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Impact of college education on incorporated and unincorporated self-employment: variations among African Americans and Hispanics

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Abstract

Purpose – This study examines the impact of college education on incorporated and unincorporated self-employments. It specifically compares the effects on African Americans and Hispanics with the effects on Whites.

Design/methodology/approach – The study sample was drawn from the US Current Population Survey between 1989 and 2018. Based on a sample size of 1,657,043 individuals, this study employed logit regression models to test the hypotheses. Racial variations were examined using African Americans and Hispanics as moderators.

Findings – The results suggest that college education increases incorporated self-employment and reduces unincorporated self-employment. The impact of college education on incorporated self-employment is stronger for African Americans and Hispanics than for Whites. In contrast, its effect on unincorporated self-employment is stronger for Whites than for African Americans and Hispanics.

Research limitations/implications – The findings provide empirical evidence of how college experience changes the motivation of starting an incorporated or unincorporated business. The results suggest that college education impacts African Americans and Hispanics differently than Whites in pursuing their career path of entrepreneurship.

Originality/value – It is the first study that examines the relationship between college education and incorporated/unincorporated self-employment. It also sheds light on racial variations.

Keywords Hispanics, African Americans, College education, Incorporated/unincorporated self-employment

Paper type Research paper

Introduction

While the extant literature confirms that schooling increases the probability of entrepreneurship (Levine and Rubinstein, 2017; Unger *et al.*, 2011; van der Stuis *et al.*, 2008;

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van Praag *et al.*, 2013), few studies examine if the impact from a college education is different from other types of schooling (Guo *et al.*, 2016). The purpose of a college education is different from K–12 education (i.e. Kindergarten and 1st–12th grade) in the United States. K–12 education focuses on basic skills such as reading, writing and mathematics (Carbonaro and Gamoran, 2002; Rumberger and Palardy, 2005). In comparison, a college education is more directly related to starting a business due to the entrepreneurial training one can receive (Katz, 2003; Kuratko, 2005). It enhances both the human capital (van der Sluis *et al.*, 2005, 2008; Unger *et al.*, 2011; van Praag *et al.*, 2013) and social capital (Binks *et al.*, 2006; Sager *et al.*, 2006). Guo *et al.* (2016) investigated the impact of college education on entrepreneurship and found a positive impact. However, they only analyzed the effect of college education on incorporated businesses. More than 60% self-employed in the United States were unincorporated (Hipple and Hammond, 2016). Excluding the unincorporated self-employed may miss out a vast number of individuals who could be considered as entrepreneurs.

In the literature of entrepreneurship studies, self-employment has been widely used as a proxy for entrepreneurship due to its available microdata (Light and Munk, 2018). Glaeser (2007) pointed out that the aggregation of self-employment makes “little distinction between Michael Bloomberg and a hot dog vendor.” A few recent studies reveal distinct differences between incorporated and unincorporated self-employment (Levin and Rubinstein, 2017; Light and Munk, 2018). The incorporated self-employment is being registered as a legal entity. It bears an additional cost of registration and annual fees. In exchange, it benefits from the owners’ limited financial and legal liabilities. In contrast, unincorporated self-employment means not being formally registered as a legal entity, and thus, not seeking liability protection (Levin and Rubinstein, 2017). Light and Munk (2018) found that 68% of self-employed respondents did not own or operate a business. While incorporated self-employed are more likely to operate a business, unincorporated self-employed often work as contractors, handymen, caregivers or similar roles. Levine and Rubinstein (2017) discovered that the activities of the incorporated self-employed demand strong cognitive skills, such as creativity, analytics and problem-solving. In contrast, the unincorporated tend to engage in activities requiring lower levels of cognitive skills such as landscaping, truck driving and carpentry. Therefore, they propose that incorporated self-employment should not be treated the same as unincorporated self-employment in entrepreneurial studies.

A college education is likely to increase incorporated self-employment because of the improved human capital and social capital (Guo *et al.*, 2016). Little is known about how college education affects unincorporated self-employment. The earnings of those unincorporated self-employed are found to be lower than the salaried individuals. Presumably, a person with a college education may be less willing to start an unincorporated business given their better chance in the job market than those without a college degree. Ethnic minorities are less likely to own a business than the majority group (Fairlie and Meyer, 1996). Some researchers suggest that minority entrepreneurs have limited financial resources and possess low human capital (Guo *et al.*, 2016; Lofstrom and Bates, 2013). On the other hand, previous studies reveal that African Americans and Hispanics experience discrimination in the workplace. They also have fewer opportunities than White workers in the job market. Therefore, they may find owning a business more attractive than being employed (Canedo *et al.*, 2014). Unfortunately, no empirical studies have examined the connection between disaggregated self-employment and ethnic minorities. More importantly, how would college education change their motivation to become incorporated or unincorporated self-employed? Previous studies imply that college education could provide more incentives for ethnic minorities than for Whites to start an incorporated business because it lowers the financial barriers and human barriers for those disadvantaged groups (Bates *et al.*, 2018; Canedo *et al.*, 2014; Guo *et al.*, 2016;

[Lofstrom and Bates 2013](#)). There is no previous research that directly explores the possible impacts of college education on unincorporated business.

Using US Current Population Survey between 1989 and 2018, this study examines how college education affects the probability of incorporated and unincorporated self-employment. Ethnic groups are used a moderator to explore variations of African Americans and Hispanics from Whites. Our results indicate that a college education is positively associated with being incorporated self-employed. The relationship is stronger for African Americans and Hispanics than for Whites. In contrast, the findings reveal that having a college degree reduces the probability of starting an unincorporated business. However, the impact is much stronger for Whites than for the ethnic minority groups. In fact, college education barely changes the chance of being unincorporated self-employment among African Americans and Hispanics.

This paper contributes to the existing literature in the following ways. First, it is the first study that examines the relationship between college education and the disaggregated self-employment. Our findings provide empirical evidence on how college experience changes the motivation of two types of self-employment. Second, this study explores how college education impacts African-Americans and Hispanics differently from Whites in pursuing their career path. According to [Kauffman \(2018\)](#) National Report on Early-stage Entrepreneurship, ethnic minorities among new entrepreneurs increased from 22.9% in 1996 to 45.6% in 2018, doubling in two decades. In particular, Hispanic entrepreneurs increased from 10% to 24.9%, while African Americans rose from 8.4% to 9.8%. Therefore, ethnic minority entrepreneurs are playing an increasingly important role in creating new businesses in the United States. Our results present an untold story about ethnic minority entrepreneurs on how they become incorporated and unincorporated self-employed. Last but not least, this study uses a large sample covering 50 states between 1989 and 2018 in the United States. It includes 1,657,043 individuals over 30 years. The results provide updated and reliable pieces of evidence for the effect of college education on self-employment in the USA.

Theoretical framework and hypotheses

College education and the incorporation of business

Scholars have attempted to disaggregate self-employment into incorporated and unincorporated in search of a proxy of entrepreneurship ([Levine and Rubinstein, 2017](#); [Light and Munk, 2018](#); [Guo et al., 2016](#); [Zhang and Acs, 2018](#)). Some scholars suggest using only incorporated self-employment as proxy for entrepreneurship ([Levine and Rubinstein, 2017](#)). One of the foundational studies of the difference between incorporated and unincorporated self-employment was conducted by [Levine and Rubinstein \(2017\)](#). They discovered that the incorporated self-employed had “a very distinct mixture of cognitive and noncognitive traits from salaried workers and other business owners. The incorporated tend to be male, white, better educated, and more likely to come from high-earning, two-parent families. Furthermore, as teenagers, the incorporated tend to have higher learning aptitude and self-esteem score” (2017, p. 1015). The unincorporated business, in contrast, more often involves manual skills, and people who started unincorporated business tend to be less educated in comparison.

The motivation of being incorporated self-employed is different from being unincorporated self-employed. The incorporated intend to create a new venture, introduce a new product or service and grow the business, while the unincorporated, who are often unsuccessful salaried workers, have lower ambition to expand the business [Levine and Rubinstein \(2017\)](#). Their goal is to make a living for themselves. [Levine and Rubinstein \(2017\)](#) find that an average person’s hourly earnings increase when switching from salaried work to

incorporated self-employment. In contrast, a person's income declines when switching from salaried work to unincorporated self-employment. As a result, unincorporated self-employment is an undesirable choice in terms of financial returns.

