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**Article**

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# How Racial Diversity and Gender Diversity in Job Positions Affect the Economy?

Zheng Li 

## ABSTRACT

Gender and racial discrimination at work have gradually gained more attention from the public in the recent years. With social movements such as #MeToo and #BlackLivesMatter, people start to reach the consensus that there should be more equality in society; more perspectives from different genders and different races are beneficial to society. This paper focuses on employment in the general workforce and studies how race and gender diversity in different job positions affect the economy. This paper explores to empirically explain why race and gender diversity in the workforce can have an impact on the economy. Using data from the U.S. Equal Employment Opportunity Commission and from the Federal Reserve for the years of 1996 - 2018, this paper finds that race and gender diversity at work are positively associated with the economy. Also, this dataset supports the conjecture that race and gender diversity increases total employment, which further increases the economy. This dataset also supports the possibility that race and gender diversity may increase the capacity of different perspectives, which further increases the economy. Moreover, race and gender diversity both increased during these years: from 11.783% to 23.339% and from 31.683% to 38.735% in the executive and managerial positions. This study has significant contributions to current research and practice.

**KEY WORDS:** demographic economics, racial diversity, gender diversity, total employment, GDP.

**JEL Classification:** J15, J16.

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## 1. Introduction

In the COVID pandemic in 2020, George Floyd was murdered during an arrest due to police brutality. Protests and social movements of #BlackLivesMatter started from Minneapolis in the US and moved quickly to other places in the US and even to other countries as well and from offline to social media and to main stream mass media as well. Thousands of thousands of people protest against racism and for social justice and for equality. A similar social movement that asks for social justice

and equality was the #MeToo movement. This social movement protests against sexual harassment and against the objectification of women and for social justice and equality. This movement, like #BlackLivesMatter, is spreading all over the world quickly. The fast diffusion of both movements suggests that fundamentally, people demand equality and strongly object against discrimination in any form. Even though we have seen great efforts being put to encourage diversity and equality among races, genders and other demographic factors, we still see implicit or hidden discrimination. For ex-

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ample, there could be glass ceilings at work for certain racial groups or certain gender group, holding the bias that women or minority groups or other discriminated groups are lesser than and are not as intelligent or capable as their counterparts.

This paper, from the economic point of view, aims to test against this biased reasoning that many individuals, companies or even cultures hold. I focus on the diversity of races and genders at work and study how such diversity affects the economy. By doing so, I aim to provide scientific evidence to support equality and diversity. Prior studies have mixed results on how race and gender diversity affects firm performance (Al-Mamun et al., 2013; Campbell & Mínguez-Vera, 2008; Darmadi, 2013; Francoeur et al., 2008; Smith et al., 2006) and tend to introduce the moderating roles of environment such as companies' different foci on innovations, to explain the mixed results (Carter et al., 2010; Dezső & Ross, 2012; Dwyer et al., 2003; Erhardt et al., 2003). They also focus on the race and gender diversity in top management (Al-Mamun et al., 2013; Darmadi, 2013) and focus on the emerging economies of developing countries (Al-Mamun et al., 2013; Mustafa et al., 2020). However, how race and gender diversity in the general workforce affects the economy, especially of developed countries such as the US, is not clear. Also, the reasons for race and gender diversity to affect the economy are not clear either. Therefore, this paper aims to fill this gap.

This paper tests if and how race and gender diversity at work affect the economy. I argue that there are potentially two working mechanisms that can affect the economy. First, when there are more people from different races or different genders joining the labor market, the skillsets increase and accordingly the economy improves; but at the same time, people may also slack off thinking others are doing the job already, which decreases the average productivity and the economy. In other words, it is the total employment, which race and gender diversity triggers, that drives the economy positively or negatively. Second, when race and gender diversity increase, different opinions and perspectives will emerge in team discussions and collaborations, thus opening up the opportunities for creativity. However, diverse perspectives may also cause con-

flicts, which may harm the productivity and the economy. In other words, it is the diverse perspectives, which race and gender diversity triggers, that affect the economy positively or negatively. In addition to testing the relationship between race and gender diversity and the economy, I also aim to test which working mechanism(s) are driving the economy.

Therefore, I aim to answer the following questions.

Research Question 1: How do race and gender diversity in the general workforce affect the economy?

Research Question 2: What is the reason behind this impact?

To test the competing hypotheses, I collected the domestic race and gender employment diversity data from the U.S. Department of Labor Bureau of Labor Statistics for the years of 1996 - 2018. I also collected data on the U.S. GDP and CPI from Federal Reserve Economic Data (FRED) for the same time period. I merged both datasets based on the year information. I conducted both linear regression models and visualization analytics on the merged datasets. My findings show that race and gender diversity in the general workforce are both positively associated with the economy. Also, both the working mechanisms that lead to such positive association are supported – that is, (a) race and gender diversity increases total employment (skillsets), which further enhances the economy, and (b) race and gender diversity increases the capacity of different perspectives and increases the innovativeness, which further increases the economy.

This paper makes significant contributions to research and practice as follows. First, this paper justifies our support for diversity, equality and social justice that all people should be equal at work. Showing the positive association between race and gender diversity and the economy suggests that supporting diversity is not only about being true to our conscience, it will also help improve the economy. Second, this paper also attempts to illuminate the black box of why diversity is a good thing. The findings show that because of the increased total employment and the high creativity level that race and gender diversity at work triggers, the econo-

my grows. Third, this paper also shows that even though overtime race and gender diversity in different positions in general increases, at the executive and managerial level, minority groups and women are still a small portion of all. This suggests that we still have a long way to go. Last, this paper makes significant practical implications, especially for policy makers. It suggests that governments should highly recommend all companies to hire more people from different genders and different races. By doing so, companies may increase their innovations and thus increase profits. On the societal level, with more profits from the companies, the governments will naturally receive more taxes, which will be spent on public affairs and serve the public. At the same time, as the race and gender diversity at work increases, the total employment increases and the society will be more harmonious with more people receiving incomes to support their families.

The remaining of the paper is structured as follows. First, I discuss why race and gender diversity is important via a literature review in the section of Conceptual Foundation. Next, I discuss how race and gender diversity affects the economy via the two working mechanisms and present the hypotheses in the section of Hypotheses Development. The fourth section demonstrates the data collection and method. The next section shows how race and gender diversity evolves overtime and shows the results of the linear regressions. The paper ends with the discussions, limitations and outlook, and conclusion.

