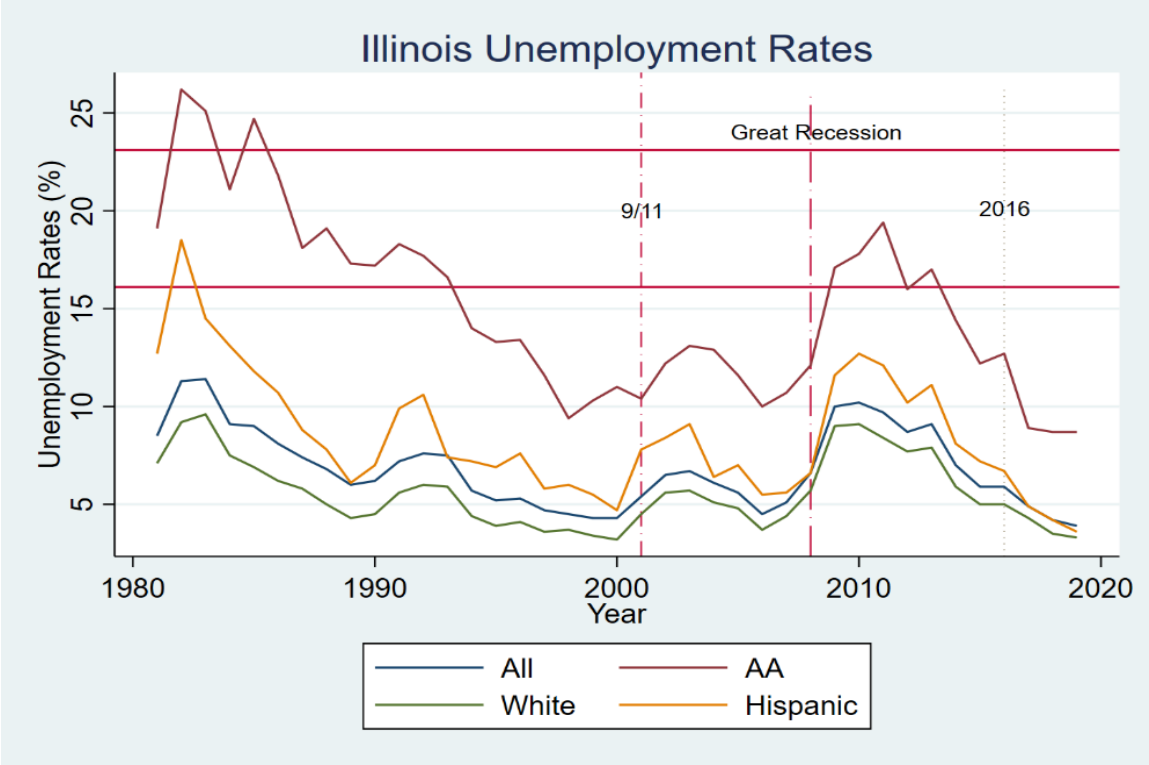
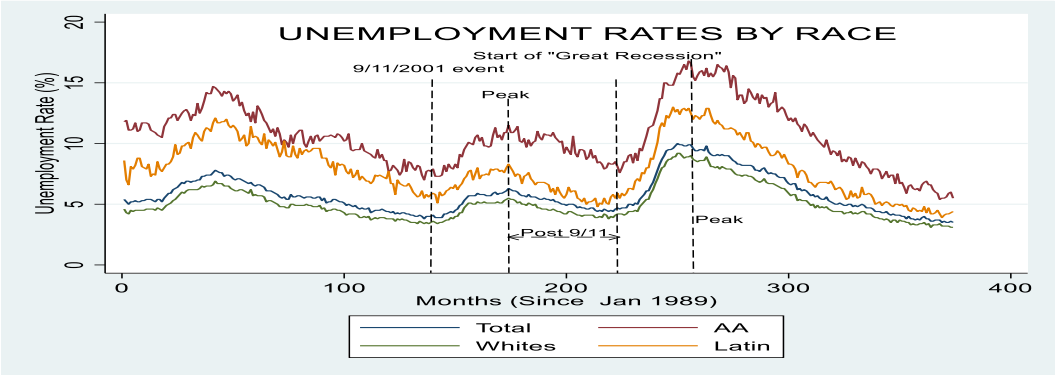
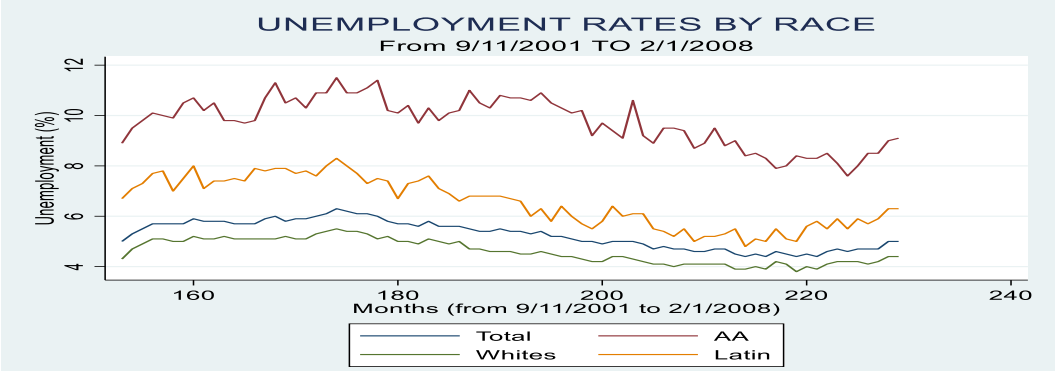
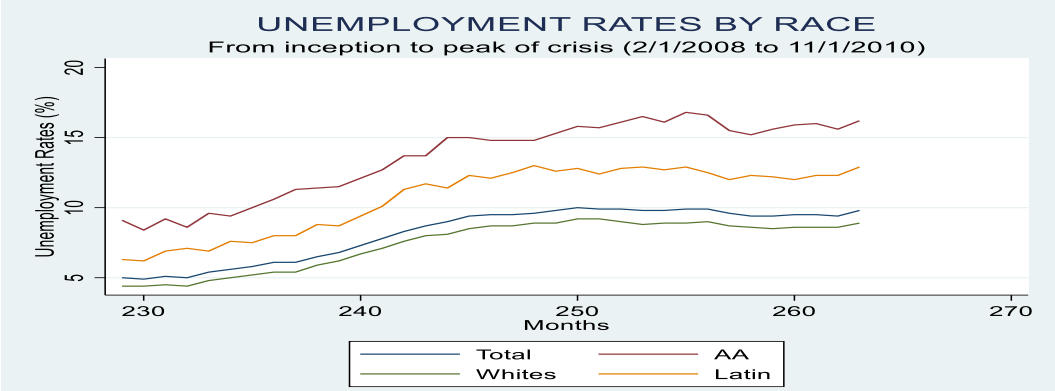