Although most previous research confirms that education improve the likelihood of entrepreneurship (Levine and Rubinstein, 2017; Unger *et al.*, 2011; van der Sluis *et al.*, 2008; van Praag *et al.*, 2013), few studies examine if the impact from college education is different than from $K-12$ (Guo *et al.*, 2016). Zhang and Acs (2018) separated college education from other levels of education. Their results show that college education is negatively associated with the aggregated self-employment and positively correlated with incorporated self-employment. Unfortunately, they did not offer any insights about the conflicting results because levels of education were included as control variables in their study. As aforementioned, the purpose of a college education is different from $K-12$ education (i.e. Kindergarten and 1st–12th grade) in the United States. $K-12$ education focuses on basic skills training (Carbonaro and Gamoran 2002; Rumberger and Palardy, 2005), while colleges and universities are the birthplaces of entrepreneurship education (Katz, 2003; Kuratko, 2005). On the other hand, some people doubt the value of college education for entrepreneurs, for the reasons that formal education promotes conformity instead of tolerance for ambiguity (Ronstadt, 1984; Mintzberg and Gosling, 2002; Pfeffer and Fong, 2002), while innovation and tolerance for ambiguity are essential traits of entrepreneurs. Also, a college education provides college graduates with a safer pathway to employment, which means less incentive for starting a business.

The controversy around the impact of college education on entrepreneurship is still worthy of further investigation. At the same time, the cost of attending college is rising for students, and governments' budget is tightening up. Unlike the $K-12$ education available to the students for free, a college education is expensive, and the cost has been on the rise for both governments and students (Guo *et al.*, 2016). Considering the opportunity cost for the students and governments, the research on the relationship between college education and entrepreneurship deserves continuous attention.

We propose that entrepreneurs with a college education may be more likely to be pulled into entrepreneurship and start incorporated businesses. It has been found that education correlates strongly with economic success and social connections (Hout, 2012). Schooling influences income and affects job satisfaction and the likelihood of being unemployed (Oreopoulos and Salvanes, 2011). In their study, Levine and Rubinstein (2017) found that more educated people are more likely to become incorporated business owners. We suggest this is especially true for the college-educated self-employed. Whether receiving an entrepreneurial education or other degrees, a college-degree holder is more likely to choose the incorporated form when becoming self-employed. As a result, college graduates may be more likely to be pulled into entrepreneurship to start something better than their current employment. An incorporated business may provide such an opportunity with its autonomy and growth potential.

Levine and Rubinstein (2017) suggest that individuals who choose unincorporated self-employment do not have an alternative in the labor market. As such, unincorporated self-employment may be a way to avoid unemployment. An average unincorporated self-employed person makes less than a salaried worker. In contrast, a college education enhances opportunities in the job market. College graduates may find it easier to get more appealing jobs, pursue better employment opportunities when dissatisfied with current employers, or seek promotion and advancement with current employments (Hout, 2012; Long, 2010; Oreopoulos and Salvanes, 2011; Wavelet and Anderson, 2002). If a college-degree holder is more likely to find employment and satisfying jobs, they have less incentive to start an unincorporated business.

For these reasons, we posit that college graduates are more likely to be pulled into incorporated self-employment to seek market opportunities instead of being pushed into unincorporated self-employment (Levine and Rubinstein, 2017). The best way to take advantage of market opportunities is to reduce risks while pursuing the optimal growth potential, which is more viable under incorporated business than unincorporated businesses. Thus, we hypothesize the following:

- H1. College education is positively associated with incorporated self-employment.
- H2. College education is negatively associated with unincorporated self-employment.

Incorporated vs unincorporated businesses among African Americans and Hispanics

The line of inquiry on ethnic groups in entrepreneurship shows that the relationship between college education and incorporated vs unincorporated self-employment among different races has not been sufficiently explored. In general, African Americans and Hispanics have been found less likely than Whites to become self-employed (Fairlie and Meyer, 1996; Guo et al., 2016). It was found that college education enhances the likelihood of African American and Hispanic entrepreneurs to start a business (Guo et al., 2016). However, previous research either did not focus on the impact of college education among African American and Hispanic self-employed (Fairlie and Meyer, 1996), or they did not disaggregate incorporated and unincorporated businesses (Guo et al., 2016). Because of the unique nature of college education and the critical distinction between incorporated and unincorporated self-employment, in this research, we investigate African American and Hispanic entrepreneurs and the relationship between their college education and the propensity to launch an incorporated vs unincorporated business.

African Americans have had relatively low self-employment rates (Fairlie and Meyer, 1996, 2000). In a report for the US Bureau of Labor Statistics of 2015, more Whites than African Americans operated their own incorporated or unincorporated businesses (Hipple and Hammond, 2016). In 2015, Whites' unincorporated self-employment rate was 6.9%, while African American unincorporated self-employment was 3.6%. The incorporated self-employment rate (4.0%) of Whites is also higher than that of African Americans.

While statistics have shown African Americans have a lower prevalence rate for both incorporated and unincorporated self-employment, it is argued that the reasons are different. We suggest that two major factors contribute to the low rate of incorporated self-employment among African Americans: high financial entry barrier and low human capital (Bates, 1997; Bates et al., 2018; Waldinger et al., 2006).

Levine and Rubinstein (2017) found that a \$100,000 increase in family income is associated with a 55% increase in the likelihood of incorporated self-employment. They also found that the incorporated self-employed tend to come from high-income families. Aspiring African Americans are found to have less access to financial capital than Whites. They have lower personal-wealth levels and limited borrowing power than Whites (Bates et al., 2018; Bradford, 2003; Loftstrom and Bates, 2013). Bradford (2003) found that nationwide families headed by African Americans had a median net asset holding of \$10,679 as opposed to \$67,449 of Caucasians in 1994. Fairlie and Robb (2007) cited the median wealth levels of African American households of \$6,166 vs \$67,000 of Whites. Analyzing the 1996 and 2001 SIPP surveys, Loftstrom and Bates (2013) found that African American entrants reported less than one-fifth of the average wealth of White entrants. The vast racial differences in assets translate into start-up capital disparities between African American and White entrepreneurs (Loftstrom and Bates, 2013). Banks' financial capital is also less accessible for African Americans than for Whites (Bates et al., 2018; Blanchflower et al., 2003; Cavalluzzo and Wolken, 2005; Loftstrom and Bates, 2013).

The second significant cause is human capital. As aforementioned, the extant literature suggests that human capital has a positive impact on entrepreneurship (van der Sluis *et al.*, 2008; Unger *et al.*, 2011; Levine and Rubinstein, 2017; Zhang and Acs, 2018). African Americans achieve lower level of education, limited access to business training and less management experience in comparison with Whites (Guo *et al.*, 2016). Loftstrom and Bates (2013) found that the difference in educational attainment alone explains roughly 60% of the gap between African American and White start-up entry rates into high-barrier industries. To further illustrate the importance of human capital to start-ups, African Americans with a college education are two to three times more likely to be involved in a start-up than similarly educated Whites (Kollinger and Minniti, 2006). Besides, there could be a lack of successful entrepreneurs as role models in the African American community, as successful African American entrepreneurs tend to move outside of the neighborhood (Aldrich and Waldinger, 1990). Thus, we propose:

H3a. African Americans are less likely to be self-employed with an incorporated business than Whites.

In contrast, unincorporated self-employment does not require high financial capital or human capital. However, African Americans were historically excluded as business owners outside of their communities. The constraints gradually subsided, and the prevailing attitudes changed in the last few decades (Bates and Tuck, 2014). As a result, African Americans are expanding their access to finance, education and employment choices. Nevertheless, small businesses owned by African Americans are still largely concentrated in their enclaved region (Bates and Tuck, 2014; Cummings, 1999; Fairchild, 2009). Unincorporated self-employed often work as contractors, handymen, caregivers or other similar roles (Levine and Rubinstein, 2017). This type of interpersonal service demands trust and loyalty from customers. African Americans can create businesses in their communities catering to co-ethnics (Bates and Tuck, 2014), but it is still difficult to overcome the stereotype bias and gain business from other races. Accordingly, we propose that the prevalence rate of unincorporated self-employment is likely low among African Americans. Thus, we propose the following hypothesis:

H3b. African Americans are less likely to be self-employed with an unincorporated business than Whites.

In the same vein, we posit that Hispanics will have a lower self-employment rate with both incorporated and unincorporated businesses. Previous research suggests that Hispanics are less likely to become self-employed than Whites (Aldrich *et al.*, 1987; Bates, 1995; Guo *et al.*, 2016). In the same report for the US Bureau of Labor Statistics as mentioned earlier, Hispanics' unincorporated self-employment was slightly lower than Whites'. Whites' incorporated self-employment rate was also higher than that of Hispanics (Hipple and Hammond, 2016).