## 2. Conceptual Foundation

Racial and gender diversity in employment has been studied in different contexts, mainly in the context of top management in relation to firm performance. There have been discussions on how such diversity in employment can benefit and harm firm performance.

Many studies focus on the board diversity and the diversity of top management (e.g., Baker et al., 2020) and especially focus on gender diversity. The findings show pros and cons. On the bright side, board gender diversity can trigger strategic changes especially when the firm performance is high and the women directors are powerful - the underlying

reason is that when firms perform well, they are more open to board gender diversity, and women in power are highly likely to embrace and promote board gender diversity. Such supportive climate facilitates strategic changes (Triana et al., 2014), which may positively affect firm performance. In addition, having more women on the board makes the company have more monitoring/governance efforts and more equal compensation, which can assure a high level of productivity (Adams & Ferreira, 2009). Also, having more women in top management positively affects firms' financial performance (Egerová & Nosková, 2019), and especially high-performing firms' performance (Canyon & He, 2017). On the flip side, board gender diversity can also generate conflicts and impede strategic changes especially when the firm performance is low and women directors are powerful (Triana et al., 2014). Also, having more women on the board can have a negative impact on firm performance because of the more governance and potentially the more conflicts (Adams & Ferreira, 2009). Francoeur et al. (2008) found that women as the directors do not make a difference in terms of attracting abnormal returns. Additionally, gender and race, among all demographic factors, are most likely to affect the divisions between homogenous groups; such divisions can potentially hurt team cohesion, team satisfaction and team performance (Thatcher & Patel, 2011).

Also, the studies on gender diversity in top management and in the board focus on different countries individually. This stream of literature shows that gender diversity in top management has positive and negative impacts on firm performance depending on which country the study focuses on. On the one hand, Al-Mamun et al. (2013) studied the association between firm gender diversity and the financial performances of public companies in Pakistan and found no significant association. Also, they found that only 37% of Pakistani listed companies have women as board members and only 7% have women as CEOs. Mustafa et al. (2020) associated the women ratio of board members of family businesses with their dividend announcements in four Asian emerging economies: China, India, Pakistan, and

Malaysia and found a significant and negative association. Darmadi (2013), too, found a negative association between women in top positions and the financial performance of companies in Indonesia. On the other hand, Campbell and Mínguez-Vera (2008) studied the gender diversity on the board of companies in Spain and found a significant positive association. They argued that it is the monitoring role of women that increases the financial performance of these companies. Smith et al. (2006) found that women in top management enhanced the financial performances of 2500 Danish companies. Krishnan and Parsons (2008) found that companies with more women in top management can generate more profits after initial public offering than companies with less women on top.

Research also associates racial diversity with firm performance. Andrevski et al. (2014) explained the positive impact of racial diversity as that companies increase their capacity to compete intensively with each other. Richard et al. (2003), on the other hand, found that the positive or negative association between racial diversity and firm performance depends on the companies' focus on innovations. This is similar to Dezső and Ross (2012)'s work, which shows that the prior mixed results of studies on women and firm performance are due to companies' different foci on innovations. Richard et al. (2007) also explained that the positive or negative impact of racial diversity on firm performance depends on the environment.

Other research studies racial diversity and gender diversity together and associate these different types of diversity all together with firm performance. For example, Erhardt et al. (2003) studied women and minority groups on boards of directors and showed that there is a positive association of race and gender diversity with firm performance (Erhardt et al., 2003). Carter et al. (2010), on the other hand, did not find a positive association between race and gender diversity of boards of directors and firm performance. Carried out by four companies all together known as the Diversity Research Network, the research that studies the association between race and gender diversity and business performance shows mixed

results for different participant companies (Kochan et al., 2003).

The above literature is comprehensive and focuses on the relationship between labor force diversity and firm performance. Consistently, even though there are not many papers studying racial and gender diversity in relation to economic performance, the papers that studied how labor force diversity affects economic activities also show similar results. On the one hand, there is a positive effect. For example, Augustine et al. (2016) studied the gender diversity in the microfinancing industry in Africa and found that the gender diversity in the workforce can enhance the economy and lead to economic sustainability. Bove and Elia (2017) found the positive effect of immigration on GDP, especially in developing countries. On the other hand, there is a negative effect. Dincer and Wang (2011) showed that a negative association exists between ethnic diversity and economic growth across different provinces. Gören (2014) also found a direct negative effect of ethnic diversity on economic growth.

In summary, prior literature shows diverse perspectives of labor, especially on the board level, could benefit team and(or) company performance, but at same time they can also harm performances – this could also apply to the relation to the economic performance. Dwyer et al. (2003) attempted to explain the mixed results, but still focused on the gender diversity among officials and managers, the high-level positions. They explained that the mixed results were because of the different cultures and growth orientations. If the cultures and growth orientations are accommodating, the association between the gender diversity and the financial performance of companies could be positive. Otherwise, the association could be negative or non-significant. Dezső and Ross (2012) also tested if a higher gender diversity in top managerial positions in the S&P 1500 companies can bring benefits to companies. They found a position association, but only to the extent that companies focus on innovations as their explanation for the mixed prior research findings. Kanter (1977) explained there is a “token level” – the ratio of women in a team should exceed a certain token

for the team communications to be effective (estimated variously from 10% to 30% of the team size). Summarizing the prior literature, the reasons for the mixed results lie in the contextual factors such as team members' openness towards team diversity and the level of internationalization of the company (Carpenter, 2002). Luring and Villeseche (2019) show that team members' openness towards team diversity positively affects team performance and such impact is stronger when team gender diversity is more balanced (usually meaning more women are in the team). Also, Fitzsimmons (2012) discussed the conditions for board diversity success, which are including a culture of diversity and diversity as a strategy.

The literature review focuses on gender diversity in top management and shows the two sides of the coin when it comes to its impact on the firm performance. In this paper, I examine how the entire national workforce diversity affects the economy to test the working mechanism that I argue about for such effect. I focus on two perspectives: (a) perspective diversity and (b) total employment. From the view point of perspective diversity, I argue that when people from different perspectives gather, there could be creative ideas generated from the group discussions, but there could also be potential conflicts, making the racial and gender diversity in employment to affect the economy positively or negatively. From the view point of total employment, I argue that when more people from different racial and gender backgrounds join the labor force, there will be an increase in total employment and a potential increase in skill diversity, which may positively affect the economy. However, if when more people join the workforce, each individual feels the desire to slack off, then the collective productivity could be lower, which could negatively affect the economy. Below explain my arguments in detail.