Figure 1.2: National Unemployment Rates by Race







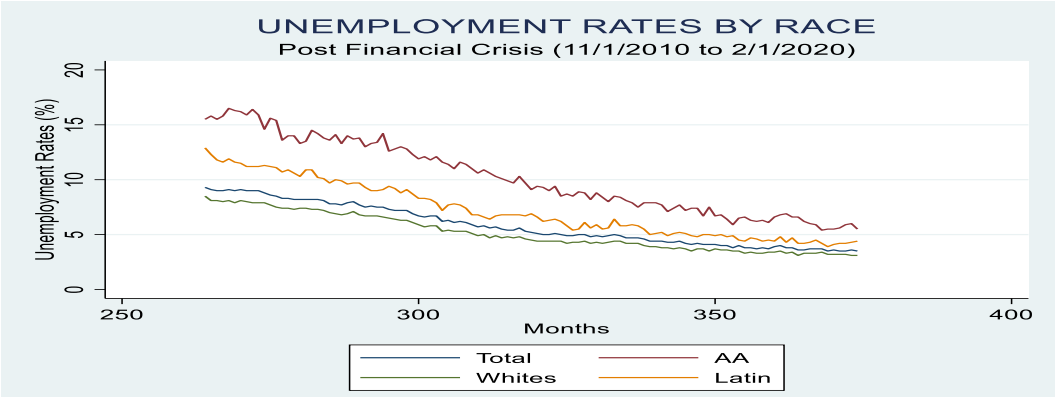


Table 1.1: Descriptive Statistics on Monthly Unemployment Rates for the U.S.

Panel A. Full Sample Period – Jan/1/1989 to 2/1/2020

	African American	White	Latin	Total
N	374	374	374	374
Mean	10.61	5.11	7.92	5.81
Median	10.50	4.70	7.50	5.40
S.D.	2.62	1.46	2.30	1.58
Max	16.8	9.20	13.00	10.0
Min	5.4	3.10	3.90	3.5

Panel B. 9/11 Subsample Period

B.1. Pre-9/11 period – Jan/1/1989 to 9/11/2001

	African American	White	Latin	Total
N	143	143	143	143
Mean	10.81	4.85	8.66	5.58
Median	10.80	4.70	8.80	5.40
S.D.	1.95	0.98	1.75	1.08
Max	14.70	6.90	12.10	7.80
Min	7.00	3.40	5.10	3.80

B.2. Post-9/11 Sample – 9/11/2001 to 2/1/2008

	African American	White	Latin	Total
N	77	77	77	77
Mean	9.75	4.62	6.54	5.27
Median	9.80	4.60	6.60	5.40
S.D.	0.97	0.48	0.98	0.55
Max	11.50	5.50	8.30	6.30
Min	7.60	3.80	4.80	4.40

Panel C. 2008 Global Financial Crisis Subsample Period

C.1. Crisis Period – 2/1/2008 to 11/1/2010

	African American	White	Latin	Total
N	35	35	35	35
Mean	13.56	7.44	10.67	8.20
Median	14.80	8.50	12.00	9.40
S.D.	2.75	1.75	2.37	1.86
Max	16.80	9.20	13.00	10.0
Min	8.40	4.40	6.20	4.90

C.2.Post Crisis Period –11/1/2010 to 2/1/2020

	African American	White	Latin	Total
N	111	111	111	111
Mean	10.20	5.14	7.20	5.83
Median	9.40	4.50	6.60	5.20
S.D.	3.36	1.65	2.53	1.85
Max	16.5	8.50	12.90	9.30
Min	5.40	3.10	3.90	3.50

1.5 Empirical Results

1.5.1 Level Shock analysis – The Case of the United States

Table 1.2 provides a summary of historical unemployment for the full sample and by race. From January 1989 to February 2020. The average monthly unemployment rate for African Americans is 10.61%, compared to 5.11% for the White Americans. This is more than twice the unemployment rate of White Americans and exceeds that of the Latino sector by approximately 34%. The standard deviation for the African American unemployment equals 2.62% which is also significantly higher than that of the White American sector. This is an indication of the volatility of those unemployed. A higher level would be an indication that household employment levels are inconsistent, an indication that household income is volatile as well.

To get an understanding on the net effect of crisis on each sector of the labor market, we look at the average unemployment rate before and after each economic crisis. The average African American unemployment rate for the 143 months prior to the 911 crisis was 13.56, with a standard deviation of 2.75%. For the 77 months after the crisis, the average African American unemployment rate fell to 9.75%--a decrease of 1.06%, statistically significant at the 1% level. In comparison, over the same months preceding the 911 crisis, White Americans averaged an unemployment rate of 4.85%. For the 77 months after the crisis, the unemployment rate fell to 4.62%, a 0.23% (1% p-value) decline. The 9/11 shock paled against the 2008 recession. The exogenous shock of the financial crisis caused an increase of 3.81% in unemployment to a high of 13.56% in the African American sector. This is much higher than the effect on the White American sector which experienced a 2.82% increase in unemployment to a high of 7.44%. All the unemployment differential shocks are significant at the 1% level. It is clear from this level shock analysis that African Americans not only experience higher long-run equilibrium unemployment rates, but that exogenous shocks affect the African American labor market at a larger scale.

1.5.2 Labor Market Dynamics – The Case of the United States

To analyze the dynamics of the labor markets, we examine whether the two markets are cointegrated. Cointegration requires that the series are non-stationary in their levels and stationary in their first difference. We use the Augmented Dickey-Fuller and Phillips-Perron Tests[1]. Their results are reported in Table 1.3, and both tests suggest that we cannot reject the null hypothesis

[1] The optimal lag length of 4 was determined using the AIC (Information Criterion)

of a unit-root (non-stationarity) for the unemployment levels of the full sample. However, we can reject the null hypothesis of unit root in their first difference at the 1% level. This criterion meets the minimum standard to test for cointegration among the two series. The results of the Johansen maximum likelihood test are fond in Table 1.4. The Trace statistics suggest that the null hypothesis of rank 0 (no cointegration) cannot be rejected at the 5% level. Therefore, we can conclude that the two series are not cointegrated and white unemployment does not Granger-cause African unemployment in the long run.

Table 1.2: Mean Differential Analysis for Unemployment Rates in the U.S.

