

How Does Race and Ethnicity Affect Persistence in Immature Ventures?

by Robert E. Freeland and Lisa A. Keister

Does race/ethnicity affect persistence in an immature venture? Using data from the Panel Study of Entrepreneurial Dynamics II, we examine how race/ethnicity, access to supplier credit, and personal financial investment affect three entrepreneurial outcomes: continued engagement, new firm creation, and disengagement. We find that compared with whites, blacks were less likely to receive supplier credit and invest more of their own capital, whereas Hispanics did not significantly differ from whites. Blacks were more likely to persist and remain engaged in an immature venture if they did not achieve success after two years in operation, whereas Hispanics were more likely to disengage.

Introduction

The decision to persist in an immature business has important implications for business success as survival and growth reflect both the financial well-being of the new venture and the ability of entrepreneurs to endure the unexpected obstacles found in business ownership. Entrepreneurs may discover that operating a business requires more time or money than expected or that profits are lower, competition is more challenging, or government regulations are more difficult to manage than anticipated (Giordano and Tabones 2013; Parker 2009; Van Gelderen 2012). For example, there is evidence that underperforming firms often outlast higher performing ones because owners value nonfinancial benefits including autonomy in scheduling their work or personal satisfaction over financial performance of the start-up (Gimeno et al. 1997). In related work, Headd (2003,

p. 59) studied reasons for business closures and found that true business failure is less frequent than commonly perceived with only one-third (33 percent) of small businesses in the United States closing because owners considered them unsuccessful. He concluded that had owners persisted, their prospects for survival and eventual success were reasonable. Although these patterns suggest that persistence in new ventures is important, the factors that affect decisions to persist in an immature business have attracted relatively little research attention.

Both individual and business characteristics factor into decisions to persist or disengage, and the race/ethnicity of the entrepreneur is likely to be an important influence. There is evidence that both traits of the start-up (e.g., revenues, number of employees, availability of start-up capital) and of the entrepreneur (e.g., income, savings) affect business closure (Headd 2003). However, each of these

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traits varies with the race/ethnicity of the entrepreneur. For example, there are important differences in firm revenues by race/ethnicity: in 2002, total annual revenue averaged \$74,018 for black-owned businesses, \$141,044 for Hispanic-owned businesses, and \$439,579 for white-owned businesses (Fairlie and Robb 2008, p. 34). Similarly, there are important differences in number of employees by the race/ethnicity of the entrepreneur: the percentage of minority-owned firms with at least one paid employee was 11 percent for blacks, 21 percent for Hispanics, and 21 percent for whites (Fairlie and Robb 2008, p. 41). Blacks and Hispanics also tend to have less personal starting capital on average relative to whites; and the average income of blacks and Hispanics is approximately two-thirds of whites with a net worth approximately one-tenth of whites (Fairlie and Robb 2008; Keister and Moller 2000; Shapiro 2004). In 2002, 1 percent of whites, 25 percent of Hispanics, and 32 percent of blacks had zero or negative net worth (Kochhar 2004, p. 2). In addition to differences in capital levels, borrowing patterns vary widely across racial/ethnic groups. In a comparison of financing sources for white-owned and black-owned businesses, Fairlie and Robb (2008, p. 115) showed that whites obtained loans from commercial lending institutions at nearly twice the rate of blacks (12.1 percent versus 6.6 percent, respectively). Personal credit card debt was the only capital source that black entrepreneurs used more than whites (3.8 percent and 2.9 percent, respectively). Because black entrepreneurs face difficulties in obtaining external financing, they save more on average toward starting their business and provide more self-financing compared with whites (Parker and Belghitar 2006). These systematic racial/ethnic differences in the factors that influence decisions to persist suggest that persistence should also vary by race/ethnicity, but to date, research has not explored how race/ethnicity affects persistence in an immature venture.