Like the African Americans, Hispanics also face two significant hurdles to becoming incorporated self-employed: high financial entry barrier and low human capital. With regard to human capital, Mundra *et al.* (2003) found that Hispanics often have lower levels of education and are less likely to be employed in managerial or professional positions. Canedo *et al.* (2014) argue that Hispanics have less access to market needs and opportunities. The tendency to live in Hispanic enclaves may limit Hispanics' access to market information about non-Hispanic customers.

Similar to African Americans, Hispanics also lack financial resources. They are more likely to be denied a start-up loan than Whites (Coleman, 2004). Furthermore, Canedo *et al.* (2014) argue that Hispanics are higher on uncertainty avoidance on average than their White counterparts, which makes them less likely to borrow money to start businesses. Hispanics

have low trust in lenders and believe that borrowing endangers the family, so many Hispanics would only borrow money as a last resort (Korzenny and Korzenny, 2005). As a result, Hispanic entrepreneurs are less willing to borrow money to finance start-ups than White entrepreneurs (Canedo et al., 2014). Because of the limited access to human capital and financial resources, Hispanics may perceive that they do not have the necessary skills or financial resources to start an incorporated business (Canedo et al., 2014). Thus, we propose:

H4a. Hispanics are less likely to be self-employed with an incorporated business than Whites.

We propose two reasons why Hispanics are less inclined to be unincorporated self-employed: uncertainty avoidance and enclaved community. Hofstede (2001) suggests that Hispanics are higher in uncertainty avoidance than Anglos. The earnings among average unincorporated self-employed individuals are lower than those of salaried workers and incorporated self-employed individuals (Levine and Rubinstein, 2017). Unincorporated self-employment is thus associated with underemployment or unemployment (Levine and Rubinstein, 2017). Being unincorporated self-employed is taking risks without favorable financial outcomes. Therefore, Hispanics with high uncertainty avoidance are less likely to create a business without incorporation.

Furthermore, previous research reveals that ethnic enclaves shape Hispanics' motivation to own a business (Fairchild, 2009; Canedo et al., 2014). Canedo et al. (2014) suggest Hispanic enclaves support and nurture business within the community due to shared culture, values and language. On the flip side, businesses are unlikely to be created and expanded outside of the ethnic community. Immigrant enclaves created ethnic boundaries, language groups and enclosed social networks (Bate, 2018). Such networks promote familiar routines and discourage businesses from growing outside the enclaved region (Gargiulo and Benassi, 2000). It is relatively easy to start an unincorporated business within the ethnic area because of family and community support. It will take a lot more resources and effort to start and operate a business without those support. Thus, we propose the following hypothesis:

H4b. Hispanics are less likely to be self-employed with an unincorporated business than Whites.

As stated previously, African Americans and Hispanic entrepreneurs face higher barriers to entry. Loftstrom and Bates (2013) suggests that high-barrier industries require more financial capital or education attainments. Examples of high-barrier industries are "manufacture, wholesale, professional services, business services, finance, insurance, and[sic] real estate, and entertainment." (p. 77) Low-barrier industries require less financial capital or education attainments. Examples of low-barrier sectors are "personal services, repair services, construction, transportation, retail, and miscellaneous services" (p. 77). While the human-capital barrier for such sectors is high for African Americans or Hispanics, it is not a significant obstacle for White entrepreneurs due to average higher educational attainment. A college education can help African American or Hispanic entrepreneurs enter businesses where human capital barriers are high. These are also industries where businesses tend to be incorporated (Hipple and Hammond, 2016; Levine and Rubinstein, 2017).

Due to structural limits such as discrimination and the glass ceiling, African Americans and Hispanics have limited opportunities in the job market (Cotter et al., 2001; Storer et al., 2020). Previous studies reveal that Black and Hispanic applicants are significantly less likely to receive interview call-backs than White applicants with equivalent qualifications (Pager and Shepherd, 2008; Quillian et al., 2017). Mandel and Semyonov (2016) found that racial minority groups receive lower wages than their White counterparts. The income gap has

widened significantly since 2000. [Kristal et al. \(2018\)](#) confirmed that White workers are more likely to be covered by an employer-provided pension plan or health insurance than African American or Hispanic workers. [Storer et al. \(2020\)](#) found that the quality of the jobs held by African American and Hispanic workers is lower than White workers in the retail and food-service industries in terms of work schedules. White workers were found to have fewer canceled shifts and less work on-call. They are less likely to work consecutive closing than opening shifts, be involuntary part-time workers or have trouble getting time off. [Cotter et al. \(2001\)](#) confirms that ethnic minorities encounters the glass ceiling and not be able to advance any further in their career after reaching a certain level on the corporate ladder.

College education improves the employment marketability for African Americans and Hispanics ([Bates et al., 2018](#)), but it does not remove the structural barriers. They may have the advantage over those minority workers without a college degree, but their opportunities are limited when competing with White workers who are also college-educated. Equipped with more knowledge and human capital, it is better for minority groups to build their own business than relying on limited opportunities as an employee. A few previous studies support that African Americans and Hispanics are more inclined than Whites to be nascent entrepreneurs after receiving a college degree ([Bates et al., 2018](#); [Reynolds et al., 2004](#)). [Bates and Bradford \(2007\)](#) suggest that human capital gained from college education helps minority entrepreneurs facilitate business financing and gain access to product market in the traditional high-barrier lines of business, such as manufacturing, wholesaling, finance, insurance and real estate. For these reasons, we hypothesize the following:

H5a. The association between college education and incorporated self-employment is stronger for African Americans than for Whites.

H5b. The association between college education and incorporated self-employment is stronger for Hispanics than for Whites.

As previously discussed, those unincorporated self-employed may not have better alternatives in the job market. Individuals' income declines after switching from employment to unincorporated self-employment ([Levin and Rubinstein, 2017](#)). Unlike regular employees, the unincorporated have no employee benefits such as retirement plans or health insurance. College education improves graduates' human capital and social capital, which provide more opportunities for all races to secure a job. Nevertheless, a college education arguably benefits White graduates more than African Americans and Hispanics in securing a salaried position because of the structural barriers faced by minority groups. Assume two handymen, one White and one African American, both go to college. The White handyman has a better chance than the African American handyman to find a professional job upon graduation and then a better opportunity to advance in his career as an employee. He is unlikely to go back to his unincorporated handyman business. In other words, college education improves ethnic minorities' prospects in the job market, but they still encounter structural barriers ([Charles and Guryan, 2011](#); [Fryer et al., 2013](#)). Compared with similarly educated Whites, African Americans and Hispanics benefit less from their college education in the salaried work domain. They might find owning an unincorporated business an attractive option.

While the prevalence rate of self-employment is low among minorities, many unincorporated African American and Hispanic businesses owners find a niche in the market ([Bates et al., 2018](#)). The unincorporated business can serve as a stable source of income and a reliable alternative for their structural challenges in the job market. African Americans are the most segregated race. Many small businesses owned by African Americans are based in their enclaved community ([Cummings, 1999](#); [Fairchild, 2009](#)). Segregation creates business opportunities for African Americans with limited resources.

They are likely to have tacit knowledge in their enclaved community than outsiders. They can draw on trust and solidarity from the African American customers in their region (Fairchild, 2009). College education provides more job opportunities for them to move out of the enclaved area, but they have a place to fall back if the job market does not work out well.

Similarly, Hispanics are more likely to live in Hispanic enclaves. Many Hispanic small business owners serve customers whose lives depend on the restrictive resources in the enclaves (Canedo et al., 2014). They can communicate in the same language and understand their Hispanic customers' needs better than other races. Canedo et al. (2014) suggest that collectivism and familism in Hispanic culture influence their motivation to become entrepreneurs. According to Hofstede's national culture framework, Latin American societies, the origin of most American Hispanics, are characterized by a collectivist culture (Hofstede, 2001). Research also indicates that Hispanics are more familistic than Anglos (Marin and Marin, 1991). Therefore, Hispanics strongly identify themselves with their extended family and friend network. Hispanics may be more motivated to become self-employed to care for their families than to meet their individual needs for achievement (Canedo et al., 2014). Facing the structural barriers in the job market, some Hispanics may prefer to be unincorporated self-employed when they cannot get a job that matches their college degree.

Overall, we propose that college education helps White college graduates more than their African American and Hispanic counterparts to secure a job, advance their career as salaried employees and get out of unincorporated business. Thus, we hypothesize:

- H6a.* The association between college education and unincorporated self-employment is weaker for African Americans than for Whites.
- H6b.* The association between college education and unincorporated self-employment is weaker for Hispanics than for Whites.