Panel A. Pre-911- Post 911 Means Differential analysis

A.1. African Americans

	Pre-911 UER	Post-911 UER	Mean Differential	t-statistic (p-value)
Mean	10.81	9.75	-1.06	-5.38 (0.000)
S.D.	1.95	0.97		
N	143	77		

A.2. White Americans

	Pre-911 UER	Post-911 UER	Mean Differential	t-statistic (p-value)
Mean	4.85	4.62	-0.23	-2.33 (0.01)
S.D.	0.98	.48		
N	143	77		

Panel B. Pre 2008- Post 2008 Means Differential analysis

B.1 African Americans

	Max 2008 UER	Post-2008 UER	Mean Differential	t-statistic (p-value)
Mean	13.56	10.2	-3.36	-5.96 (0.000)
S.D.	2.75	3.36		
N	35	111		

B.2. White Americans

	Max 2008 UER	Post-2008 UER	Mean Differential	t-statistic (p-value)
Mean	7.44	5.14	-2.3	-6.87 (0.000)
S.D.	1.75	1.65		
N	35	111		

Panel C. 2018 Crisis Means Differential analysis

C.1. African Americans

	Post 9/11 UER	Max 2018 Crisis UER	Mean Differential	t-statistic (p-value)
Mean	9.75	13.56	3.81	7.97 (0.000)
S.D.	0.97	2.75		
N	77	35		

C.2. White Americans

	Post 9/11 UER	Max 2018 Crisis UER	Mean Differential	t-statistic (p-value)
Mean	4.62	7.44	2.82	9.37 (0.000)
S.D.	0.48	1.75		
N	77	35		

Table 1.3: Unit Root Tests for Unemployment Rates for the U.S.

Variable	ADF	Phillips-Perron
Panel A. Full Sample Period		
Total	-1.574	-0.908
ΔTotal	-4.701***	-18.178***
AA	-0.847	-0.918
ΔAA	-7.600***	-25.686***
Whites	-1.604	-1.000
ΔWhites	-4.986***	-19.515***
Latin	-1.104	-1.125
ΔLatin	-7.081	-25.284***
Panel B. Post 911 Subsample Period		
Total	-1.396	-1.096
ΔTotal	-2.872***	-8.914***
AA	-1.578	-1.967
ΔAA	-3.798***	-13.088***
Whites	-1.322	-1.231
ΔWhites	-3.550***	-9.485***
Latin	-0.957	-1.280
ΔLatin	-3.879***	-12.414***
Panel C. Financial Crisis – Inception to Peak		
Total	-1.273	-1.499
ΔTotal	-1.218	-3.356**
AA	-1.246	-1.293
ΔAA	-2.123**	-6.702***
Whites	-1.404	-1.547
ΔWhites	-1.133	-3.774***
Latin	-1.435	-1.597
ΔLatin	-1.591	-6.546***
Panel D. Post Financial Recession		
Total	-3.451**	-2.969**
ΔTotal	-6.148***	-14.607***
AA	-1.058	-1.077
ΔAA	-5.719***	-17.790***
Whites	-3.560***	-3.125**
ΔWhites	-5.919***	-14.992***
Latin	-2.802	-2.883
ΔLatin	-5.574***	-13.985

Table 1.4: Johansen Cointegration Tests for Unemployment Rates in the US

Panel A. Full Sample Period

Max Rank	Parameters	LL	Trace	5% Critical
0	30	-113.10	27.685*	29.68
1	35	-101.92	5.32	15.41
2	38	-100.16	1.81	3.76

Panel B. Pre 9/11 Subsample Period

Max Rank	Parameters	LL	Trace	5% Critical
0	30	-48.565	27.437*	29.68
1	35	-39.951	10.208	15.41
2	38	-34.847	0.442	3.76

Panel C. Post 9/11 Subsample Period

Max Rank	Parameters	LL	Trace	5% Critical
0	30	4.507	44.521	29.68
1	35	18.468	16.598	15.41
2	38	24.983	3.567*	3.76
3	39	26.767		

Panel D. Pre 2008 Crisis Subsample Period

Max Rank	Parameters	LL	Trace	5% Critical
0	30	-6.583	28.523*	29.68
1	35	2.209	10.944	15.41
2	38	7054	1.254	3.76
3	39	7.681		

Panel E. **Post 2008 Crisis Subsample Period**

Max Rank	Parameters	LL	Trace	5% Critical
0	30	-6.583	28.523*	29.68
1	35	2.209	10.944	15.41
2	38	7054	1.254	3.76
3	39	7.681		

To test for short-run causality, we fit a Vector Autoregressive (VAR) Model over the full sample period. The results are presented in Table 1.5 which suggests that there is a short-run causality running from White unemployment to African unemployment. An increase of 1% in unemployment in the White sector in the prior month will contribute to 0.79% increase in African American unemployment. This would be offset by a reduction of 0.63% in the African American unemployment rate that occurred 3 months prior.

Table 1.5: Vector Autoregressive Regression for Unemployment Rates by Race

	Full Sample Period			Pre 2008 Subsample Period			Post 2008 Subsample Period		
	UER_AA_t	UER_W_t	UER_L_t	UER_AA_t	UER_W_t	UER_L_t	UER_AA_t	UER_W_t	UER_L_t
UER_AA_{t-1}	.522***	.064***	.096**	.433**	.074	.122	.433**	.074	.122
	(.053)	(.017)	(.044)	(.183)	(.065)	(.132)	(.183)	(.065)	(.132)
UER_AA_{t-2}	.168***	-.016	-.073	.103	-.045	-.210	.103	-.045	-.210
	(.059)	(.019)	(.049)	(.197)	(.070)	(.142)	(.197)	(.070)	(.142)
UER_AA_{t-3}	.131**	-.016	.037	-.027	.019	.345	-.027	.019	.345
	(.059)	(.018)	(.049)	(.211)	(.075)	(.152)	(.211)	(.075)	(.152)
UER_AA_{t-4}	.023	-.030	-.056	.051	.061	-.079	.051	.061	-.079
	(.052)	(.016)	(.043)	(.192)	(.068)	(.138)	(.192)	(.068)	(.138)
UER_W_{t-1}	.788***	.935***	.555***	.223	.711***	.389	.223	.711***	.389
	(.183)	(.057)	(.152)	(.632)	(.224)	(.455)	(.632)	(.224)	(.455)
UER_W_{t-2}	-.047	-.016	.159	.248	.087	.705	.248	.087	.705
	(.241)	(.019)	(.201)	(.708)	(.250)	(.509)	(.708)	(.250)	(.509)
UER_W_{t-3}	-.631***	-.016	-.093	-.354	-.249	.031	-.354	-.249	.031
	(.241)	(.018)	(.201)	(.725)	(.256)	(.521)	(.725)	(.256)	(.521)
UER_W_{t-4}	.052	-.109	-.591***	.242	-.233	-.461	.242	-.233	-.461
	(.185)	(.058)	(.154)	(.546)	(.193)	(.392)	(.546)	(.193)	(.392)
UER_L_{t-1}	-.007	-.128	.491***	.305	.188	.476**	.305	.188	.476**
	(.068)	(.021)	(.057)	(.307)	(.109)	(.221)	(.307)	(.109)	(.221)
UER_L_{t-2}	.122	.021	.165	.281	.215	.106	.281	.215	.106
	(.075)	(.024)	(.063)***	(.291)	(.103)	(.209)	(.291)	(.103)	(.209)
UER_L_{t-3}	.010	.021	.165***	-.187	-.010	-.121	-.187	-.010	-.121
	(.075)	(.024)	(.063)	(.281)	(.099)	(.202)	(.281)	(.099)	(.202)
UER_L_{t-4}	-.043	-.030	.149***	-.181	-.029	-.179	-.181	-.029	-.179
	(.067)	.021)	(.056)	(.284)	(.100)	(.204)	(.284)	(.100)	(.204)
Constant	.163	.029	.029	1.133	-.223	.322	1.133	-.223	.322
	(.102)	(.085)	(.085)	(.639)	(.226)	(.460)	(.639)	(.226)	(.460)