To fill this gap, we explore how race and ethnicity affects continued engagement in an immature venture. We draw on ideas from Wilson's (1987, 1991, 1997) theory of social dislocation, a prominent structural theory of racial disadvantage. Social dislocation is the idea that migration patterns and deindustrialization have left blacks particularly disadvantaged even compared with other racial/ethnic groups because macro-level

processes have isolated them from important mainstream social institutions. Applying his perspective to the credit market, a financial institution central to entrepreneurial outcomes, we explore how race and access to credit interact to influence decisions to persist in an immature business venture. This exploratory study proceeds in three steps. We begin by examining the association between race/ethnicity and supplier credit using binary logistic regression on data from the Panel Study of Entrepreneurial Dynamics II (PSED II) (Reynolds and Curtin 2008). Next, we explore the relationship between race/ethnicity and the amount of personal financial investment made in the business and how access to supplier credit conditions this relationship using a series of linear regression models. Last, we examine the association between race/ethnicity and continued engagement after two years in operation using multinomial logistic regression and examine how personal investment levels and supplier credit affect this relationship. This study makes both theoretical and practical contributions to the literature. First, we explicitly introduce race/ethnicity into studies of persistence in new businesses and, in the process, speculate about the related macro-level factors that influence individual decision-making in this context. Second, we introduce the notion of social dislocation to the study of business persistence; and finally, our results suggest important differences in business processes by race/ethnicity that might usefully inform policy discussions related to business start-up and success.

Social Dislocation and Entrepreneurial Persistence

Racial and ethnic differences in entrepreneurial and related processes reflect a large number of conditions and actions that interact in complex ways over large spans of time. Early life conditions, geography, educational attainment, occupational outcomes, saving, borrowing, and home equity are some of factors that can affect economic opportunities and decision-making (Keister and Moller 2000; Pager, Western, and Bonikowski 2009; Shapiro 2004). Social dislocation (Wilson 1987, 1997) is a useful concept for understanding how racial/ethnic differences affect persistence in entrepreneurship because it provides a broad theoretical framework to integrate these interconnected factors. Social dislocation explains

how structural conditions create differential access to mainstream institutions and social networks resulting in differences in economic and social outcomes by race and ethnicity. In particular, Wilson posits that historical discrimination, migration patterns, and structural changes in the economy have left blacks isolated from important mainstream social institutions and local resources, resulting in a wide range of negative outcomes including joblessness, lower educational attainment, out-of-wedlock births, and crime. Migration of southern blacks to large northern metropolises followed by decentralization of manufacturing jobs to the suburbs produced a “spatial mismatch” (Kain 1968) between employment opportunities and black workers, resulting in areas of concentrated joblessness and poverty among urban blacks. Migration patterns including the migration of working- and middle-class families from city centers to higher status neighborhoods and suburbs combined with high rates of black migration back into high-poverty neighborhoods exacerbated racial/ethnic segregation and poverty concentrations (South, Crowder, and Chavez 2005). Indeed, by 1980, the racial/ethnic composition of neighborhoods categorized as extremely poor was 65 percent black, 22 percent Hispanic, and 13 percent non-Hispanic and other races (Jargowsky and Bane 1991).

The social dislocation concept has been credited with initiating a robust empirical literature on how neighborhood effects and poverty concentrations affect educational attainment, unemployment, and female-headed households (Eggers and Massey 1992; Sampson 2008). Spatial mismatch contributed to high levels of black unemployment in areas that lost significant manufacturing jobs prior to the 1980s (Ihlanfeldt and Sjoquist 1998; Johnson 2006; Mouw 2000) and this process continued into the 1990s, when further manufacturing declines contributed to unemployment rates in excess of 40 percent for working-age black men in low-income jobs (Quillian 2003). Deindustrialization and the concentration of poverty are particularly problematic for blacks, especially those with low income and education, because they are more likely to remain in racially segregated urban centers, whereas Hispanics are more likely to disperse to suburban and rural areas with more opportunities for paid employment (Kandel and Cromartie 2004; Lichter, Parisi, and Taquino 2012).