Methodology

This study uses the Current Population Survey (CPS)–March Supplement from 1989 to 2018 for empirical analyses. The CPS is a national household survey conducted by the United States Census Bureau to collect information on employment and demographics. It surveys 50,000 to 60,000 households nationally on a monthly basis. The CPS March Supplement asks additional questions on work experience, income, noncash benefits and migration. It covers households in all 50 US states and Washington, DC. CPS is a cross-sectional dataset. Selected households are surveyed eight months during a sixteen-month period: they were surveyed four months straight followed by an eight-month break and then back to be surveyed for another four months. We only used the survey in March. Some households are included in the March survey in two consecutive years, and some only show up once. No households were surveyed for three or more years due to the sixteen-month rule. To keep the sample consistently cross-sectional, we dropped those repeated households to ensure that each observation of our data was unique.

Since the focus of this study is on employment decisions, individuals younger than 25 and older than 65 have been excluded. Persons younger than 25 are less likely to establish a business, while individuals older than 65 are most likely to be retired. Individuals who are not in the labor force (e.g., full-time students or homemakers who are not looking for a job) are excluded as those individuals do not make work decisions. Workers in the agriculture industry are also excluded from this study. Many farmers inherited the farm as a family business. The decision to be a farmer may not be caused by external factors such as education or unemployment. The total number of observations in our initial sample is 1,657,043. Table 1 presents descriptive statistics and the correlation matrix.

Variables	Mean	Standard deviation	1	2	3	4	5	6	7	8	9	10
1. Incorporated self-employment	0.034	0.181										
2. Unincorporated self-employment	0.071	0.256	-0.052									
3. College education	0.309	0.462	0.062	-0.01								
4. African American	0.104	0.305	-0.039	-0.043	-0.061							
5. Hispanic	0.146	0.353	-0.038	-0.022	-0.141	-0.103						
6. Female	0.490	0.500	-0.079	-0.051	-0.002	0.046	-0.026					
7. Married	0.635	0.481	0.066	0.042	0.065	-0.158	-0.048	-0.071				
8. Children under 6	0.267	0.594	-0.0001*	-0.001*	0.033	-0.029	0.042	-0.026	0.193			
9. Unemployment	5.857	1.887	-0.008	-0.013	-0.007	0.038	0.088	0.004	-0.026	-0.003		
10. Age	41.866	10.675	0.068	0.066	-0.002	-0.006	-0.089	-0.001*	0.154	-0.33	0.005	
11. Homeowner	0.688	0.463	0.075	0.45	0.101	-0.131	-0.168	-0.112	0.308	0.019	-0.047	0.243

Note(s): 1. Most correlations are significant at 1% level, except the ones with *

Table 1. Descriptive statistics and correlations

The empirical analyses are organized in the following steps. First, we use the full sample to estimate if a college education is associated with starting an incorporated or unincorporated business. Then we drop to two subsamples to compare the two minority groups separately with Whites. One subsample keeps African Americans and Whites, excluding all other races. The sample size drops to 1,247,672. The other subsample keeps Hispanics and Whites only. Its sample size becomes 1,318,092. Lastly, the moderating effects of African Americans and Hispanics are examined.

There are two dependent variables in this study: incorporated self-employment and unincorporated self-employment. They are both binomial variables. Therefore, all statistical models in this study are logit regressions.

The key independent variable is a college education, which is also a binomial variable. It equals 1 if a person received a bachelor's degree or above, and 0 otherwise. Individuals with an associate degree or those who dropped out of college without a degree are treated as having no college degrees. We recognize the contributions from community colleges and the impact of college experience on dropouts to start a business. However, the primary purpose of this study is to examine the effects of a formal degree from a four-year college and above.

Ethnic demographics serve as moderators. African Americans and Hispanics are both binomial variables with a value of 1 when the person belongs to the ethnic group and 0 otherwise. We include marriage status (1 if married, 0 otherwise), the number of children aged six or below, age, age squared, homeownership (own a home equal to 1, 0 otherwise), and state unemployment rate as control variables. The correlation between age and self-employment is assumed here to be an inverted *U* shape. Individuals are more likely to start a business and earn a higher income as they grow older and gain more experience. However, their entrepreneurial ambition and appetite for risk begin to decline as they reach a certain age. So we use both age and age squared as controls. These control variables were used in many previous studies (e.g. Davidsson and Honig, 2003; Fairlie and Meyer, 1996; Kim *et al.*, 2006; Guo *et al.*, 2016; Robinson and Sexton, 1994). We use homeownership as a proxy for financial capital. Presumably, a person who can afford to buy a property may have more financial resources than others.

The logit regression model is specified as:

$$\begin{aligned} \text{Logit}(p) &= \log(p/(1-p)) \\ &= \beta_0 + \beta_1 * \text{college} + \beta_2 * \text{African American} + \beta_3 * \text{Hispanics} + \dots \beta_k * x_k + \varepsilon \end{aligned}$$

where p is the probability of being incorporated or unincorporated self-employed, and $p/(1-p)$ is the odds ratio between odds of being incorporated or unincorporated self-employed and those not; ε is the error term.

State effects and time effects are included in all regression models. Individuals from the same state are influenced by state-specific factors such as state culture, political environment, economic condition and legislation system. Persons who were surveyed in the same year could be exposed to the same event at the national level, such as new federal legislation, technology breakthroughs or economic crises. If correlated with the independent variables, those unobserved/unmeasured state and time variances will bias the regression results. We use state and year dummy variables to control for state and time effects in all regression models.

Results

The logit regression results of the full sample are presented in Table 2. The dependent variable for the first column of the results is incorporated self-employment. The coefficient for a college education is 0.466. Since $\exp(0.466)$ is equal to 1.594, the odds of being incorporated

Variable	Incorporated (H1)	Unincorporated (H2)
College	0.466*** (0.009)	-0.155*** (0.007)
Black	-0.834*** (0.023)	-0.571*** (0.014)
Hispanic	-0.612*** (0.017)	-0.298*** (0.010)
Female	-0.890*** (0.010)	-0.383*** (0.006)
Married	0.402*** (0.012)	0.097*** (0.007)
Child under 6	0.112*** (0.008)	0.140*** (0.006)
Age	0.161*** (0.004)	0.085*** (0.003)
Age ²	-0.001*** (0.0004)	-0.001*** (0.0003)
Home ownership	0.710*** (0.014)	0.192*** (0.008)
Unemployment	-0.001 (0.006)	0.009** (0.004)
Constant	-7.868*** (0.099)	-4.887*** (0.064)
Pseudo R ²	0.0827	0.0303
Number of observations	1,657,043	1,657,043

Note(s): 1. Full sample contains individuals aged between 25 and 65 from 1989 to 2018 in the United States
 2. Individuals who are employed in agriculture are excluded from the sample
 3. State effects and year effects are included in both models
 4. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$

Table 2. College education and self-employment (full sample)

self-employed for individuals with a college degree is 59.4% higher than those without it. Thus, H1 is supported. The dependent variable for the second column is unincorporated self-employment. The coefficient for a college education is -0.155, with exp (-0.155) equal to 0.856. The probability of being unincorporated self-employed is 14.4% lower for people with a college education than those without, which supports H2.