Furthermore, we use the impulse response function to quantify the responsiveness of employment variables to structural changes in the system. The response of different racial groups to a shock in unemployment and per capita income were observed and depicted in the Figure 1.3. This is corroborated by the Granger Causality test in Table 1.6. The Wald test rejects the null hypothesis of no Granger causality running from the White sector at the 1% level and from the Latino sector at the 5% level. Our results show that White unemployment and Latino unemployment ganger cause African American Unemployment. In fact, the impulse response functions suggest that a one-standard deviation shock to the White unemployment sector causes a positive effect in the African American unemployment for 8 subsequent months. The same effect occurs for shocks emanating from the Latino sector as well, albeit not to the same magnitude. Looking at the reverse direction, we can see causality running from the African American sector to the white sector. An increase of 1% in unemployment in the African American market in the prior month causes a .06% increase in the current month. This result is significant at the 5% level.

Figure 1.3: Impulse Response Function

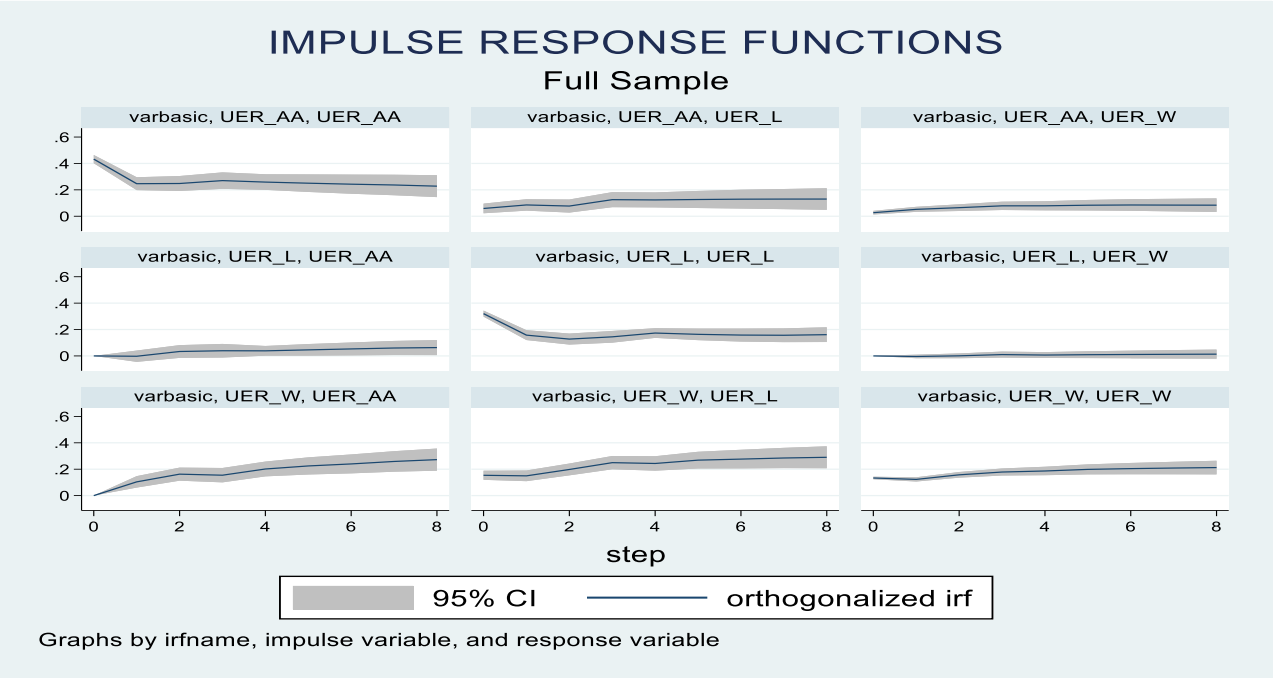


Table 1.6: Granger Causality for Unemployment Rates by Race in the US

	Full Sample Period			Pre-2008 Subsample Period			Post 2008 Subsample Period		
	UAE_AA	UAE_W	UER_L	UAE_AA	UAE_W	UER_L	UAE_AA	UAE_W	UER_L
UER_AA	---	17.35***	6.46	---	2.797	7.351	---	2.797	7.351
		(.002)	(.167)		(.592)	(.118)		(.592)	(.118)
UAE_W	37.04***	---	44.36***	.593	---	9.495**	.593	---	9.495**
	(.000)		(.000)	(.964)		(.050)	(.964)		(.050)
UAE_L	10.44**	3.04	---	3.93	9.741	---	3.93	9.741	---
	(.034)	(.551)		(.416)	(.045)		(.416)	(.045)	
ALL	65.37***	21.02***	69.58***	14.62*	13.361*	21.342***	14.62*	13.361*	21.342***
	(.000)	(.007)	(000)	(.067)	(.010)	(.006)	(.067)	(.010)	(.006)

1.5.3 Level Shock analysis – The Case of Illinois

Table 1.7 provides a summary of descriptive statistics for the unemployment rate series for the State of Illinois. Unambiguously, the unemployment rates in the state of Illinois are higher than the national averages, for all sectors. The mean unemployment rate for the African American sector is 15.2%, compared to 5.60% for the White sector. That represents a multiple of 2.71 of African American to white unemployment. African Americans performed far worse on same-sector comparison of national to Illinois. The mean unemployment rate for African Americans in Illinois is higher by a multiple of 1.43, compared to 1.10 for the white sector. The Hispanics have a mean unemployment rate of 8.50%, and it is also much higher than the national unemployment rate by

a multiple of 1.07. The standard deviation of the unemployment rates for the full sample in the state of Illinois were higher than they were for the national unemployment rates. The standard deviation of the unemployment rates for the African American sector is 4.68%, compared to only 1.82% for the White sector. Again, this is more than twice as volatile than the white sector and higher than the Hispanic sector, which experienced a standard deviation of 3.19%. Clearly, the white sector's market was more stable than those of the other two markets.