Stratified Access to Human Capital, Financial Capital, and Credit

Isolation from educational and economic institutions has led to significant disparities in human and financial capital that are likely to affect business persistence patterns by race/ethnicity. Lower educational attainment reduces paid employment opportunities that not only makes self-employment relatively more attractive but also limits reentry into the paid labor market should a venture fail (Ahn 2011). According to the National Center for Education Statistics, high school dropout rates were 5.2 percent for whites, 9.3 percent for blacks, and 17.6 percent for Hispanics (Chapman 2011, p. 9). The percentage of 25- to 29-year-olds who attained a bachelor's degree or higher was 40 percent for whites, 23 percent for blacks, and 15 percent for Hispanics (Aud 2013). Disparities in the returns to education exacerbated educational differences. In 2010, the median earnings for full-time, young adults aged 25 to 34 with a bachelor's degree were 10 percent lower for blacks and Hispanics compared with whites (Aud 2013, p. 228). Among males who had not completed high school, only 28 percent of black males were employed compared with 77 percent of Hispanic and 55 percent of white males (Ross and Kena 2012, p. xv). At least partially a result of educational and occupational disadvantage, blacks and Hispanics have earned approximately two-thirds the income of whites and own less than one-tenth their net worth (Fairlie and Robb 2008; Keister and Moller 2000; Shapiro 2004). In 2002, 13 percent of whites, 25 percent of Hispanics, and 32 percent of blacks had zero or negative net worth (Kochhar 2004, p. 2).

Although the effect of income and wealth on entrepreneurial entry has been mixed (Davidsson 2006; Delmar and Davidsson 2000; Kim, Aldrich, and Keister 2006), financial resources have been shown to improve business survival, profits, sales, and the likelihood of hiring employees (Bates 1990, 1997; Fairlie and Robb 2008; Taylor 1999). Not all businesses require commercial loans, but supplier credit is an important resource even among small ventures. Supplier credit accounted for 31 percent of all small business debt in 1993 with 61 percent of firms holding some level of supplier debt (Aaronson et al. 2004, p. 47), and is a critical factor in the transition from nascent

entrepreneurship into a new firm (Parker and Belghitar 2006). The lack of wealth and resources among blacks and Hispanics can affect perceptions of credit worthiness and lead to differential patterns of credit and funding that could ultimately affect persistence in an entrepreneurial effort (Blanchflower, Levine, and Zimmerman 2003; Cavalluzzo and Wolken 2005). In particular, there is evidence that white entrepreneurs use commercial lending institutions at twice the rate of black entrepreneurs (12.1 percent versus 6.6 percent, respectively) (Fairlie and Robb 2008, p. 115). Similarly blacks, especially those in inner-city neighborhoods, are more frequently discouraged from applying for supplier credit, and when they do apply are significantly less likely to be approved (Blanchflower, Levine, and Zimmerman 2003; Cole 2010; Coleman 2005). Geographic segregation by race and ethnicity, particularly in urban centers, has several implications for supplier credit access. Because supplier credit arrangements are made with firms rather than large financial institutions, economically disadvantaged inner cities contain fewer firms, limiting the number of opportunities for supplier credit. Racial segregation also alters the composition of social networks that has been shown to affect supplier credit patterns; Hispanic suppliers are able to provide more credit to Hispanic business-owners, whereas no such relationship exists for black business-owners (Aaronson et al. 2004). Barriers to credit access resulting from the disadvantaged structural location of blacks suggest that:

H1: Blacks will have a lower likelihood of obtaining supplier credit than white or Hispanic net of demographic and business controls.

In addition to supplier credit, nascent entrepreneurs rely on personal financial resources and loans and gifts from friends and family to start their businesses (Reynolds 2007, p. 13), and geographic concentration by race and ethnicity can adversely affect access to these. For most Americans, including most entrepreneurs, home equity is a significant source of capital. Given that blacks and Hispanics tend to be concentrated in neighborhoods where housing values are relatively low and grow slowly even in times of economic prosperity (Shapiro 2004), their access to this critical resource is more limited than for whites. A recent pattern illus-

trates this difference: between 2005 and 2010, home value decreases reduced the net worth of whites by 28 percent from \$130,350 to \$110,729, whereas the wealth of black and Hispanic households dropped 55 percent to \$4,955 and \$7,424, creating a historic 20- and 15-fold difference in black and Hispanic wealth, respectively, compared with whites (United States Census 2013). Access to financial resources from friends and family is similarly limited for blacks and Hispanics because social networks tend to be homophilous. That is, the friends and family of would-be black and Hispanic entrepreneurs are likely to also have less capital themselves to invest than the friends and family of would-be white entrepreneurs (McPherson, Smith-Lovin, and Cook 2001; Stack 1974). Consequently, whites are more able to use social ties for financial exchanges, whereas blacks more often use their network ties to provide practical or instrumental support (Sarkisian and Gerstel 2004).