### 3. Hypotheses Development

#### 3.1. *Perspective Diversity – More Innovativeness versus More Conflicts*

The first working mechanism that I argue for is that when people from different perspectives

work together, these different perspectives may generate great chemistry and trigger innovative thoughts and innovations themselves, which have been well-known to contribute to the economic growth. Prior literature from the fields of innovation management and entrepreneurship always suggests that innovation is the driving force of economic growth. The entrepreneurial literature suggests that innovations can lead to very expensive new products – the market does not know the true value of the new products yet, thus companies can set a high price for these products before competitors catch up with similar innovations and before the market competition reduces the high price of the new products. In other words, innovations can lead to entrepreneurial profits for companies (Schumpeter, 2002). Also, all governments spend so much effort in encouraging companies or individuals to innovate, by creating and sustaining the infrastructure such as Silicon Valley, encouraging market competition and regulating monopoly, and protecting intellectual property. For example, China has been designing the city of Shenzhen to be the Chinese version of Silicon Valley to encourage innovations, especially technological innovations, to stimulate the economy (Chen & Ogan, 2017).

On the other hand, prior literature on gender diversity in top management shows that there could be conflicts when people from different backgrounds work together (Parashar & Sharma, 2020). In particular, Jehn et al. (1999) shows that value diversity among group members decreases satisfaction and commitment to the group, causing potential conflicts. These conflicts if not solved can harm any economic advancement. For example, conflicts may create unhealthy working environments and people may feel stressed, which will significantly harm work productivity (Bellet et al., 2019).

In summary, I propose the first working mechanism that employment diversity in the entire national workforce affects the economic growth via the innovativeness and innovations that their diverse backgrounds and perspectives generate or via the conflicts that their diverse backgrounds trigger in the same ways as it does in the top management and firm level.

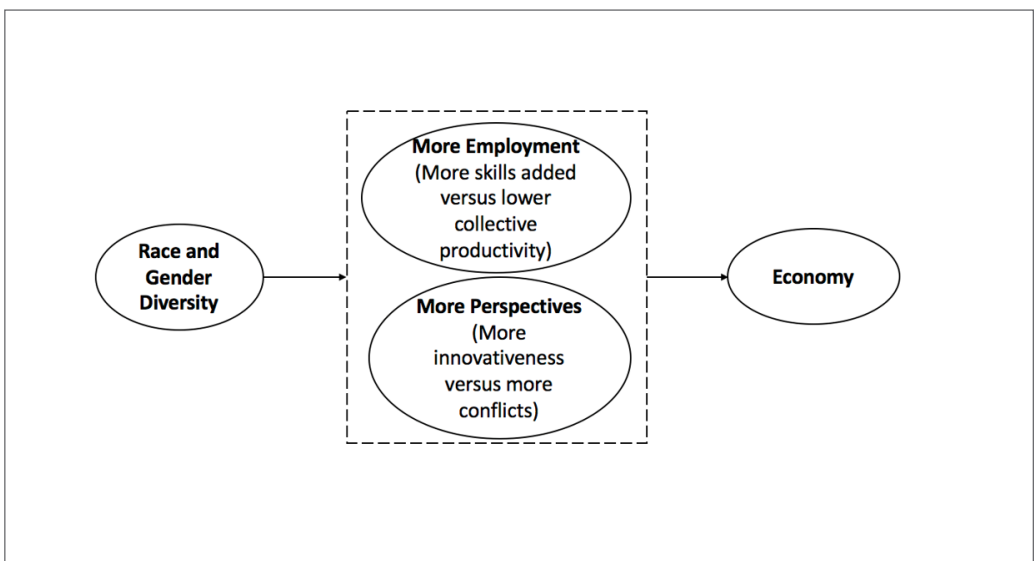
### 3.2. Total Employment – More Employment (More Skills) versus Less Collective Productivity

When there are more people from different races and different genders in the job positions, more job positions may be added to the existing labor market. When women were freed from housework to join the labor market, more employment emerged. Also, when more people from different racial and gender backgrounds join the job market, they add different skills that can be beneficial to the economy because people with different skills usually will not replace workers in the current workforce, but rather increase the total productivity (Acs & Armington, 2004). For example, in China, decades ago right after 1949, the Chinese government encouraged women to think of themselves as equals to men and women should be able to join the labor market the same as men do. The Chinese government used the slogan that “women can hold up half the sky” (Zhong, 2010). By doing so, women do not only need to stay at home, rather they can partici-

pate in all kinds of economic activities. Since at that time, women’s skillset was quite different from men’s, industries like textile, nursing, and caregiving begun to rise. Recently, in Japan, due to the aging population issue and the corresponding recess in economy, the government encourages (married) women to join the labor market (Thompson, 2016). The evidence from the different countries all suggest that when women join the labor market, they may not necessarily replace men’s jobs; rather they can add to the total employment. These countries encourage women to participate in economic activities, in the hopes that the economy can improve accordingly.

At the same time, when more people join the labor market, some people may have lower productivity thinking that other people are doing the work. In other words, the condition that the mere increase in the number of working people increases the productivity of the entire economy requires a number of additional assumptions, in particular that the average productivity of a single employee is maintained (or at least not

**Figure 1**  
*Theoretical Framework*



significantly decreased), which is obviously false in many economies (e.g., Eastern Bloc countries in some parts of the Soviet era).

In summary, I argue that when people from different racial and(or) gender backgrounds enter the labor market, there could be an increase in the total number of employed workers and also an increase in the skill-sets added to the workforce, therefore benefiting the economy. On the other hand, some people may slack off, thinking other people are already doing the work, thus harming the economy. This is the second working mechanism for racial and gender diversity in employment to affect the economy.

Figure 1 summarizes the two working mechanisms. Also, I would like to clarify that the two working mechanisms may not be exclusive of each other – they may affect how the race and gender diversity affects the economy at the same time.

Regardless of the working mechanisms, race and gender diversity is positively or negatively associated with the economy. Thus, I propose the following two sets of competing hypotheses.

H1a. Racial diversity at work is positively associated with the economy.

H1b. Racial diversity at work is negatively associated with the economy.

H2a. Gender diversity at work is positively associated with the economy.

H2b. Gender diversity at work is negatively associated with the economy.

In this paper, I not only aim to test the above two sets of hypotheses, but also aim to explore which working mechanism(s) drive the association between race and gender diversity at work and the economy. The following sections explain my method and findings.