Table 1.7: State of Illinois Descriptive Statistics

Panel A. State of Illinois Full Sample Period – Jan/1/1989 to 2/1/2020

	African American	White	Latin	Total
N	39	39	39	39
Mean	15.2	5.60	8.50	6.82
Median	14.0	5.10	7.60	6.50
S.D.	4.68	1.82	3.19	2.04
Max	26.2	9.6	18.5	11.4
Min	8.7	3.2	3.60	3.9

Panel B. 9/11 Subsample Period

Pre-9/11 period – 1989 to 2001

	African American	White	Latin	Total
N	13	13	13	13
Mean	13.88	4.39	7.12	5.68
Median	13.40	4.30	7.00	5.40
S.D.	3.21	0.92	1.66	1.17
Max	18.30	6.00	10.60	7.60
Min	9.40	3.20	4.70	4.30

Post-9/11 Sample –2001 to 2008

	African American	White	Latin	Total
N	8	8	8	8
Mean	11.63	4.94	7.05	5.81
Median	11.85	4.95	6.80	5.85
S.D.	1.16	0.72	1.29	.79
Max	13.10	5.70	9.10	6.70
Min	10.00	7.60	5.50	4.5

Panel C. 2008 Global Financial Crisis Subsample Period

Crisis Period –2009 to 2010

	African American	White	Latin	Total
N	11	11	11	11
Mean	13.90	6.28	8.40	7.22
Median	14.40	5.90	8.10	7.00
S.D.	3.92	2.20	3.32	2.40
Max	19.40	9.10	12.70	10.20
Min	8.70	3.30	3.60	3.90

The means differential in Table 1.8 shows that Illinois benefitted well post 911 and 2008 crises. After the 911 crisis, African American saw a drop of 2.25% in their mean unemployment rates. This is much higher than the white sector that experienced .98% decrease in mean unemployment rates. However, during the 2008 crisis, African Americans experienced a 2.27% increase in the mean unemployment rates, compared to 1.34% by the white sector.

Table 1.8: Mean Differential for Illinois

Panel A. Pre-911- Illinois Post 911 Means Differential analysis

A.1. African Americans

	Pre-911 UER	Post-911 UER	Mean Differential	t-statistic (p-value)
Mean	13.88	11.63	-2.25	-2.29 (.02)
S.D.	3.21	1.16		
N	13	8		

A.2. White Americans

	Pre-911 UER	Post-911 UER	Mean Differential	t-statistic (p-value)
Mean	5.60	4.62	-0.98	-1.84 (0.04)
S.D.	1.82	.48		
N	13	8		

Panel B. Pre 2008- Post 2008 Means Differential analysis

B.1 African Americans

	Max 2008 UER	Post-2008 UER	Mean Differential	t-statistic (p-value)
Mean	11.63	13.9	2.27	1.81 (0.04)
S.D.	1.16	3.92		
N	8	11		

B.2. White Americans

	Max 2008 UER	Post-2008 UER	Mean Differential	t-statistic (p-value)
Mean	4.94	6.28	1.34	1.88 (0.04)
S.D.	0.72	2.20		
N	8	11		

1.5.4 Labor Market Dynamics – The Case of Illinois

To test the hypothesis that the demand for labor starts in the white sector in the state of Illinois, as it is believed to exist nationally, we look for cointegration among the African American and white unemployment series. Two series are said to be cointegrated if they are non-stationary in their levels, but stationary in their first differences. The results of the Augmented Dickey-Fuller and Phillips-Perron unit root tests in Table 1.9. confirm that all unemployment rate and GDP series are non-stationary in their levels and stationary in their first-differences. The results of the Johansen Cointegration test suggest a maximum rank of order 2. Using this outcome, we run a vector error-correction model in Table 1.10. The error-correction coefficients are statistically significant and

negative at the 5% level. This suggest that white, Hispanic, and real GDP Granger-cause African American unemployment in the long run. Moreover, 112% of the deviation long-run equilibrium in the labor market is restored in the first year.

Table 1.9: Illinois Johansen Cointegration Test (Full Sample Period)

Max Rank	Parameters	LL	Trace	5% Critical
0	36	-499.22	74.09	47.21
1	43	-480.38	36.40	29.68
2	48	-468.76	13.18*	15.41
3	51	-463.20	2.05	3.76

Table 1.10: Illinois Vector Error-Correction model

	African American Unemployment ΔUER_AA_t	Whites Unemployment ΔUER_W_t	Latin Unemployment ΔUER_L_t	GDP ΔGDP_L_t
$Error_{t-1}$	-1.12**	.029	-.675	-3989
	(.521)	(.270)	(.433)	(2941)
$Error_{t-2}$	-.000**	-.000	-.000**	-.093
	.000	(.000)	(.000)	(.079)
ΔUER_AA_{t-1}	.117	.027	.471	228
	(.337)	(.175)	(.280)	(1903)
ΔUER_AA_{t-2}	-.04	.126	.398	-363
	(.252)	(.131)	(.209)	(1420)
ΔUER_W_{t-1}	-2.34	-.320	-1.60	-2913
	(1.255)	(.650)	(1.042)	(7083)
ΔUER_W_{t-2}	-.453	-.066	-.953	-5102
	(1.11)	(.577)	(.924)	(6280)
ΔUER_L_{t-1}	1.085**	.371	.545	649
	(.430)	(.223)	(.357)	(2428)
ΔUER_L_{t-2}	.173	0.050	.160	649
	(.359)	(.186)	(.298)	(2428)
ΔGDP_L_{t-1}	-.000	-.000	-.000	.407
	(.000)	(.000)	(.000)	(.286)
ΔGDP_L_{t-2}	-.000	.000	.000	-.068
	.000	(0.000)	(.000)	(.297)
Constant	-.954	.502	.453	.002
	(.959)	(.497)	(.796)	(5413)
Normality Tet Jarque-Bera X^2 (p-value)	.719 (.697)	.960 (.619)	1.280 (.527)	1.617 (.446)
AutocorrelationX^2 (p-value)	Lag(1) 9.3375 (.899) Lag(2) 13.576 (.630)			

Standard error in parentheses; **5% sig level; ***1% sig level

Part 2. The Expected Effect of the COVID-19 Virus on the African American Community in Chicago

Part 2. The Expected Effect of the COVID-19 Virus on the African American Community in Chicago

2.1 Introduction

COVID-19 virus has generated large reductions in earnings and employment in the U.S. labor market as this virus, and necessary social distancing precautions, disrupts the workforce and slows the economy. Nevertheless, the impact of COVID-19 on the U.S. labor market is not likely to be equal on different races among all workers. In this report, our goal is to examine the effect of the virus may have had on the state of inequality among the African American labor community in the city of Chicago and apply a traditional earnings function model to understand the net effect of the COVID-19 pandemic on the South and Southeast sides of the City of Chicago.

The organization of this part is as follows. Section two summarizes the literature review. Section three explains the development of the earnings function, followed by a labor market segment model. Section four details data sources. Sections five presents the empirical results.