Because blacks are less likely to obtain external credit and their social networks are less able to provide financial backing, black entrepreneurs are more likely to finance their operations from personal savings (Parker and Belghitar 2006). High interest credit card debt is the only financing source blacks use more than whites (3.8 percent for blacks versus 2.9 percent for whites) (Blanchflower 2004). The use of credit cards to fund entrepreneurial activities increased among blacks but not whites in regions where interest rate ceilings were raised, illustrating the high demand and limited options black entrepreneurs have in obtaining external capital (Chatterji and Seamans 2012). The barriers black entrepreneurs face in obtaining external capital suggest our second hypothesis:

H2: Blacks will invest more of their personal funds into their venture than white or Hispanic net of demographic and business controls.

Structural Disadvantage, Investment, and Continued Engagement

The decision to start or end a business reflects the perceived costs and benefits of self-employment relative to paid employment (Evans and Jovanovic 1989; Evans and Leighton 1989; Gatewood et al. 2002). Several factors can

alter this calculus, resulting in racial and ethnic differences in persistence patterns. First, low wages and fewer paid employment opportunities due to the spatial mismatch between location and jobs increase the relative benefits to self-employment, encouraging blacks to start a business and persist longer. Blacks are 57 percent more likely to report participation in a start-up compared with whites, whereas Hispanic and white start-up rates did not statistically differ (Reynolds and Curtin 2008). When jobs within the public sector became available, self-employment rates among blacks declined (Boyd 1991). Highlighting the lack of alternative opportunities, black entrepreneurs who quit their business were more likely to exit to nonemployment (Ahn 2011).

Second, structural barriers create a selection effect filtering through the most motivated and financially able black and Hispanic entrepreneurs. Research finds black entrepreneurs to be more confident and optimistic about their business prospects, engaged in more start-up activities, and were more willing to remain in the nascent stage longer compared with whites (Greene and Owen 2004; Kollinger and Minniti 2006; Parker and Belghitar 2006). Earnings from black-owned businesses generally lag far behind their white or Hispanic counterparts. Between 2005 and 2007, 60 percent of black-owned businesses were in the lowest business earnings category (less than \$30,000 annually) compared with only 24 percent for Hispanic-owned and 10 percent for white-owned businesses (Valdez 2011, p. 103). In a comparison of black and Hispanic businesses, Valdez (2011) found that blacks endured these economic conditions because they were more likely to cite noneconomic reasons for starting their business including autonomy or satisfaction. Blacks were also found to be more likely to take on additional jobs or rely on spousal income to continue their ventures.

Moreover, if the disadvantaged position of blacks increases self-funding, this can lead to a psychological process known as an escalation of commitment (Staw 1981) or tendency to continue investing more time, money, and effort into a venture even after receiving advice to quit (Arkes and Blumer 1985; Åstebro, Jeffrey, and Adomdza 2007). As a result, increased personal investment has been shown to be a significant factor in continued engagement (DeTienne, Shepherd, and De Castro 2008). In a study of independent inventors,

Åstebro, Jeffrey, and Adomdza (2007) found that optimism and past expenditures resulted in nearly one-third (29 percent) continuing to spend money and more than half continuing to spend time on projects even after receiving advice to cease. The combination of factors resulting from the isolation of blacks into racially segregated urban areas including reduced opportunities within the paid labor market due to the spatial mismatch of education and jobs, selection effects, and higher self-funding requirements due to difficulties in obtaining external funding suggests:

H3: Blacks will have a higher likelihood of remaining engaged in an immature venture net of demographic and business controls.