#### 4. Method

In order to observe the relationship between the diversity variables and the economy, I collected data from multiple datasets. First, to calculate diversity variables, I collected data from the open access dataset from the U.S. Equal Employment Opportunity Commission (EEOC). The commission's database provides different races and genders' national employment status from 1996 to 2018. I collected the data of Total Employment, White, Minority, Men, and Women in different job positions in each year.

One issue I encountered was that the EEOC added the statistics of two more race categories since 2007 which affects the data I aimed to collect. Hence, to modify this dataset for consistency purposes, I removed the two extra race categories' data from the dataset that I collected.

Second, to measure the economy variables, I collected data on the U.S. national annual Consumer Price Index (CPI) and inflation rate from the U.S. Department of Labor Bureau of Labor Statistics. I also collected data on the national annual Real GDP from Federal Reserve Economic Data (FRED), which is maintained by the Federal Reserve Bank of Saint Louis. That is, following Landefeld et al. (2008) and Boskin et al. (1998), I used Real GDP and CPI to measure the economy performance.

To measure the diversity, I followed Hero & Tolbert's measure of "minority" (Black, Latino, Asian) as a ratio to white populations and adjusted this measure into the ratio of minority group or women to the whole population (Hero & Tolbert, 1996). Specifically, minority groups are defined to be Asian, Hispanic, Black, and American Indian in this study. To calculate the racial diversity variable, I used the ratio of the total employment of minority groups to the total employment – the higher the ratio is, the more people from the minority groups are hired. To calculate the gender diversity variable, I used the total employment of women to the total employment – the higher the ratio is, the more women are hired. To test which working mechanism is the driving mechanism for diversity to affect the economy, I used the ratio of the total employment of minority groups in executive or managerial positions to the total employment in executive or managerial positions to measure racial diversity in high positions – the higher the ratio is, the more people from the minority groups are hired in these positions. Also, I used the ratio of the total employment of women in executive or managerial positions to the total employment in executive or managerial positions to measure gender diversity in high positions – the higher the ratio is, the more women are hired in these positions.

Since GDP in different years could have inflations, I used the Real GDP which considers the inflation rates and translates to current money



**Table 1***Variable Definitions*

Minority	The ratio of minority group employment over the total employment.
Women	The ratio of women employment over the total employment.
Minority_high	The ratio of minority group employment in executive and managerial positions over the total employment in executive and managerial positions.
Women_high	The ratio of women employment in executive and managerial positions over the total employment in executive and managerial positions.
Total Employment	Total employment.
GDP	Real Gross domestic production in the unit of billions.
CPI	Consumer price index.

**Table 2***Statistics Summary*

	Minority	Women	Minority_high	Women_high	Total Employment	GDP	CPI
Min.	0.2574	0.4673	0.1178	0.3168	39,009,339	11,038	156.9
25%	0.2982	0.4738	0.1508	0.3443	43,219,074	13,376	178.5
Median	0.3333	0.4776	0.1786	0.3586	46,882,900	15,316	207.3
Mean	0.3168	0.4776	0.1726	0.3565	46,533,928	15,006	204.3
75%	0.3443	0.4794	0.1907	0.3714	49,933,360	16,404	231.3
Max.	0.3901	0.4952	0.2334	0.3873	54,568,964	18,607	251.1
Std.	0.0365	0.0067	0.0319	0.0197	4,357,331	2,108.65	30.118

amount for comparisons across different years. Table 1 shows the definitions of the variables that I used for analysis. Table 2 shows the summary statistics of these variables.

Before I put relevant variables in linear regression models, I checked if the variables meet the assumptions for such tests. Specifically, I checked the distributions of all variables, using Shapiro-wilk tests. Shapiro-wilk tests all show normal distributions. All assumptions are met. I also ran correlations among variables. Since Women and Minority have high correlations, I put them individually in the regressions to explain the economy variables.

## 5. Results

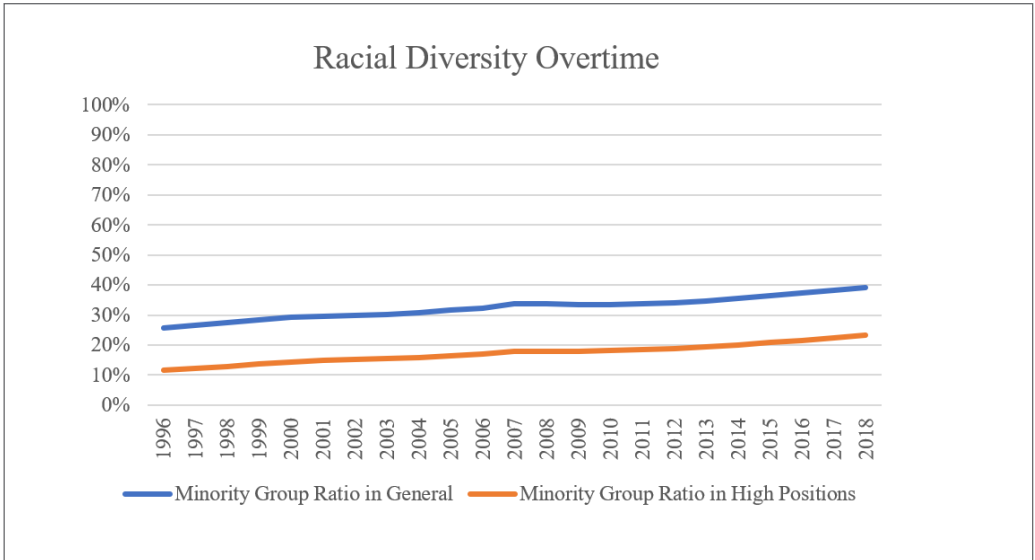
Before I ran the linear regression models to test the hypotheses, I conducted a descriptive analysis to observe the race and gender diversity for the years of 1996 - 2018. On the one hand, I created a line chart on minority group ratios in both all job positions and in executive and managerial posi-

tions respectively. Figure 2 shows that the minority group ratio in all job positions and in executive and managerial positions have similar slopes of increase overtime. Specifically, the minority group ratio in all job positions increases from 26.4% in 1996 to 39% in 2018, which is a 12.6% increase overtime. The minority group ratio in executive and managerial positions increases from 12.3% in 1996 to 22.3% in 2018, which is a 10% increase overtime.