2.2 Selected Literature Review

Our work builds on the existing literature on the determinants of income differentials among different groups of workers (Gary Becker, 1958; Jacob Mincer, 1958; Immergluck, 1998; Mouw, 2000; Chiswick, 2003; Tangentially, Ileanu and Tanasoiu, 2008; Raymond, 2018). Broadly presented, there are two strands of literature that explain earnings, employment, and income differentials between African Americans and other sectors of the labor market, namely the white sector. The first category takes an economics approach. At the core, these models analyze factors that constitute the labor supply of an individual. The fundamental model postulates that a laborer's potential earnings are a function of investments in human capital. This body of literature evolved from the seminal works of Gary Becker (1958) and Jacob Mincer (1958). Their contributions to the study of labor economics have largely been summarized in what is now known as the earnings function. Chiswick (2003) provides a thorough review of the contributions of mincer and Becker. Tangentially, Ileanu and Tanasoiu (2008) introduce three econometric models to support the theoretical models of the earnings functions of Becker and Mincer. While Bujari et al. (2019) use

the Mincer earnings function to conclude that the level of education among Mexican heads of family magnifies the increase in income levels and enlarges the human capital.

The second strand of the literature, very deep and broad in scope, takes a macro approach to analyzing the African American labor market as disparities with other sectors. Raymond (2018) analyzes the neighborhoods with persistent negative equity in the southeast of the United States and finds that, after controlling for factors relating to the market crash of 2008, race remains the strongest predictor of persistent negative equity. Mouw (2000) analyzes unemployment rates in Chicago and Detroit by targeting spatial distances employment opportunities and residential housing. Using panel data and a fixed-effect model, he finds that decentralization of employment and the loss of manufacturing jobs resulted in spatial distribution of employment in the two cities.

Immergluck (1998) looks at proximity of job opportunities in urban areas to explain unemployment rates among urban dwellers. He finds via statistical measures, that beyond proximity and other factors, race and educational attainment have the largest effects on unemployment rates. Hoynes et al. (2012) focuses on unemployment rates during the Great recession (of 2008) to look for differences in the net effect on unemployment between various sectors of the labor market. He found that the net effect was not homogeneous across the various sectors of the labor market. Specifically, men, blacks Hispanics and the youths suffered higher levels of unemployment during this crisis. This paper contributes to the existing literature by analyzing the state of the African American labor market in the city of Chicago and applying a traditional earnings function model to understand the net effect of the COVID-19 pandemic on the South and Southeast sides of the City of Chicago.

2.3 The Model

2.3.1 The Earnings Function

In this section, we proceed with the development of the earnings function, followed by a labor market segment model. Mincer (1958) and Ileanu (2008) model the earnings function of an individual using the stylized general function as:

(1.) $$y = h(S, x, F) + \varepsilon \ ;$$

where y is net earnings; S is the years of schooling; and x represents the years of experience; and F is a vector of exogenous variables that are not related to investments in human capital that

Equation (1) states so that a person's earnings is a function of an individual's investments in human capital. Beginning in 1974, a structural equation that is typically used to estimate earnings in Equation (1) is:

(2.) $y = S^{\alpha} H^{\beta} e^{F}$; where H refers to the number of years of experience and F is a vector of variables that are not related to human capital such as race, language, gender, etc.

Taking logs of Equation (2), we get,

(3.) $\ln y = \alpha lnS + \beta lnH + F$

Used to estimate an individual's post investment earnings, Equation (3) is known as the earnings function. We will estimate the coefficients of equation (3) for neighborhood area households in the City of Chicago with regression equation (4) below:

(4.) $ln\, y_i = \hat{\alpha}_0 + \hat{\beta} lnS_i + F_i + e_i$

2.3.2 Essential Workers (Sector)

The likelihood of working in the sector of the economy deemed to be essential in the City of Chicago is assumed to be a function of the level of education and other exogenous variables such as , race, gender, income, etc. Let Ess be the likelihood of working as an essential worker. Then Ess is:

(5.) $Prob(Ess) = f(Schooling, income, X)$

We assume the following relationships ex ante:

$\partial(Prob(Ess))/\partial Schooling < 0; \partial^2(Prob(Ess))/\partial Schooling^2 > 0; \partial(Prob(Ess))/\partial Income < 0$

Essential service workers are deemed necessary functions for society. This includes emergency room healthcare providers in hospitals, customer service representatives in retail outlets, and emergency service providers such as firefighters, police, etc. We assume that the likelihood of working in the service sector decreases with the number of years of schooling. However, with increases in schooling beyond college, this likelihood increases. The nonlinearity incorporates emergency room healthcare providers. We also assume, a priori, the likelihood of being an essential service provider is a decreasing function of income – however, in an increasing rate.

2.4 Data

All data are obtained from Environmental Systems Research Institute (ESRI) database. The data includes household level market-related information for all 77 neighborhood areas of the City of Chicago. Tables 2.1 and 2.2 provide descriptive statistics for households for 77 community areas in the city of Chicago and for the 24 Community areas that makeup the city's South and Southeast sides. The mean unemployment rate in Chicago is 8.5% in 2019, with a standard deviation of 5.5%. The maximum unemployment rate in the city was 3.2%. Compared to the city, the South/Southeast sides of the city has an average unemployment rate of 12.6%, almost 50% higher.

The mean of median income household income across community areas is $53, 392 across the 77 areas and only 37,477 in the South and Southeast sides of Chicago. The disparity in income is exacerbated when comparing the maximum median income levels. The maximum median income for the entire city in 2019 is $111,962, compared to only $62, 824 in the south/Southeast sides of the city. At the surface, households in the Southeast/South sides of the city earn 56% of the typical household across the city. We also note that the area with the lowest median income ($15, 030) is in the Southeast/South side of the city.

Housing values, a proxy of wealth, are $254,850 in the city and $197,104 in the South/Southeast sides of Chicago. Again, note that the neighborhood area with the lowest housing values is also located in the South/Southeast sides of Chicago. Over 50% of the Southeast/South side residences are renter occupied, compared with 47.2 across the city. The area with the highest percentage of renters is in the Southeast/ South side of the city.

When it comes to educational attainment (schooling), 15.1% households within the South/Southeast sides have less than a high school diploma. In comparison, 16.2% of households within the city has attained less than a high school diploma. Households obtaining a high school diploma and some college, the South/Southeast sides report 58.4%, compared to 51.2% of households across the city. However, when it comes to obtaining a college degree or higher, the Southeast/Side sides reports only 26.4% of households, compared to 32.7% of the entire city.