Research Methods

Sample

Data for our study come from the PSED II (Reynolds and Curtin 2013). Designed to examine the entire entrepreneurial process from conception through new firm creation, the PSED II is a longitudinal, nationally representative survey of nascent entrepreneurs managed by the Entrepreneurship Research Consortium (Reynolds and Curtin 2013). The PSED II contains a broad range of detailed information regarding an entrepreneur's work history, financial resources, business practices, and other individual and background characteristics. For a detailed description of the PSED II's development and methodology, see Reynolds and Curtin (2008).

Beginning in 2005, data collection was conducted in three phases. In the first phase, 1,214 nascent entrepreneurs were screened from 31,845 individuals in the United States using random-digit telephone dialing. In phase two, the nascent entrepreneurs were administered detailed phone surveys lasting approximately 60 minutes. The initial screening was conducted by a commercial survey firm with subsequent surveys administered by the University of Michigan Institute for Social Research (UMISR). A third phase consisted of annual follow-up phone interviews, lasting approximately 60 minutes, conducted 12 months after completion of the initial survey. Our sample consists of data from the initial survey and two follow-on waves. This two-year timeframe is ideal for studying persistence because it is long enough for entrepreneurs to evaluate whether success is unlikely and disengage but short

enough that some determined entrepreneurs will persist even if the venture has not matured into a new firm (Fichman and Levinthal 1991). Individual case weights were developed by the UMISR to maintain representativeness based on age, education, race, and sex, and to correct for differences due to differential response rates. Response rates for follow-on interviews were approximately 80 percent, reducing the two-year sample to 977 from the initial 1,214 participants. Listwise deletion further reduced the analytic sample during modeling, and weights were recalculated for each wave to account for the changing sample size resulting from attrition.

Although the PSED II is one of the most extensively used data sets in entrepreneurship research in the United States, it does have its limitations (for a full bibliography, see Reynolds and Curtin 2013). One salient issue is that the recent recession has altered the credit market since the data were originally collected. On one hand, economic and wealth disparities between racial and ethnic groups have only worsened (United States Census 2013), suggesting that access to valuable resources remains a significant problem or has even grown in significance. On the other hand, greater regulation and scrutiny of the credit process may reduce lending discrimination. Because supplier credit is provided by firms rather than large financial institutions, it is reasonable to assume that the processes examined in this study remain largely consistent although this suggests future research should directly examine how changes in the credit market have altered these processes.

Dependent Variables

To study persistence and its causes, we use a series of regression models to investigate how race and ethnicity affect supplier credit, personal financial investments, and entrepreneurial outcomes. We operationalize supplier credit as a binary variable coded 1 if the respondent indicated that they had received any amount of supplier credit during the initial survey. Personal financial investment is a continuous variable measured in the natural log of U.S. dollars during the initial interview.

Outcome states including persistence are more complex concepts warranting further discussion. In a comparison of end-state terminology (success, engagement, persistence, and progress), Davidsson (2011, p. 310) defines

persistence as “an individual’s continued active, behavioral involvement as a founder-owner in a business start-up attempt at a particular point in time.” He argues that this is a theoretically complex concept connoting a range of factors from positive qualities of optimism (Kollinger and Minniti 2006) to the negative psychological trap of escalating commitment (Staw 1981). Although Davidsson (2011) operationalizes persistence as a binary variable indicating that the respondent remained actively engaged in an immature venture and plans to continue for the next six months, we operationalize persistence similarly but disaggregate new firm creation and disengagement into separate outcome states. The PSED II identifies three separate outcome states: new firm creation, continued engagement, and disengaged. New firm creation identified if the respondent received income in 6 of the past 12 months and if that income covered all expenses including owner’s wages and salaries. Actively engaged identified respondents that devoted more than 160 hours (4 weeks of full-time work) in the past 12 months and expected to spend 80 or more hours in the next 6 months on their business or expected it to be their major career focus over the next 12 months but did not have income in excess of expenses. This measure of persistence is similar to Davidsson’s (2011) with the added criterion that active engagement could include entrepreneurs expecting their venture to be their major career focus for the next 12 months. Last, disengaged identifies respondents that indicated that they were no longer engaged in their business in either the first or second follow-up surveys. Weighted descriptive statistics of all measures are shown in Table 1.