The dependent variable presented in Table 3 is incorporated self-employment. In order to compare African Americans directly with Whites, we keep only those two races in the sample for model 1 and model 2 in Table 3, excluding other races. As a result, the number of observations drops to 1,247,672. Likewise, the sample for model 3 and model 4 keeps

Variable	Blacks and whites		Hispanics and whites	
	Model 1 (H3a)	Model 2 (H5a)	Model 3 (H4a)	Model 4 (H5b)
College	0.422*** (0.010)	0.394*** (0.010)	0.434*** (0.010)	0.398*** (0.010)
Black	-0.858*** (0.023)	-1.086*** (0.030)		
Hispanic			-0.639*** (0.018)	-0.783*** (0.022)
College*Black		0.575*** (0.044)		
College*Hispanic				0.481*** (0.036)
Female	-0.918*** (0.011)	-0.919*** (0.011)	-0.899*** (0.010)	-0.901*** (0.010)
Married	0.392*** (0.013)	0.391*** (0.013)	0.395*** (0.013)	0.397*** (0.013)
Child under 6	0.134*** (0.009)	0.135*** (0.009)	0.125*** (0.009)	0.128*** (0.009)
Age	0.153*** (0.004)	0.153*** (0.004)	0.160*** (0.004)	0.160*** (0.004)
Age ²	-0.001*** (0.0005)	-0.001*** (0.0005)	-0.001*** (0.0005)	-0.001*** (0.0005)
Home ownership	0.661*** (0.016)	0.656*** (0.016)	0.710*** (0.015)	0.703*** (0.015)
Unemployment	-0.005 (0.006)	-0.005 (0.006)	-0.002 (0.006)	-0.002 (0.006)
Constant	-7.645*** (0.109)	-7.640*** (0.109)	-7.850*** (0.107)	-7.835*** (0.107)
Pseudo R ²	0.0778	0.0782	0.0785	0.0789
Number of observation	1,247,672	1,247,672	1,318,092	1,318,092

Note(s): 1. Model 1 and Model 2 are regression models from a sub-sample which include Blacks and Whites. Model 3 and 4 are from a sub-sample including Hispanics and Whites
 2. State effects and year effects are included in all models
 3. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$

Table 3. Moderating effect of Blacks and Hispanics on college education (incorporated)

Hispanics and Whites and excludes others. Its sample size narrows down to 1,318,092. Model 1 presents the main effect; Model 2 examines the interaction effect of being African American. The coefficients of a college education are all positive in the four models of Table 3, which further confirms that the impact of college education on incorporated self-employment is robust. The coefficient for being African American in model 1 is -0.858 , with $\exp(-0.858)$ equal to 0.424 . African Americans are 57.6% less likely to be incorporated and self-employed than Whites. The result supports H3a. Model 2 adds the interaction between college education and being African American. The coefficient for the interaction is 0.575 . Figure 1 shows the result of a slope test for the interaction effects, reflecting the moderating effect of being African Americans. A college education increases the incorporated self-employment for both races, but the slope for African Americans is slightly steeper. Thus, African Americans benefit more from a college education in terms of starting an incorporated business. H5a is supported.

The coefficient of being Hispanic in model 3 is -0.639 . It indicates that Hispanics are 47.2% less likely to be incorporated self-employed than Whites. Therefore, H4a is supported. Model 4 includes the interaction between college education and being Hispanic. Its coefficient is 0.481 . Figure 2 illustrates the moderating effect of being Hispanic. Similarly, a college education increases the chance of being incorporated and self-employed, but the slope is much steeper for Hispanics than for Whites. H5b is supported.

Table 4 presents the logit regression results using unincorporated self-employment as the dependent variable. Similar to Table 3, it also includes four regression models. The sample for model 1 and 2 only includes African Americans and Whites. Other races are excluded from the sample. The sample for model 3 and 4 only keeps Hispanics and Whites. The coefficients for college education are negative in all four models. They consistently show that a college education reduces the likelihood of starting an unincorporated business. The coefficient for African Americans in model 1 is -0.588 . Thus, African Americans are 44.5% less likely to be unincorporated self-employed than Whites, supporting H3b. Model 2 adds the interaction between college education and being African American. The coefficient for the interaction is 0.12 . Figure 3 illustrates the moderating effect of being African American. A college education is associated with a lower probability of being unincorporated self-employed for

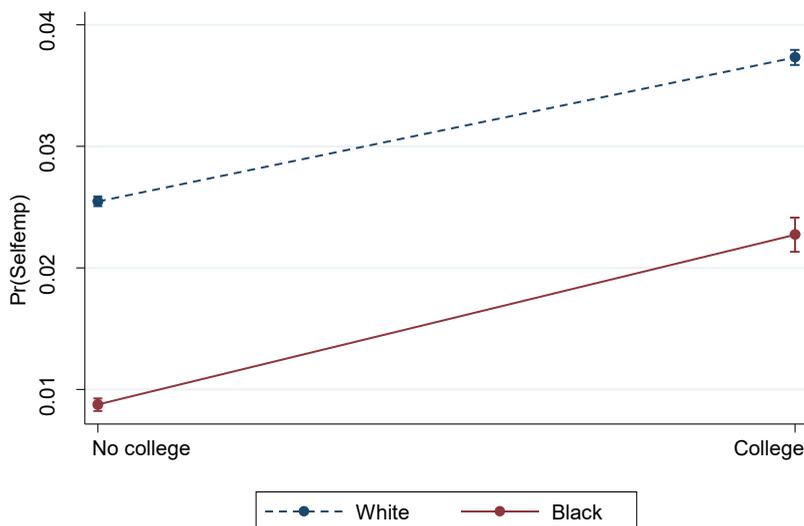
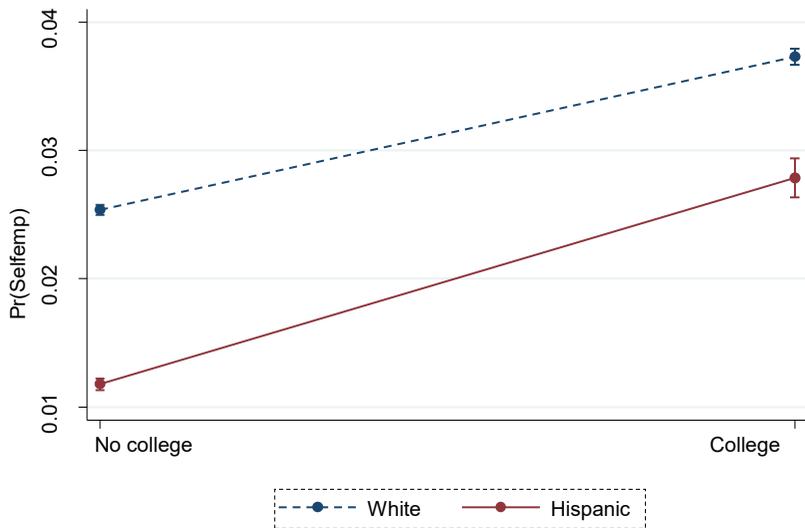


Figure 1.
(Incorporated): Black
and college



College education and self-employment

Figure 2. (Incorporated): Hispanic and college

Variable	Blacks and whites		Hispanics and whites	
	Model 1 (H3b)	Model 2 (H6a)	Model 3 (H4b)	Model 4 (H6b)
College	-0.166*** (0.008)	-0.173*** (0.008)	-0.162*** (0.008)	-0.175*** (0.008)
Black	-0.588*** (0.014)	-0.614*** (0.016)		
Hispanic			-0.328*** (0.011)	-0.352*** (0.012)
College*Black		0.120*** (0.032)		
College*Hispanic				0.149*** (0.026)
Female	-0.366*** (0.007)	-0.366*** (0.007)	-0.356*** (0.007)	-0.356*** (0.007)
Married	0.083*** (0.008)	0.082*** (0.008)	0.089*** (0.008)	0.089*** (0.008)
Child under 6	0.168*** (0.006)	0.169*** (0.006)	0.151*** (0.006)	0.152*** (0.006)
Age	0.073*** (0.003)	0.073*** (0.003)	0.081*** (0.003)	0.081*** (0.003)
Age ²	-0.001*** (0.0003)	-0.001*** (0.0003)	-0.001*** (0.0003)	-0.001*** (0.0003)
Home ownership	0.188*** (0.009)	0.188*** (0.009)	0.185*** (0.009)	0.183*** (0.009)
Unemployment	0.022*** (0.004)	0.022*** (0.004)	0.014*** (0.004)	0.014*** (0.004)
Constant	-4.717*** (0.072)	-4.717*** (0.072)	-4.814*** (0.069)	-4.812*** (0.069)
Pseudo R ²	0.0327	0.0327	0.0270	0.0271
Number of observation	1,247,672	1,247,672	1,318,092	1,318,092

Note(s): 1. Model 1 and Model 2 are regression models from a sub-sample which include Blacks and Whites. Models 3 and 4 are from a sub-sample including Hispanics and Whites
 2. State effects and year effects are included in all models
 3. * $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$

Table 4. Moderating effect of Blacks and Hispanics on college education (unincorporated)

Whites, but the impact for African Americans is minimal. The results are in line with H6a. The coefficient for Hispanics in model 3 is -0.328. It indicates that Hispanics are 28% less likely to be unincorporated self-employed than Whites. Thus, H4b is upheld. Model 4 examines the interaction between college education and Hispanics. The coefficient is 0.149. The moderating effect is illustrated in Figure 4. It again confirms that college education reduces unincorporated self-employment for Whites. The slope is flat for Hispanics, which indicates that college education has little effect on Hispanics. Thus, H6b is supported.