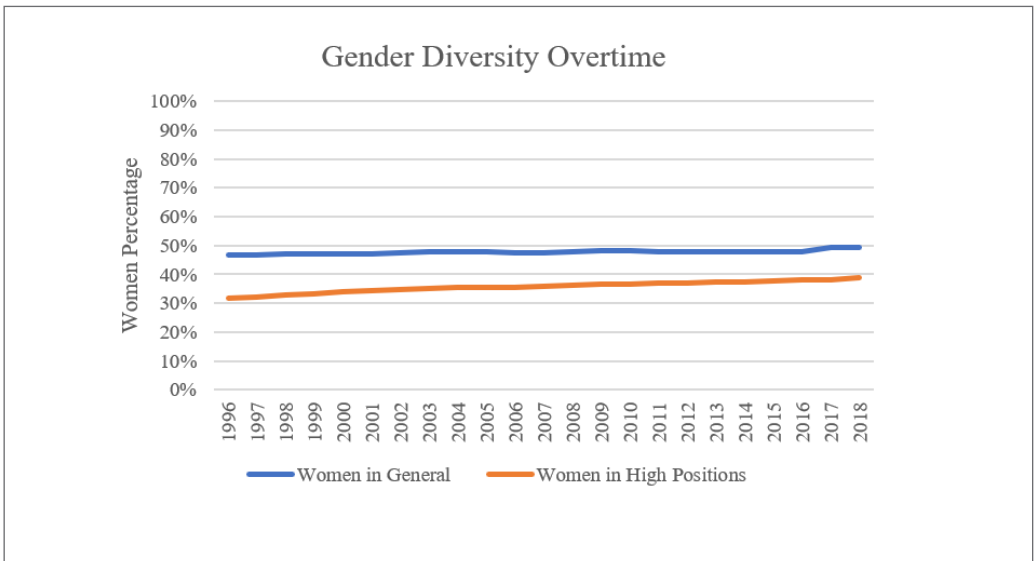
On the other hand, I created another line chart to show trends of gender diversity in all positions and that in executive and managerial positions for the years of 1996 - 2018. Figure 3 shows that the women ratio in all positions does not change much overtime, from 46.9% in 1996 to 49.5% in 2018. However, the women ratio in executive and managerial positions increases in a steeper way, from 32.2% in 1996 to 38.7% in 2018.

To summarize, both line charts show that overtime, there are more diverse labor for employment - it remains true in different positions. Next, I would

**Figure 2**  
*Racial Diversity Overtime*



**Figure 3**  
*Gender Diversity Overtime*



like to see if and how the diversity of race and gender in the workforce can affect the economy.

To test both sets of hypotheses, I put the minority and gender diversity variables in the linear regression models one by one, given their high correlation (0.83) and the potential multicollinearity issue. Table 3 shows the results. I first ran the minority group ratio in all positions and the women ratio in all positions on GDP. The results show that the minority ratio in all positions have a positive association with GDP (57444.3,  $p < 0.001$ , Model 1) and the women ratio in all positions also have a positive association (256551,  $p < 0.001$ , Model 2). I then ran the minority ratio in all positions and the women ratio in all positions on CPI. Both the association between the minority ratio in all positions and CPI and that between the women ratio in all positions and CPI are positive and significant (808.41,  $p < 0.001$ , Model 3; 3555.8,  $p < 0.001$ , Model 4). Therefore, both hypotheses are supported.

Next, I would like to see which working mechanism(s) is(are) supported. I first associated the minority group ratio in all positions and the women ratio in all positions with total employment in linear regression models. Table 3 shows

that the association between the minority group ratio and total employment is positive and significant (115669745,  $p < 0.001$ , Model 5). And the association between the women ratio and total employment is also positive and significant (488695901,  $p < 0.001$ , Model 6). Therefore, my conjecture, for the working mechanism that race and gender diversity increases the total employment, which further increases the economy, is supported.

Then, in order to test the other working mechanism that suggests race and gender diversity increases the capacity of different perspectives or causes conflicts, which further increases or decreases the economy, I focused on the minority group ratio and the women ratio in executive and managerial positions. I conjecture that even though the number of total employment increases, the number of executive and managerial positions may not change much. For example, regardless of the number of employees, the number of executives and managers may be fixed. Even though the size of the board directors could vary slightly, ranging from three to thirty-one, analysts suggest the ideal size is seven (Segal, 2020). So, I conjecture that the ratios of the minority group and women

**Table 3**  
*General Diversity Model Results*

	GDP		CPI		Total Employment							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6						
Minority	57,444.3 (1,175.6)	***	808.14 (35.20)	***	115,669,745 (6,305,267)	***						
Women	256,551 (39,666)	***		3555.8 (598.6)	***	488,695,901 (93,429,401)	***					
Intercept	-3,591.8 (382.9)	***	-107,526 (1,894)	***	-57.36 (11.47)	***	-1,494.0 (285.9)	***	9,084,607 (2,053,801)	***	-186,873,477 (44,627,283)	***
Adjusted	0.9909		0.6499		0.9599		0.6092		0.9413		0.5451	
R-squared												

Note: \*\*\*  $p < 0.001$ ; coefficients (standard errors) are shown.

in executive and managerial positions should have a relatively smaller association with total employment. Accordingly, I put the ratios of the minority group and women in executive and managerial positions in the linear regression models one by one to explain the economy. Meanwhile, I controlled for total employment. Table 4 shows that both race and women diversity in executive and managerial positions have a positive and significant association with the economy indicators, GDP and CPI (67620,  $p < 0.01$ , Model 7; 74240,  $p < 0.001$ , Model 8; 903,  $p < 0.001$ , Model 9; 1047,  $p < 0.001$ , Model 10). This suggests that the possibility for the other working

mechanism to happen (which has nothing to do with total employment) to affect the economy is supported too.

To summarize, both hypotheses (H1a and H2a) are supported and both working mechanisms ((1) race and gender diversity in the workforce increase the total employment, which further leads to economic growth and (2) race and gender diversity in the workforce increase the capacity of different perspectives, which leads to economic growth) are supported as well. Table 5 shows this summary of my findings on both hypotheses and both working mechanisms.

**Table 4**  
*High-Position Diversity Model Results*

	GDP		CPI					
	Model 7	Model 8	Model 9	Model 10				
Minority_high	67,620 (6,469)	**	903 (153)	***				
Women_high	74,240 (6666)	***		1,047 (145) ***				
Total Employment	1.437e-05 (4.730e-05)	***	1.541e-04 (3.013e-05)	***	1.892e-07 (1.115e-06)	***	-2.205e-06 (6.532e-07)	**
Intercept	4,002 (1,165)		-18,630 (1,224)		40 (27)		-272 (27)	***
Adjusted R-squared	0.985		0.9866		0.9593		0.9691	

Note: \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; coefficients (standard errors) are shown.