Independent Variables

Race/ethnicity is our primary independent variable, and we use definitions that are consistent with work on social dislocation. In particular, we follow this literature in conceiving of race and ethnicity as socially constructed groupings of people (Berger, Ridgeway, and Zelditch 2002; Ridgeway 1991). Ethnic categories are based on a distinct sense of shared national or regional heritage, language, or culture, whereas racial categories are based on perceived physical differences or phenotypes including skin color, facial features, or hair texture (Brubaker 2004; Omi and Winant 1994). Because they are abstract social constructions,

Table 1
Descriptive Statistics^{a,b}

Variable	<i>n</i>	Mean	S.D.
Outcome	977		
New Firm	136	0.14	0.49
Active	385	0.39	0.50
Disengaged	455	0.47	0.71
Race/Ethnicity	968		
White	567	0.59	0.49
Black	193	0.20	0.40
Hispanic	113	0.12	0.32
Other	95	0.10	0.30
Control Variables			
Personal Financial Investment (\$U.S.)	977	\$1,862	\$144,803
Supplier Credit	973	0.18	0.39
Outside Funding Received	971	0.09	0.29
Business Characteristics			
Formal Business Plan	963	0.17	0.37
Formally Registered	956	0.29	0.46
Business Bank Account	974	0.29	0.45
Age	969	39.2	12.7
Female	977	0.41	0.49
Married	976	0.50	0.50
Education	976		
No High School Diploma	51	0.05	0.22
High School Diploma	178	0.18	0.39
Vocational/Technical Degree	50	0.05	0.22
Some College	329	0.34	0.47
Bachelor's Degree	255	0.26	0.44
Graduate/Professional Degree	113	0.12	0.32
Income (\$U.S.)	910	\$55,000	\$29,045
Employment Status	971		
Full-Time	584	0.60	0.49
Part-Time	137	0.14	0.35
Retired	58	0.06	0.24
Unemployed	192	0.20	0.40
Work Experience (Years)			
Years Full-Time Experience	972	17.2	11.9
Years Industry Experience	973	7.86	9.64
Prior Occupation	975		
White Collar—Managerial	110	0.11	0.32
White Collar—Professional	348	0.36	0.48
White Collar—Sales/Clerical	124	0.13	0.33
Blue Collar—Craftsman/Foreman	117	0.12	0.33
Blue Collar—Semiskilled, Unskilled	65	0.07	0.25
Service	73	0.08	0.26
Other Occupation	138	0.14	0.35

^aS.D., standard deviation.

^bOther races include Asian and multiracial; graduate/professional degrees include master's, law, M.D., Ph.D., and Ed.D.; median personal investment shown (mean = \$19,332); median income shown (mean = \$88,000).

race and ethnicity are not an intrinsic part of a human being but an identity whose construction can vary considerably across nations (Marx 1998; Wade 1997). In both our theoretical and subsequent empirical discussions, we use racial and ethnic categories from the PSED II. Consistent with the U.S. Census and other major population surveys, the PSED II uses a combination of self-identified racial and ethnic categories (Bureau of Labor Statistics 2013; National Opinion Research Center 2013). Respondents were first asked if they are of Hispanic or Latino origin followed by identification of their race with options of white, black, or African American, American Indian, Asian, Pacific Islander, or of mixed racial background (Reynolds and Curtin 2013). We use the racial term black instead of the ethnic term African American to reflect the centrality that race has played in the history of U.S. racial/ethnic stratification. We coded four separate binary race/ethnicity variables with 1 if the respondent indicated that they were (1) white (reference category); (2) black; (3) Hispanic; or (4) other race/ethnicity. Although Fairlie and Robb (2008) find significant heterogeneity between Asians and other racial categories, we combined Asians and mixed-race responses into the other race/ethnicity category because of the limited number of cases in our sample.