Table 2.1: City of Chicago Descriptive Statistics

Chicago Descriptive statistics for 77 Community Areas

	N	Mean	Median	S.D.	Max	Min
Household Size	77	2.69	2.68	.59	4.3	1.53
Median Income	77	$53,392	$50,178	$24,081	$111,962	$15,030
Unemployment Rates_2019	77	8.5%	7%	5.5%	23.2%	1.9%
Employed in 2019	77	17717	12876	14668	74135	758
Population growth	77	-.03%	-.13%	.47%	2.04%	-.81%
House Value	77	254,850	227,477	110,828	594,571	62,083
% Owner Occupied	77	40.2%	36.4%	18.1%	79.8%	12.4%
% Renter Occupied	77	47.2%	50.6%	15.9%	74.6%	13.8%
% vacancy	77	12.6%	10.1%	5.9%	32.4%	6.3%
% < HS Dip	77	16.2%	13.6%	10.0%	47.3%	1.4%
%w/HS Dip	77	25.3%	26.0%	9.9%	46.7%	4.4%
% W/Some College	77	25.9%	25.8%	8.4%	45.1%	8.2%
% w/Grad	77	32.7%	26.2%	21.9%	84.9%	5.4%
% w/White Collar Jobs	77	55.8%	52.8%	15.1%	89.1%	29.7%
% w/ Service Jobs	77	24.1%	24.8%	7.2%	39.8%	7.6%
% w/Blue Collar Jobs	77	20.1%	19.6%	10.5%	45.5%	3.3%

Table 2.1: South and Southeast Areas of the City of Chicago Descriptive Statistics

South & Southeast Sides of Chicago -- Descriptive statistics for 24 Community Areas

	N	Mean	Median	S.D.	Max	Min
Household Size	24	2.5	2.5	.39	3.34	1.8
Median Income	24	$37,477	$34,518	$12,245	$62,824	$15,030
Unemployment Rates_2019	24	12.6%	12.8%	4.7%	22.3%	4.4%
Employed in 2019	24	8159	8439	5215	20223	758
Population growth	24	-.1%	-.14%	.36%	.73%	-.81%
House Value	24	197,104	174,356	79,882	343,120	62,083
% Owner Occupied	24	34.0%	29.6%	17.3%	66.8%	12.4%
% Renter Occupied	24	51.0%	54.1%	16.2%	74.6%	23.7%
% vacancy	24	15.1%	15.8%	5.2%	24.8%	8.1%
% < HS Dip	24	15.2%	13.5%	6.7%	32.3%	3%
%w/HS Dip	24	26.6%	27.1%	7.4%	37.1%	6.4%
% W/Some College	24	31.8%	33.9%	8.3%	45.1%	13.5%
% w/Grad	24	26.4%	24.4%	15.3%	76.7%	6.7%
% w/White Collar Jobs	24	53.9%	52.7%	10.9%	83%	38.3%
% w/ Service Jobs	24	28.2%	29.0%	6.3%	39.8%	11.1%
% w/Blue Collar Jobs	24	17.9%	17.0%	7.5%	35.8%	5.8%

Community Areas: Chatham, Avalon Park, South Chicago, Burnside, Calumet Heights, Roseland, Pullman, South Deering, East Side, West Pullman, Riverdale, Hegewisch, Armour Square, Douglas, Oakland, Fuller Park, Grand Boulevard, Kenwood, Washington Park, Hyde Park, Woodlawn, South Shore, Bridgeport, Greater Grand Crossing

2.5 Empirical Results

2.5.1 Earnings function

Specification 1 of Table 2.3 is a stylized estimate of Equation (4). Grad, the percentage of households with a college degree, is the proxy for level of schooling. The coefficient of this variable is positive and statistically significant at the 1% level. A one unit increase in the percentage of households with at least a college increases the median income by 146%. A College degree explains 50% of the variation in median income. Specification (2) adds the dummy variable for households in the South/Southeast sides of the city. The coefficient is negative and statistically

significant at the 1% level. This supports the common belief of wage and earnings suppression of African Americans (Nkomo et al., 2014; Raymond, 2018; Mouw, 2000; Lynch and Hyclak, 2001; Immergluck, 1998). Controlling for educational attainment, households in the south/southeast sides of the city will have their median income reduced by 32.8%.

Table 2.3: Earnings Function Analysis

Dependent Variable: Log of Median Income		
	(1)	(2)
Grad	1.46***	1.33***
	(.144)	(.127)
Southside	---	-.328***
		(.076)
Constant	10.31***	10.46***
	(.065)	(.067)
R^2	.50	.61
N	77	77
AIC	45	27.5
RMSE	.320	.284
Normality Chi-Square test	1.96	0.33
P-values in parentheses	(.38)	(.85)

Heteroscedasticity-Robust Errors in parenthesis

2.5.2 Essential workers

An analysis of the likelihood of being an essential worker is found in Table 2.4. Specification 1 is the baseline equation. A one-unit increase in the percentage of households with high school diploma or less, increases the percentage of workers in the service sector. This level of schooling explains approximately 70% of the variation in percentage of workers in the service sector. Holding schooling constant, if a head of household is from the South/Southeast side of Chicago, there is an additional 3.5% likelihood of working as an essential worker. Specification 3 brings household income into the equation. Its coefficient is negative and statistically significant at the 1% level. A one percent increase in median income reduces the percentage of households working in the services sector by 6.1 %. Again, if the household is in the South/Southeast sides of the City, they face a marginally higher likelihood of working as an essential worker, controlling for schooling and income.

Table 2.4: Essential Workers in the City of Chicago

Dependent Variable is the Percentage of Workers in Services				
	(1)	(2)	(3)	(4)
No college degree	.28*** (.016)	.26*** (.016)	.19*** (.028)	.20*** (.029)
LN of Median Income	---	---	-.061*** (.016)	-.048*** (.017)
Southside	---	.035*** (.010)	__	.019** (.010)
Constant	.10*** .013)	.053*** (.010)	.768*** (.190)	.616*** (.199)
Heteroskedasticity-Robust Errors in parenthesis				
R^2	.70	.75	.78	.79
N	77	77	77	77
AIC	-272	-281	-289	-289
RMSE	.039	.036	.035	.034
Chi-Square	4.73	2.21	13.65	.68
(P-values) Normality Test	(.09)	(.33)	(.00)	(.71)

Conclusion

Conclusion

In the research reported in the present report, our main finding is that firms in the labor market appear to prefer white employees to African American and Hispanics, and we thus can dispense of the notion that firms treat these laborers from the two markets as homogeneous. This finding is attested by several interesting findings that emerge from our national, state and city analyses.

This employment differential is first evident from the persistent near two-fold level of the national unemployment rates in the African American labor market. Over the entire full sample period used in our analysis, the level of unemployment in the African American sector is nearly twice that of the white sector, and we have found this condition to be even larger in the City of Chicago, particularly the Southeast and South sides of the City. A similar pattern is observed in the two subsample periods surrounding both the 911 terrorist attack and the 2007-2008 recession. While these two episodes experienced exogenous shocks to the labor market and led to significant increases in the unemployment rates in all sectors, the increase in unemployment rate in the white sector paled to that of the African American sector.