**Table 5**  
*Statistics Summary*

Hypothesis	Working Mechanism	Supported?
H1a. Racial diversity is positively associated with the economy.	Racial diversity increases total employment (via increasing skilllets).	Yes
H2a. Gender diversity is positively associated with the economy.	Gender diversity increases total employment (via increasing skilllets).	Yes
H1a. Racial diversity is positively associated with the economy.	Racial diversity increases perspective diversity (via increasing innovativeness).	Yes
H2a. Gender diversity is positively associated with the economy.	Gender diversity increases perspective diversity (via increasing innovativeness).	Yes

## 6. Discussion

Below I present how this paper contributes to research and practice and show the additional evidence on how race and gender diversity evolves in different job positions.

### 6.1. *How Race and Gender Diversity in the Workforce Affects the Economy*

This paper makes significant contributions to prior literature that studies how race and gender diversity in the workforce affects economic indicators such as the economy itself. Prior literature focused on other economic indicators such as firms' financial performance (Al-Mamun et al., 2013), their abnormal returns (Francoeur et al., 2008), and the announcements of their dividends (Mustafa et al., 2020). Prior literature generates mixed results (Al-Mamun et al., 2013; Campbell & Mínguez-Vera, 2008; Darmadi, 2013; Francoeur et al., 2008). Some showed a positive association between gender diversity in top management and firm performance. Others showed a negative or non-significant association. This paper adds more evidence to the literature that highlights the positive association between gender diversity at work and the economy.

Also, prior literature focused on diversity in top management (Al-Mamun et al., 2013; Campbell & Mínguez-Vera, 2008; Darmadi, 2013; Francoeur et al., 2008). This paper, on the other hand, studies race and gender diversity in the general workforce and also studies how these types of diversity affect the economy, making significant additions to prior literature that focuses on top management of companies.

Prior literature suggests some moderating conditions that can affect the mixed results on how gender diversity in top management affects firm performance. One of the moderating conditions is to have an open culture that embraces diversity and mitigates conflicts. I argue the reason for the US data sample to generate a positive impact of labor diversity on economic performance is because the United States is more open to other countries in embracing different opinions as it is an immigrant country. On the other hand, I argue that the US may have a competitive environment which allows evaluating each employee's productivity from time

to time and giving employees less opportunities to slack off. Thus, compared to East Bloc countries of Soviet era, the US may benefit from the increased total employment by receiving more different skill-sets.

Additionally, prior literature did not thoroughly discuss the reasons why race and gender diversity can affect economic indicators. Rather they did provide the moderating roles of some variables such as how accommodating the environment is and how focused the companies are at innovations (Carter et al., 2010; Dezsö & Ross, 2012; Dwyer et al., 2003; Erhardt et al., 2003). This paper, on the other hand, discusses and tests the reasons or working mechanisms why race and gender diversity in the workforce is beneficial to enhancing the economy.

This paper also adds to the prior papers that study race and gender diversity at the same time (Carter et al., 2010; Erhardt et al., 2003; Kochan et al., 2003). Unlike their findings that are mixed in terms of how race and gender diversity affect firm performance, this paper, with the focus on race and gender diversity in the general workforce and on the economy on the macro level, shows that these types of diversity in the general workforce can significantly enhance the economy.

### 6.2. *Race and Gender Diversity in Different Job Positions*

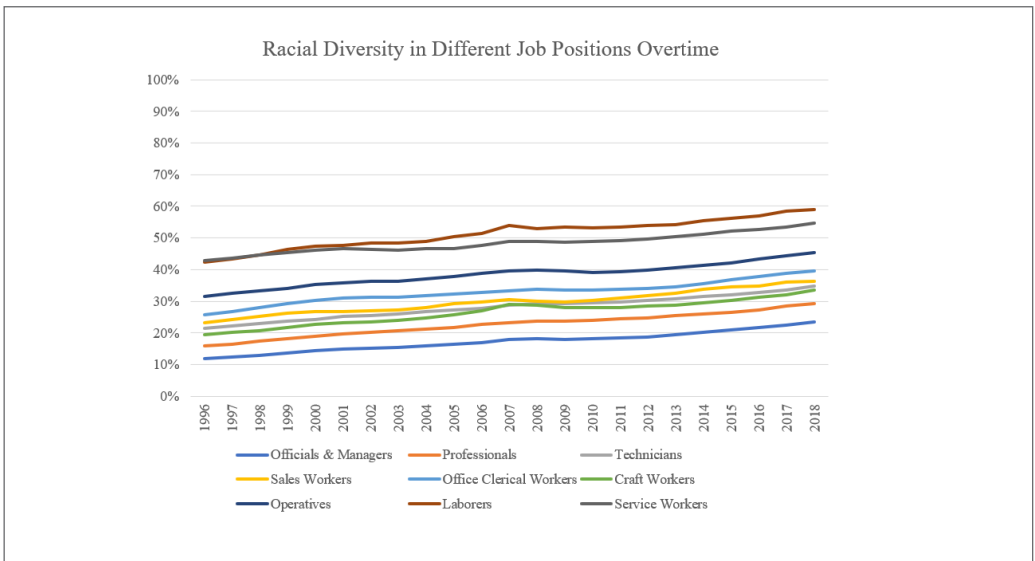
I created line charts to observe how the race and gender diversity in different job positions changes from 1996 to 2018. Figure 4 shows that racial diversity in different job positions all increased during these years, but with different slopes of increase. Specifically, the increase for the officials and managers position is 11.556%, the smallest among all the increases for all different job positions. In contrast, the job position of laborers has the largest increase, 16.567%. The increases for the other job positions, Sales Workers, Operatives, Professionals, Office Clerical Workers, Technicians, Craft Workers, and Service Workers are in-between - 12.944%, 13.926%, 13.496%, 13.808%, 13.250%, 13.989%, and 11.636% respectively. I also ran the proportion tests and found that all increases are significant at the level of 0.001 (See Table 6). These findings show that even though all job positions have increases in

racial diversity, the increase for high-position jobs is still the smallest.