Control Variables

To isolate the effect of race and ethnicity on continued engagement, we control for important demographic and business characteristics that were measured during the initial survey. Background controls include age, gender, and marital status. Human capital, the composite of a person's education, skills, and experience, is considered one of the most valuable resources for entrepreneurial success and is critical to new firm survival and growth (Bates 1985; Parker 2009; Taylor 1999). We use six binary variables indicating the highest level of education to measure education; having a bachelor's degree is selected as the reference category for several reasons. First, with 26 percent of respondents having a bachelor's degree, it is one of the largest categories, second only to those with some college, and nearly equal to the combined number of respondents with a high school diploma, vocational/technical degree, and those without a high school diploma. Second, research finds that graduate/

professional degrees are more predictive of business outcomes than bachelor's degrees (Bates 1985; Parker 2009). A bachelor's degree can therefore be viewed as an educational midpoint, providing a contrast between the lower attainment of those with a high school diploma or less and those possessing higher level graduate/professional degrees. Prior work history, particularly industry experience, is another critical factor affecting not only business success but also the ability to transition back into paid employment should the business close (Ahn 2011). Controls for prior employment history include the number of years of previous paid employment, prior occupation, and years of full-time and industry experience. We included four dummy variables to identify employment status as part-time employment affects entry into self-employment (Folta, Delmar, and Wennberg 2010). We measure prior occupation with seven binary variables; white-collar managerial is the reference category.

Financial capital is a critical factor in starting and growing a start-up. Following the methodology employed by Kim, Aldrich, and Keister (2004), we operationalize income as a continuous variable adjusting for cases using income brackets. In the majority of cases (1,105), we were able to code exact reports of the respondent's income as a continuous variable. In 34 cases, income was reported in categorical income brackets. For these cases, we coded income at the midpoint of the categorical range. Cases were dropped if no income data were provided or an exact range could not be determined, including when there was no upper categorical limit. This procedure yielded income data on 93 percent of the cases.

Controls for business characteristics include whether the business was formally registered, had a formal business plan, had a separate business bank account, or received any outside funding. We coded all four characteristics binary variables as 1 if the respondent indicated that the business had these characteristics. We performed collinearity diagnostics for all variables in the analyses. Measures of age and years of full-time experience had the highest correlation at 0.84 with a variance inflation factor well within normal tolerances.

Statistical Modeling

We use three sets of regression models to examine how race and ethnicity affect the

likelihood of obtaining supplier credit, levels of personal financial investment, and outcome states including persistence. The first model uses binary logistic regression to examine how race/ethnicity affects the likelihood of obtaining supplier credit. All models include the following set of demographic and business controls: age, gender, marital status, education, income, work experience, employment status, prior occupation, and whether the business was formally registered, had a formal business plan, or had a business bank account.

Next, we explore how race/ethnicity affects the amount of personal self-financing of the business and how access to supplier credit affects this relationship using two generalized least squares regression models. The first model includes the same set of controls used in the previous model, whereas the second model introduces controls for external funding including measures of supplier credit and outside funding. Our last model uses multinomial regression to examine how race/ethnicity affects persistence and other outcome states. This model includes all measures of race/ethnicity, external funding, demographic, and business controls with disengaged as the reference category.

Results

Blacks Less Likely to Obtain Supplier Credit

The results of Model 1 in Table 2 show strong racial/ethnic effects and support our first hypothesis that blacks are less likely to obtain supplier credit compared with either whites or Hispanics. With an odds ratio of 0.20, blacks were five times less likely to have obtained supplier credit when compared with whites, whereas Hispanics did not significantly differ from their white counterparts. Although these results are consistent with prior research that finds black business-owners, especially those in urban areas, are particularly disadvantaged in obtaining supplier credit, the strength of our finding warrants discussion of the underlying factors (Aaronson et al. 2004; Blanchflower, Levine, and Zimmerman 2003; Coleman 2005). First, part of this can be attributed to reduced social capital in the high-poverty, racially segregated urban neighborhoods blacks tend to live in as black business-owners are half as likely as Hispanic business-owners (20 percent and 39 percent, respectively) to obtain supplier credit from firms located within their neighborhood