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Figure 3.
(Unincorporated):
Black and college

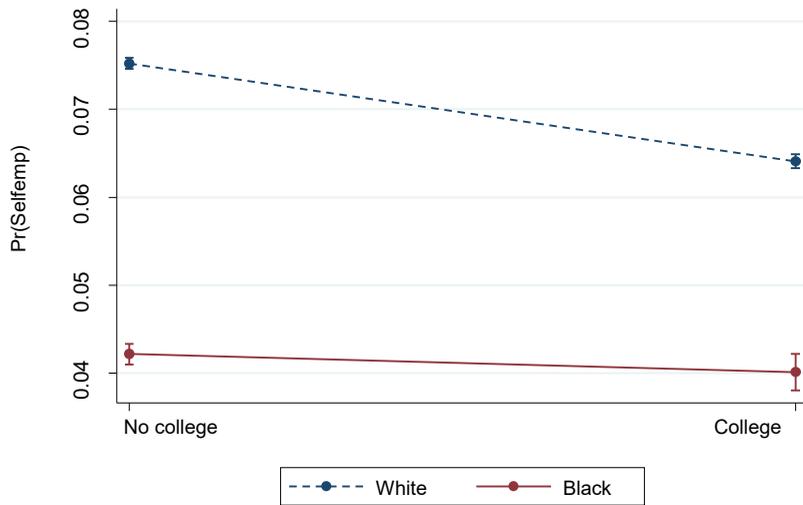
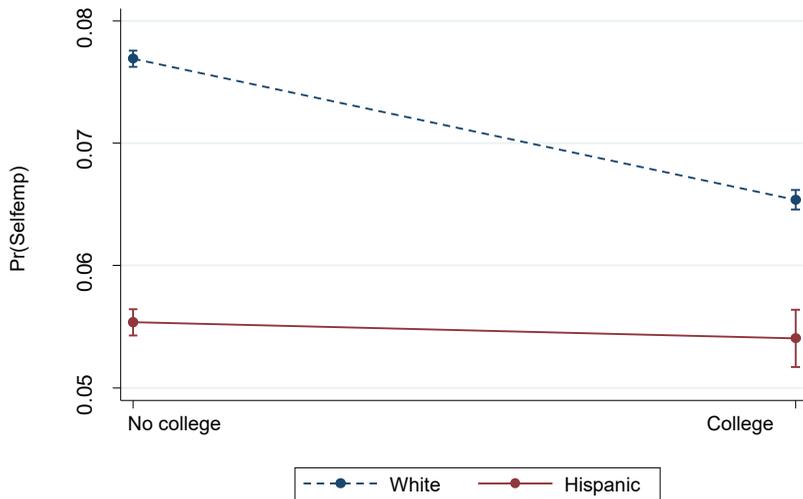


Figure 4.
(Unincorporated):
Hispanic and college



Discussion

This study analyzes the impact of college education on the propensity of starting an incorporated or unincorporated business. We have uncovered that college education is positively associated with opening an incorporated business. The effect is stronger for Hispanics and African Americans, which signifies the increased value of college education for the minority groups. While in general, minorities are less likely to start an incorporated business because of the lack of required knowledge, access to the product market or capital (Bates *et al.*, 2018; Hisrich and Brush, 1985), a college education may, in part, bridge this gap. Thus, a college education may be a substantial factor in upward social mobility for minorities.

Our paper also investigates the effect of college education on unincorporated entrepreneurship. Starting an unincorporated business has been described in the literature

as a less productive form of entrepreneurship because of the focus on performing routine, manual tasks (Fisher and Lewin, 2020; Levine and Rubenstein, 2017, 2018). Many individuals start an unincorporated business due to such adverse factors as unemployment, underemployment and workplace discrimination (Langowitz and Allen, 2006; Levine and Rubenstein, 2017; Riverin and Filion, 2005). Our results demonstrate that college education is negatively associated with launching an unincorporated business. This is consistent with general findings in the literature about the positive role of higher education (Hills, 1988; Kim *et al.*, 2006). In short, college graduates may be more likely to pursue more lucrative job opportunities or establish an incorporated business as opposed to being stuck with an unincorporated business with generally lower career potential.

Furthermore, we analyze the aforementioned effect with regard to ethnicity. The main effect holds for White Americans, but the impact of higher education on reducing the probability of starting an unincorporated business for African Americans and Hispanics is much smaller. The following reasons may explain these results. A college education may provide new opportunities for White Americans to find a highly qualified job or launch a growth-oriented business by equipping them with relevant skills or extending their social networks. However, due to such negative factors as workplace discrimination or lower social capital (Charles and Guryan, 2011; Fryer *et al.*, 2013), the effect of a college education could be less pronounced for minorities. As such, some highly educated Hispanics and African Americans could be pushed to start an unincorporated business due to their lack of access to privileged social networks or funding (Bates *et al.*, 2018; Bewaji *et al.*, 2015; Pedulla and Pager, 2019). Overall, while college education appears to be a substantial factor in boosting more productive entrepreneurial activities and better job opportunities, more efforts are needed to ensure that all demographic groups equally benefit from a college education.

Our study has three main implications for research. First, we provide further evidence supporting an essential role played by college education in starting an incorporated business (Guo *et al.*, 2016). Our results demonstrate that attaining a college degree significantly increases the probability of launching an incorporated business for ethnic minorities. Second, this study shows the instrumental role of higher education in reducing the propensity of starting a low potential business, especially for White Americans. As opposed to engaging in an unincorporated business due to the lack of other options, college graduates may pursue more desirable employment opportunities or start an incorporated business. Third, we find a much weaker effect of college education on reducing the propensity of starting an unincorporated business for ethnic minorities. These results may be explained by structural barriers faced by minorities on the job market (Moyes *et al.*, 2000; Pedulla and Pager, 2019). Likewise, some college-educated Hispanics or African Americans may have faced job discrimination and, thus, become discouraged workers (Heslin *et al.*, 2012). These results suggest that while minority workers are now facing significantly less discrimination than in the past (Bates *et al.*, 2018), some structural issues such as limited access to employment networks may be pushing them towards launching a less aspirational unincorporated business (Levine and Rubenstein, 2017; Fossen and Sorgner, 2021).

In addition to contributing to scholarly research, this paper also offers multiple policy recommendations. First, policymakers need to increase access to college education, especially for minority groups, which, historically, were in the underprivileged position concerning the issue. By getting greater access to college education, minorities may become better equipped to start an incorporated business, creating jobs and boosting the socio-economic development of low-income communities (Levine and Rubenstein, 2017; Bates *et al.*, 2018). Moreover, while we demonstrate that college education significantly reduces the probability of starting a non-incorporated, low potential business for White Americans, we have observed a much weaker effect for minorities. It is unclear whether this phenomenon is driven by ongoing workplace

discrimination, the lower social capital of minorities, or the past stereotype of minorities (Dyer, 1995; Moyes *et al.*, 2000; Pedulla and Pager, 2019; Heslin *et al.*, 2012).

The population in the United States has become increasingly diverse. According to the Census Bureau's 2018 projections, by the year 2045, Whites will no longer be the majority ethnic group. Whites will comprise 49.7% of the population by then, in contrast to 24.6% for Hispanics and 13.1% for African Americans. Entrepreneurship can serve as an essential means to meet the needs of the diversified population and to enhance the economic well-being of African Americans and Hispanics. Extant literature suggests that African American and Hispanic business owners and managers are more likely to hire workers of their race (Bates, 1994; Giuliano *et al.*, 2009). In the same vein, manager-worker pairs of the same race tend to have better employment outcomes in quitting, dismissals, and promotions (Giuliano *et al.*, 2011). Given the less favorable conditions faced by African Americans and Hispanics, minority entrepreneurship represents a viable alternative to unemployment and/or discrimination in the labor market and can provide a path out of poverty. A greater understanding of how college education affects self-employment activities among those minority groups can assist policymakers in allocating public resources better to help job creation for the entire economy. It also provides guidance for African Americans and Hispanics in decision-making about pursuing higher education and choosing a career path for their future.