Figure 5 shows that gender diversity in different job positions either increased or decreased from 1996 to 2018. However, their changes are all significant at the level of 0.001 (See Table 6). Specifically, gender diversity increased for Officials and

Managers, Professionals, Technicians, and Service Workers by 7.051%, 2.798%, 4.739%, and 4.371% respectively. In contrast, gender diversity for Sales Workers, Operatives, Office Clerical Workers, and Craft Workers decreased by 3.700%, 6.726%, 8.360%, and 5.158% respectively. In particular, the gender diversity for Laborers did not change much

**Figure 4**  
*Racial Diversity in Different Job Positions Overtime*



**Table 6**  
*Racial Diversity in Different Job Positions Overtime*

Job Position	1996	2018	Change (%)	P Value (Proportion Test)
Officials & Managers	11.783%	23.339%	+11.556%	***
Sales Workers	23.273%	36.217%	+12.944%	***
Operatives	31.542%	45.468%	+13.926%	***
Professionals	15.812%	29.308%	+13.496%	***
Office Clerical Workers	25.830%	39.638%	+13.808%	***
Laborers	42.364%	58.932%	+16.567%	***
Technicians	21.536%	34.786%	+13.250%	***
Craft Workers	19.416%	33.406%	+13.989%	***
Service Workers	42.958%	54.595%	+11.636%	***

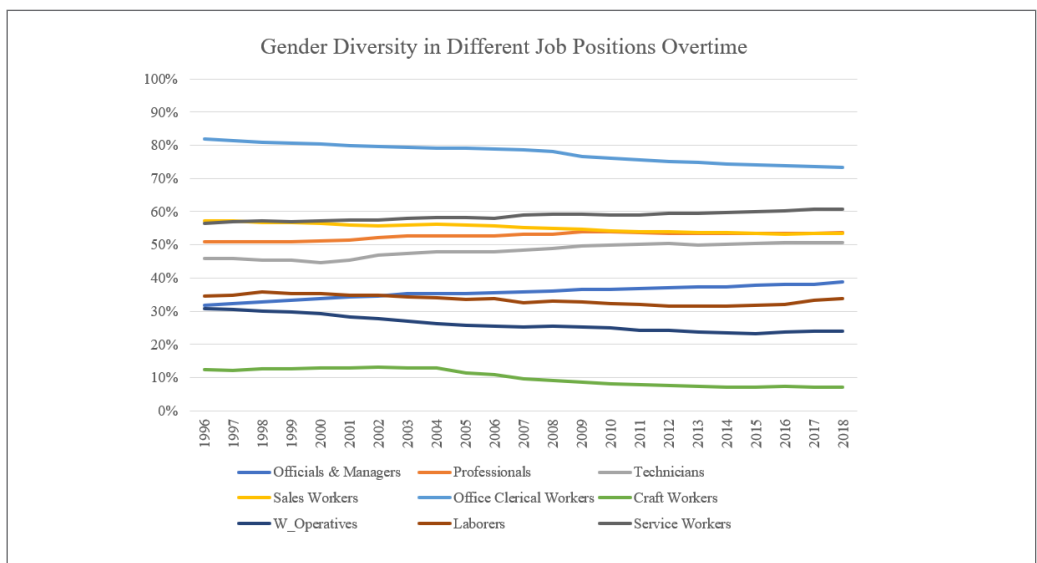
Note: \*\*\* p<0.001

– it was a slight decrease by 0.896%. Additionally, women are still most popular in the job position of Office Clerical Workers from 81.807% of all clerical workers in 1996 to 73.447% in 2018. Women are still the least popular in the job position of Craft Workers from 12.256% of all craft workers in 1996 to 7.097% in 2018.

Moreover, I also created the line chart to show how the different race groups differ in employment

overtime. Figure 6 shows all job positions were less dominant by the White group from 74.26% in 1996 to 60.99% in 2018. The minority groups which are Black, Hispanic, and Asian all increased in employment over time (from 13.27% in 1996 to 15.66%; from 8.36% in 1996 to 15.84% in 2018; from 3.57% in 1996 to 6.95% in 2018). The American Indian minority group has almost no change, from 0.54% in 1996 to 0.56% in 2018. I compared

**Figure 5**  
*Gender Diversity in Different Job Positions Overtime*



**Table 7**  
*Gender Diversity in Different Job Positions Overtime*

Job Position	1996	2018	Change (%)	P Value (Proportion Test)
Officials & Managers	31.683%	38.735%	+7.051%	***
Sales Workers	57.108%	53.408%	-3.700%	***
Operatives	30.648%	23.922%	-6.726%	***
Professionals	50.811%	53.608%	+2.798%	***
Office Clerical Workers	81.807%	73.447%	-8.360%	***
Laborers	34.643%	33.747%	-0.896%	***
Technicians	45.880%	50.619%	+4.739%	***
Craft Workers	12.256%	7.097%	-5.158%	***
Service Workers	56.487%	60.858%	+4.371%	***

Note: \*\*\* p<0.001

the ratios in 1996 versus 2018 for every race group and conducted proportion tests. Table 8 shows the result. The White group has a significant decrease overtime, which is -13.26% ( $p < 0.001$ ). Among the three minority groups (Black, Hispanic, and Asian) that have significant decreases (2.39%, 7.48% and 3.38%), The Hispanic group has the most increase overtime, which is 7.48%. Additionally, Table 8 shows that the American Indian minority group

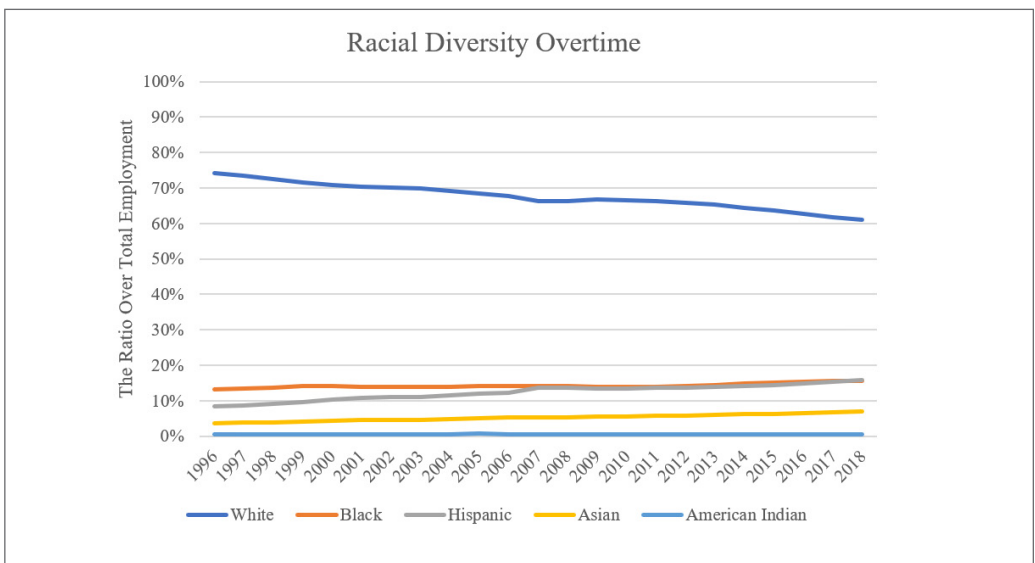
has the smallest change, which is 0.02%.