The major takeaway from this analysis is that there is a long-run association between white unemployment and African American unemployment, in the sense that white unemployment Granger-causes African American unemployment. The tight bandwidth (standard deviation) in the white unemployment rates would suggest that most of the unemployment in the white sector are of the structural and frictional forms. That is, white unemployment experiences "natural-rate" even within aggregate demand gaps when the macro economy is not experiencing cyclical downturn. In contrast, African American unemployment is largely cyclical in nature, in the sense that the African American labor market appears to serve as a secondary labor market to the white sector that fills in during expansionary times but suffers great losses during economic downturns. The state of Illinois exhibits the same phenomenon, but to a greater level.

A further evidence on the unemployment differentials is provided by examining the African American community in the City of Chicago. The results from the labor market analysis in the second essay are very disturbing for the African American community in the City of Chicago. Results continue to suggest that African American workers in the Southeast and South sides of the City suffer higher unemployment rates with higher volatility, and they are more likely to have

lower median incomes, than their counterparts in other parts of the City. This corroborates the narrative in the mainstream media that African Americans and women of color are paid less than white workers for doing the same jobs. This is also consistent with the findings of a large body of researchers in African American Studies and history. Simply stated, African Americans are not paid the marginal product of their labor.

Furthermore, we show that the African Americans in the south part of Chicago are more likely to work in the service sector of the economy, than their counterparts in other parts of the City. Although the reasoning for working in the service is not explained and needs further analysis, it partly explains their lower level of income. Until the COVID-19 pandemic, the service sector did not carry the "essential worker" moniker it has come to be known as. In fact, it was the sector that was considered low-skilled and was paid less in earnings. That sector of the labor force is typically female and non-unionized – particularly women of color. They now find themselves on the front line of the health battlefield without adequate personal protection equipment. This is now a sector of the labor market that arguably deserves hazard pay.

So, what is the expected effect of the COVID-19 pandemic on the South sides of Chicago? What we can expect in the South/Southeast sides of the City from the pandemic from an unemployment perspective is a continued deeper recession. Our findings suggest that African American workers in the South and Southeast sides of the City will experience unemployment rates that are twice that of what their white counterparts experience in other parts of the City. Because of the labor market dynamics, we expect Southeast/South laborers to experience longer bouts with unemployment. This is customary during recessions, as Hoynes et al. (2012) suggest. Moreover, the effects of the Covid-19 virus will be detrimental to the health of African Americans – if not fatal, given that African Americans have a higher likelihood of working in the service sector. Additionally, because healthcare and the lack of it are pronounced in the African American community, the pandemic is likely to have a stronger negative effect on this community, as well.

Public Policy Recommendations

Public Policy Recommendations

Our findings have important policy implications. While it is uncertain to know for sure what will be the effect of this purely healthy-related exogenous shock to the economy, the effect of the COVID-19 virus is certain to be deep and broad for the African Americans who suffer from higher unemployment rates and lower median incomes. There is a great opportunity for local, state, and national leadership to alleviate the burden that the African American Community carries. To alleviate this expected hardship, targeted public policy should be introduced so that we must allocate funding and resources to where they are most needed, and policy recommendations must be reflective of this reality. A uniform policy approach will not address the varied needs of groups and communities given that people will differentially experience the initial and longer-term consequences of the viral pandemic social distancing protocols.

Hence, we propose two targeted policy recommendations. First, we recommend stimulating private fixed capital formation in African American communities. More specifically, we recommend providing guaranteed heavily subsidized loans to those investing in African American communities. An increase in capital expenditures in largely African American communities will increase economic output, increase and stabilize employment (decrease unemployment), increase household income, and increase local tax revenues. For maximum effectiveness, target industries that have the greatest leakages from those communities.

Our second recommendation is to enforce fair wages to ensure equitable wages across the labor markets. There is an abundance of evidence suggesting that the marginal product of labor is not compensated equitably across various sectors of the labor market. Unfair, below-market, wages to African Americans leads to a reduction in income, expenditures and savings in the African American community, which in turn reduces expected free cash flows to potential investors in the community, making investments less attractive. This contributes to an increase in unemployment that further decreases to household income -- a vicious cycle. Reduced wage also reduces that individual's propensity to repay interest on capital. This makes home ownership less likely and access to liquidity less likely. During economic downturn, a lack of liquidity increases hardship for the individual and for the community.

A final word is that while the virus-impact is uncertain for sure, two things matter. First, the speed at which the public health administration of the global community can wrap its arms around the spread of the virus will be the primary factor. Some countries have managed their public health more effectively than others. Second, the speed at which the economies can be restored to order. N. Gregory Mankiw describes this economic situation that America finds itself in as a "recession by design." Time will tell whether this phrase should be changed to a "depression by design." Unfortunately, there isn't an economist in the world that can provide the answer to that 64 million Dollar question with certainty.

References

Aali-Bujari, A., Venegas-Martinez, F., Garcia-Santillan, A., 2019. Schooling Levels and Wage Gains in Mexico. *Economics & Sociology* 12(4), 74-83.

Becker, G.S., 1962. Investments in human capital: A Theoretical Analysis. *Journal of Political Economy* 70(5), 9-49.

Chiswick, B.R. 2003. Jacob Mincer, Experience and the Distribution of Earnings. *Review of Economics of the Household* 1(4), 343-361.

Enders, W., 1995. *Applied Econometric Time Series,* John Wiley & Sons, New York.

Engle, R.F, Granger, C.W.J., 1987. Cointegration and error-correction: representation, estimation, and testing. *Econometrica* 55(2), 251-276.

Hoynes, H, Miller, D. L., Schaller, J., 2012. Who Suffers During Recessions. *Journal of Economic Perspectives* 26(3), 27-48.

Ileanu, B.V, Tanasoiu, O.E., 2008. Factors of the Earning functions and Their Influence Capital of an Organization. Journal of Applied Quantitative Methods 3(4), 366-374.

Immergluck, D. 1998. Job Proximity and the Urban Employment Problem: Do Suitable Nearby Jobs Improve Neighborhood Employment Rates?: A Reply. *Urban Studies Journal* 35(12), 2359-2368.

Lynch, G.J., Hyclak, T. 1984. Cyclical and noncyclical Unemployment Differences among Demographic Groups. Growth and Change 15(1), 9-17.

Mincer, J., 1958. Investment in Human Capital and Personal Income Distribution. *Journal of Political Economy* 66(4), 281-302.

Mouw, T., 2000. Job Relocation and the Racial Gap in Unemployment in Detroit and Chicago, 1980 to 1990. *American Sociological Review* 65(5), 730-753.

Nkomo, S.M., Ariss, A., 2014. The historical Origins of Ethnic (white) Privilege in US Organizations. *Journal of Managerial Psychology* 29(4), 389-404.

Raymond, E.L., 2018. Race, Uneven Recovery and Persistent Negative Equity in the Southeastern United States. *Journal of Urban Affairs* 40(6), 824-837.