One limitation of this study is that CPS is a cross-sectional dataset. Individuals in our sample were only surveyed once by the US Census Bureau. Thus, it is impossible to compare the behaviors of the same individual before and after being self-employed. In other words, our results may reflect correlations and do not guarantee causality between college education and entrepreneurship. Another limitation of this study is its simple measurement of a college education. Degrees from business majors are different from liberal arts majors. Even within business schools, one cannot expect that marketing students are trained similarly to accounting students. Our results examine the outcome of a four-year degree in general, but future studies are warranted to investigate particular elements of the driving forces of entrepreneurship from higher education. Finally, we must admit that all the variables used in this study are demographics. Despite the speculations in our hypotheses, the critical factors such as ethnic enclaves, limited access to resources, and structural barriers are beyond the range of CPS data. Future research is needed to investigate the cause of minority group divergence by including information beyond demographics. Qualitative and mixed-method studies that allow for a more in-depth analysis could provide deeper insights into challenges and obstacles encountered by ethnic minority groups.

Conclusion

Our study is one of the first attempts to establish the relationship between higher education and the propensity to start an incorporated and unincorporated business. We have demonstrated that a college education is positively associated with starting an incorporated business. The relationship is even stronger for minorities, indicating an essential role of higher education for minority groups. Our study shows that having a college degree, in general, may reduce the probability of starting an unincorporated business. However, these results are less significant with respect to minority groups. We provide numerous reasons for this effect, such as potential workplace discrimination experienced by minorities and their lower social capital. Finally, we outline multiple implications for policymakers and provide suggestions for further studies on the impact of college education on entrepreneurship.

While our results are insightful, further studies are needed to obtain a complete picture of the issue. For example, scholars could consider analyzing the impact of college education on

population groups residing in different geographical regions. More specifically, it might be interesting to find out if our results would differ in and outside large metropolitan centers. Furthermore, we need to understand better why college education does not significantly reduce the propensity to start a low potential business for minorities, as it does for White Americans. A qualitative case study that favors a more nuanced understanding may be instrumental in pursuing this research direction.

References

- Aldrich, H.E. and Waldinger, R. (1990), "Ethnicity and entrepreneurship", *Annual Review of Sociology*, Vol. 16, pp. 111-135.
- Aldrich, H.E., Rosen, B. and Woodward, W. (1987), "The impact of social networks on business founding and profit: a longitudinal study", in Churchill, N.C., Hornaday, J.A., Kirchoff, B.A., Krasner, O.J. and Vesper, K.H. (Eds), *Frontiers of Entrepreneurship Research*, Boston College, Wellesley, MA, pp. 154-168.
- Bates, T. (1994), "Utilization of minority employees in small business: a comparison of nonminority and black-owned urban enterprises", *Review of Black Political Economy*, Vol. 23, pp. 113-122.
- Bates, T. (1995), "Self-employment entry across industry groups", *Journal of Business Venturing*, Vol. 10 No. 2, pp. 143-156.
- Bates, T. (1997), *Race, Self-Employment and Upward Mobility*, Johns Hopkins University Press, Baltimore.
- Bates, T. and Bradford, W. (2007), "Traits and performance of the minority venture-capital industry", *The Annals of the American Academy of Political and Social Science*, Vol. 613 No. 1, pp. 95-107.
- Bates, T. and Tuck, S. (2014), "Constraints, opportunities, and the decision to pursue business ownership: industry choice among African American owners of small businesses", *Du Bois Review*, Vol. 11, pp. 253-272.
- Bates, T., Bradford, W. and Seamans, R. (2018), "Minority entrepreneurship in twenty-first century America", *Small Business Economics*, Vol. 50, pp. 415-427.
- Bewaji, T., Yang, Q. and Han, Y. (2015), "Funding accessibility for minority entrepreneurs: an empirical analysis", *Journal of Small Business and Enterprise Development*, Vol. 22 No. 4, pp. 716-733.
- Binks, M., Starkey, K. and Mathon, C.L. (2006), "Entrepreneurship education and the business school", *Technology Analysis and Strategic Management*, Vol. 18 No. 1, pp. 1-18.
- Blanchflower, D., Levine, P. and Zimmerman, D. (2003), "Discrimination in the small business credit market", *Review of Economics and Statistics*, Vol. 85 No. 4, pp. 930-943.
- Bradford, W. (2003), "The wealth dynamics of entrepreneurship for black and white families in the US", *Review of Income and Wealth*, Vol. 49 No. 1, pp. 89-115.
- Canedo, J.C., Stone, D.L., Black, S.L. and Lukaszewski, K.M. (2014), "Individual factors affecting entrepreneurship in Hispanics", *Journal of Managerial Psychology*, Vol. 29 No. 6, pp. 755-772.
- Carbonaro, W.J. and Gamoran, A. (2002), "The production of achievement inequality in high school English", *American Educational Research Journal*, Vol. 39, pp. 801-827.
- Cavalluzzo, K. and Wolken, J. (2005), "Small business loan turn downs, personal wealth and discrimination", *Journal of Business*, Vol. 78, pp. 2153-2178.
- Charles, K.K. and Guryan, J. (2011), "Studying discrimination: fundamental challenges and recent progress", *Annual Review of Economics*, Vol. 3 No. 1, pp. 479-511.
- Coleman, S. (2004), "Access to debt capital for women- and minority-owned small firms: does educational attainment have an impact?", *Journal of Developmental Entrepreneurship*, Vol. 9, pp. 127-143.
- Cotter, D.A., Hermsen, J., Ovadia, S. and Vanneman, R. (2001), "The glass ceiling effect", *Social Forces*, Vol. 80 No. 2, pp. 655-681.

- Cummings, S. (1999), "African American entrepreneurship in the suburbs: protected markets and enclave business development", *Journal of the American Planning Association*, Vol. 65 No. 1, pp. 50-61.
- Davidsson, P. and Honig, B. (2003), "The role of social and human capital among nascent entrepreneurs", *Journal of Business Venturing*, Vol. 18 No. 3, pp. 301-331.
- Dyer, W.G., Jr (1995), "Toward a theory of entrepreneurial careers", *Entrepreneurship Theory and Practice*, Vol. 19 No. 2, pp. 7-21.
- Fairchild, G.B. (2009), "Residential segregation influences on the likelihood of ethnic self-employment", *Entrepreneurship Theory and Practice*, Vol. 33 No. 2, pp. 373-395.
- Fairlie, R.W. and Meyer, B.D. (1996), "Ethnic and racial self-employment differences and possible explanations", *The Journal of Human Resources*, Vol. 31 No. 4, pp. 757-793.
- Fairlie, R. and Meyer, B.D. (2000), "Trends in self-employment among black and white men: 1910–1990", *Journal of Human Resources*, Vol. 35 No. 4, pp. 643-669.
- Fairlie, R. and Robb, A. (2007), "Why are black-owned businesses less successful than white-owned businesses: the role of families, inheritances, and Business Human Capital", *Journal of Labor Economics*, Vol. 25 No. 2, pp. 289-324.
- Fisher, M. and Lewin, P.A. (2020), "Profitable entrepreneurship or marginal self-employment? The bimodality of Latina self-employment in the United States", *Journal of Small Business Management*, Vol. 59 No. 6, pp. 1-25.
- Fossen, F. and Sorgner, A. (2021), "Digitalization of work and entry into entrepreneurship", *Journal of Business Research*, Vol. 125, pp. 548-563.
- Fryer, R.G., Pager, D. and Spenkuch, J.L. (2013), "Racial disparities in job finding and offered wages", *The Journal of Law and Economics*, Vol. 56 No. 3, pp. 633-689.
- Gargiulo, M. and Benassi, M. (2000), "Trapped in your own network? Network cohesion, structural holes, and the adaptation of social capital", *Organization Science*, Vol. 11, pp. 183-196.
- Giuliano, L., Levine, D.I. and Leonard, J. (2009), "Manager race and the race of new hires", *Journal of Labor Economics*, Vol. 27, pp. 589-631.
- Giuliano, L., Levine, D.I. and Leonard, J. (2011), "Racial bias in the manager-employee relationship: an analysis of quits, dismissals, and promotions at a large retail firm", *Journal of Human Resources*, Vol. 46 No. 1, pp. 26-52.
- Glaeser, E.L. (2007), "Entrepreneurship and the city," NBER Working Paper No. 13551, National Bureau of Economic Research, Cambridge, MA.
- Guo, X., Chen, W. and Yu, A. (2016), "Is college education worth It? Evidence from its impacts on entrepreneurship in the United States", *Journal of Small Business and Entrepreneurship*, Vol. 28 No. 1, pp. 1-26.
- Heslin, P.A., Bell, M.P. and Fletcher, P.O. (2012), "The devil without and within: a conceptual model of social cognitive processes whereby discrimination leads stigmatized minorities to become discouraged workers", *Journal of Organizational Behavior*, Vol. 33 No. 6, pp. 840-862.
- Hills, G.E. (1988), "Variations in university entrepreneurship education: an empirical study of an evolving field", *Journal of Business Venturing*, Vol. 3 No. 2, pp. 109-122.
- Hipple, S.F. and Hammond, L.A. (2016), *BLS Spotlight on Statistics: Self-Employment in the United States*, US Department of Labor, Bureau of Labor Statistics, Washington, DC.
- Hisrich, R.D. and Brush, C.G. (1985), "Women and minority entrepreneurs: a comparative analysis", in HornadayShils, J.A.E.B., Timmons, J.A. and Vesper, K.H. (Eds), *Frontiers of Entrepreneurship Research 1985*, Boston College, Wellesley, MA, pp. 566-587.
- Hofstede, G. (2001), *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations across Nations*, 2nd ed., Sage, Thousand Oaks, CA.
- Hout, M. (2012), "Social and economic returns to college education in the United States", *Annual Review of Sociology*, Vol. 38, pp. 379-400.