### 6.3. Practical Implications

This paper has great practical implications, especially for policy makers.

First, this paper justifies the diversity of race and gender in society and provides empirical evidence to show the benefits of such diversity in the workforce to the economy. Therefore, governments

**Figure 6**  
*Racial Diversity Overtime*



**Table 8**  
*Racial Diversity Overtime*

Job Position	1996	2018	Change (%)	P Value (Proportion Test)
White	74.26%	60.99%	-13.26%	***
Black	13.27%	15.66%	+2.39%	***
Hispanic	8.36%	15.84%	+7.48%	***
Asian	3.57%	6.95%	+3.38%	***
American Indian	0.54%	0.56%	+0.02%	***

Note: \*\*\*  $p < 0.001$



should encourage companies to hire employees from different races and genders. For example, governments can give a lower tax rate to companies that do so. Even though the tax rate could be low to the companies, the positive associations between economy indicators (GDP and CPI) and race and gender diversity all suggest that economy will be good – more diversity in the workforce, more production and more spending as well. Thus, the tax that governments will receive in the end may increase. Of course, future studies will need to determine how much decrease in tax rate with each percent of increase in diversity within the company can maximize the positive economic impact.

Second, this paper suggests that race and gender diversity in the different job positions can increase the capacity of different perspectives, which are strongly related to creativity. Thus, by hiring people from different races and genders, companies may be able to have higher productivity and higher creativity, which may translate to more revenues and more profits.

Third, this paper also encourages everyone to pursue their career dreams regardless of their genders and races. With more job opportunities from different job titles (ranging from executive and managerial positions to service workers), they should insist on applying for different job positions, especially the ones that are more influential to be a good representation to further encourage more people from different races and genders to join the labor market. Meanwhile, people from different races and genders, since working together, can overcome the misunderstanding of each other and reach a harmonious relationship with more understanding so that the society will be less divided and more of a unity.

#### **6.4. Limitations and Outlook**

No paper is perfect without limitations. My paper, inevitably, has limitations, which call for future research to address. First, my paper is among the first attempts to empirically explain why race and gender diversity in the general workforce can benefit the economy. In particular, I focused on race and gender diversity in executive and managerial positions to associate diversity with the economy,

while controlling for the total employment. The logic behind this analysis is that regardless of the growth of total employment, the number of executive and managerial positions should stay somewhat fixed. Therefore, the correlation between total employment and race and gender diversity in these positions should be low. I accordingly put these two variables in the same linear regression models (See Table 4). By doing so, I excluded the working mechanism that race and gender diversity increases the total employment, which further increases the economy. The finding of the positive association between race and gender diversity in executive and managerial positions and the economy can only support the possibility of the other working mechanism that race and gender diversity increases the capacity of different perspectives, which further increases the economy. But the evidence may not be sufficient to fully support the other working mechanism. So, I call for future research that can further collect data on some index of creativity on the societal level and run models that include these creativity index variables to explicitly test the other working mechanism.

The other limitation is about the data sample itself. On the one hand, the dataset has a relatively small sample size. I collected data for the years of 1996 – 2018 on race and gender diversity in different job positions. However, after I aggregated the data to generate yearly data to associate with the economy indicators, GDP and CPI, the aggregated dataset only has 23 records. I would like to include more years of data to replicate this study's findings. Thus, I call for future research for that. On the other hand, my dataset stops at the year of 2018. It would be very interesting to include the most recent years especially 2020 and 2021 during and after which the Covid pandemic happened. In 2020 and 2021, the labor market has changed dramatically. Many people, due to the impact of Covid on people's mental health and their rethinking of life-work balance, chose to resign or retire early or change for a different career track. Therefore, having these recent years of data can potentially generate interesting results to see 1) how race and gender diversity varies when the labor market structure changes and 2) whether and how these variances among race and

gender in the change of the labor market affect the economy.

Another limitation is also about the data. It would be great to add other control variables that may affect GDP or CPI, such as size of workforce and technological and organizational innovations. However, the data sample that I have does not include these data points. I hope future work can add these variables to the analyses to validate my findings.

One more limitation is that I focus on the national level impact of labor diversity on economic performance. Therefore, in the dataset that I have, there is no possibility to see if on the firm level, there is truly diversity – there could be ethnic and gender homogeneity within some firms. So, I call for future studies that can collect the relevant data on the firm level to confirm the finding consistency between the national and firm levels.

The last limitation is the nature of the analyses. This paper has a descriptive nature. That is, it uses regressions to show associations among variables. I call for future work that can study the same phenomenon from the perspective of causality.

## 7. Conclusion

This paper is among the first attempts to not only show that race and gender diversity benefits society but also explores the reasoning behind it empirically. This paper shows that race and gender diversity in the general workforce is positively associated with the economy. Also, the data from the U.S. Equal Employment Opportunity Commission and from the Federal Reserve for the years of 1996 – 2018 shows that race and gender diversity increases the total employment, which further increases the economy. This dataset also supports the possibility that race and gender diversity increase the capacity of different perspectives, which further grows the economy. In particular, racial diversity in general has increased significantly in different job positions (from officials and managers to laborers) overtime. In contrast, gender diversity has either increased or decreased – more women are in the executive and managerial positions and less women are in the laborer positions overtime. But, overall, the minority groups and women still account for a small portion

of all in the executive and managerial positions.

Moreover, this paper suggests governments making more policies that encourage employment from different races and genders, and companies hiring more employees from different races and genders. In particular, this paper adds strong evidence for the recent social movements such as #BlackLives-Matter and #MeToo that we should support diversity, equality and social justice. As we do so, we not only stay true to our conscience, but the society also benefits and the economy also grows.

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