- Katz, J.A. (2003), "The chronology and intellectual trajectory of American entrepreneurship education 1876–1999", *Journal of Business Venturing*, Vol. 18, pp. 283-300.
- Kauffman (2018), National Report is an Annual Report, Ewing Marion Kauffman Foundation, available at: https://indicators.kauffman.org/wp-content/uploads/sites/2/2019/09/National_Report_Sept_2019.pdf.
- Kim, P.H., Aldrich, H.E. and Keister, L.A. (2006), "Access (not) denied: the impact of financial, human, and cultural capital on entrepreneurial entry in the United States", *Small Business Economics*, Vol. 27 No. 1, pp. 5-22.
- Kollinger, P. and Minniti, M. (2006), "Not for lack of trying: American entrepreneurship in black and white", *Small Business Economics*, Vol. 27, pp. 59-79.
- Korzenny, F. and Korzenny, B.A. (2005), *Hispanic Marketing: A Cultural Perspective*, Elsevier, Amsterdam.
- Kristal, T., Cohen, Y. and Navot, E. (2018), "Benefit inequality among American workers by gender, race, and ethnicity, 1982-2015", *Sociological Science*, Vol. 5, pp. 461-488.
- Kuratko, D.F. (2005), "The emergence of entrepreneurship education: development, trends, and challenges", *Entrepreneurship Theory and Practice*, Vol. 29 No. 5, pp. 577-597.
- Langowitz, N. and Allen, I.E. (2006), *The Top Woman-Led Businesses in Massachusetts: 2006 Results*, The Center for Women's Leadership at Babson College, Boston, MA.
- Levine, R. and Rubinstein, Y. (2017), "Smart and illicit: who becomes an entrepreneur and do they earn more?", *The Quarterly Journal of Economics*, Vol. 132 No. 2, pp. 963-1018.
- Levine, R. and Rubinstein, Y. (2018), "Selection into entrepreneurship and self-employment", NBER working paper, No. 25350, National Bureau of Economic Research, Cambridge, MA.
- Light, A. and Munk, R. (2018), "Business ownership versus self-Employment", *Industrial Relations*, Vol. 57 No. 3, pp. 435-468.
- Lofstrom, M. and Bates, T. (2013), "African Americans' pursuit of self-employment", *Small Business Economics*, Vol. 40 No. 1, pp. 73-86.
- Long, M.C. (2010), "Changes in the returns to education and college quality", *Economics of Education Review*, Vol. 29 No. 3, pp. 338-347.
- Mandel, H. and Semyonov, M. (2016), "Going back in time? Gender differences in trends and sources of the racial pay gap, 1970 to 2010", *American Sociological Review*, Vol. 81 No. 5, pp. 1039-1068.
- Marin, G. and Marin, B. (1991), *Research with Hispanic Populations*, Sage Publications, Thousand Oaks, CA.
- Mintzberg, H. and Gosling, J. (2002), "Educating managers beyond borders", *Academy of Management Learning and Education*, Vol. 1, pp. 64-76.
- Moyes, G.D., Williams, P.A. and Quigley, B.Z. (2000), "The relation between perceived treatment discrimination and job satisfaction among African-American accounting professionals", *Accounting Horizons*, Vol. 14 No. 1, pp. 21-48.
- Mundra, K., Moellmer, A. and Lopez-Aqueres, W. (2003), "Investigating Hispanic underrepresentation in managerial and professional occupations", *Hispanic Journal of Behavioral Sciences*, Vol. 25 No. 4, pp. 513-529.
- Oreopoulos, P. and Salvanes, K.G. (2011), "Priceless: the nonpecuniary benefits of schooling", *Journal of Economic Perspectives*, Vol. 25 No. 1, pp. 159-184.
- Pager, D. and Shepherd, H. (2008), "The sociology of discrimination: racial discrimination in employment, housing, credit, and consumer markets", *Annual Review of Sociology*, Vol. 34, pp. 181-209.
- Pedulla, D.S. and Pager, D. (2019), "Race and networks in the job search process", *American Sociological Review*, Vol. 84 No. 6, pp. 983-1012.

- Pfeffer, J. and Fong, C.T. (2002), "The end of business schools? Less success than meets the eye", *Academy of Management Learning and Education*, Vol. 1 No. 1, pp. 78-95.
- Quillian, L., Pager, D., Hexel, O. and Midtben, A.H. (2017), "Meta-analysis of field experiments shows no change in racial discrimination in hiring over time", *Proceedings of the National Academy of Sciences*, Vol. 114 No. 41, pp. 10870-10875.
- Reynolds, P., Bygrave, W.D. and Autio, E. (2004), *Global Entrepreneurship Monitor—2004 Executive Report*, Kauffman Center for Entrepreneurial Leadership, Kansas City, MO.
- Riverin, N. and Filion, L.J. (2005), "Global entrepreneurship monitor (GEM) Canadian national report 2005", World Wide Web, available at: http://neumann.hec.ca/chaire.entrepreneuriat/Projets%20en%20cours/GEM/Articles/Rapp_GEM_2005_angl.pdf.
- Robinson, P.B. and Sexton, E.A. (1994), "The effect of education and experience on self-employment success", *Journal of Business Venturing*, Vol. 9 No. 2, pp. 141-156.
- Ronstadt, R. (1984), *Entrepreneurship: Text, Case, and Notes*, Lord Publishing, Dover, MA.
- Rumberger, R.W. and Palardy, G.J. (2005), "Test scores, dropout rates, and transfer rates as alternative indicators of high school performance", *American Educational Research Journal*, Vol. 42 No. 1, pp. 3-42.
- Sager, B., Fernandez, M.G. and Thursby, M. (2006), "Implications of a multi-disciplinary educational and research environment: perspectives of future business, law, science, and engineering professionals in the technological innovation: generating economic results (TI:GERw) Program", *Technology Analysis and Strategic Management*, Vol. 18 No. 1, pp. 57-69.
- Storer, A., Schneider, D. and Harknett, K. (2020), "What explains racial/ethnic inequality in job quality in the service sector?", *American Sociological Review*, Vol. 85 No. 4, pp. 537-572.
- Unger, J.M., Rauch, A., Frese, M. and Rosenbusch, N. (2011), "Human capital and entrepreneurial success: a meta-analytical review", *Journal of Business Venturing*, Vol. 26 No. 3, pp. 341-358.
- van der Sluis, J., van Praag, M. and Vijverberg, W. (2005), "Entrepreneurship selection and performance: a meta-analysis of the impact of education in developed economies", *The World Bank Economic Review*, Vol. 19 No. 2, pp. 225-261.
- van der Sluis, J., van Praag, M. and Vijverberg, W. (2008), "Education and entrepreneurship selection and performance: a review of the empirical literature", *Journal of Economic Surveys*, Vol. 22 No. 5, pp. 795-841.
- van Praag, M., van Witteloostuijn, A. and van der Sluis, J. (2013), "The higher returns to formal education for entrepreneurs versus employees", *Small Business Economics*, Vol. 40 No. 2, pp. 375-396.
- Waldinger, R., Aldrich, H. and Ward, R. (2006), *Ethnic Entrepreneurs: Immigrant Business in Industrial Societies*, Sage, Newbury Park, CA.
- Wavelet, M. and Anderson, J. (2002), "Promoting self-sufficiency: what we know about sustaining employment and increasing income among welfare recipients and the working poor", *Focus*, Vol. 22 No. 1, pp. 56-62.
- Zhang, T. and Acs, Z. (2018), "Age and entrepreneurship: nuances from entrepreneur types and generation effects", *Small Business Economics*, Vol. 51 No. 4, pp. 773-809.

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