Table 2
Logistic Regression Model for Supplier Credit^{a,b}

	Supplier Credit Odds Ratios (S.E.)
Race/Ethnicity	
Black	0.20 (0.37)***
Hispanic	1.15 (0.31)
Other	0.76 (0.34)
Control Variables	
Formal Business Plan	1.29 (0.26)
Formally Registered	1.71 (0.23)
Business Bank Account	2.55 (0.23)
Age	1.02 (0.02)
Female	0.83 (0.22)
Married	1.22 (0.20)
Education	
No High School Diploma	2.68 (0.49)*
High School Diploma	1.42 (0.33)
Vocational/Technical Degree	0.84 (0.51)
Some College	1.83 (0.27)*
Graduate/Professional Degree	1.26 (0.33)
Income (log \$U.S.)	1.07 (0.14)
Work Experience (Years)	
Industry Experience	1.01 (0.01)
Full-Time Experience	0.98 (0.02)
Employment Status	
Part-Time	1.16 (0.29)
Retired	0.81 (0.45)
Not Employed	0.52 (0.32)*
Prior Occupation	
White Collar—Professional	0.74 (0.31)
White Collar—Sales/Clerical	0.77 (0.39)
Blue Collar—Craftsman/ Foreman	1.24 (0.38)
Blue Collar—Semiskilled, Unskilled	2.24 (0.44)
Service	0.82 (0.50)
Other Occupation	0.71 (0.43)
Constant	0.04 (1.64)*
N = 841	
-2Log	712.19

^aS.E., standard error.

^bReference categories for independent variables include white (for race/ethnicity), college degree (for education), full-time (for employment status), and white collar-managerial (for prior occupation).

* $p < .05$

** $p < .01$

*** $p < .001$

(Aaronson et al. 2004, p. 53). The racial/ethnic composition of social networks has also been shown to affect supplier credit access as Hispanic business-owners were 20 percent more likely to be offered credit when dealing with Hispanic suppliers, whereas no similar relationship was found when black business-owners dealt with black suppliers (Aaronson et al. 2004). Second, black-owned firms tend to be concentrated in the less credit-dependent service sector with 47 percent of black-owned firms in business/retail services, whereas Hispanic-owned and white-owned business were more evenly distributed across industries with only 23 percent and 29 percent of their businesses in the service sector, respectively (Aaronson et al. 2004, p. 52). Last, not only are black entrepreneurs denied credit at twice the rate of comparable Hispanic business-owners (Blanchflower, Levine, and Zimmerman 2003), but many do not even apply because they are discouraged by lenders or believe they will be turned down (Coleman 2005). In general, the results are consistent with prior research documenting the difficulties blacks face in obtaining supplier credit relative to whites and Hispanics.

Blacks Invest Significant Personal Capital in Start-Ups

We proposed that blacks would be required to invest more of their personal financial resources in a new business to compensate for difficulties in obtaining external funding. Models 2 and 3 in Table 3 examine how race/ethnicity affects financial investment levels without and with external funding controls, respectively. Consistent with prior research, Model 2 shows that human and financial capitals significantly affect investment levels. The predictors of larger self-funding levels include higher income, a graduate/professional degree, and whether the business had a business bank account or formal business plan. Second, the coefficient of 0.37 in Model 2 also shows that blacks invested more of their own personal capital, net of controls, compared with whites, whereas Hispanics again did not significantly differ from whites. These results are consistent with research exploring how entrepreneurs dynamically alter their behavior to meet the gap between available capital and the financial demands of their business (Lam 2010; Winborg and Landström 2001). When external funding is limited, entrepreneurs must either find alternative ways to manage their

financial needs or increase self-funding levels if alternatives are unavailable. Although constraints to capital may lead some entrepreneurs to close their business, prior research that finds black entrepreneurs exhibit greater optimism and willingness to take on additional jobs to support their venture suggests that they will likely increase self-financing rather than disengage (Kollinger and Minniti 2006; Valdez 2011). The differences in black and Hispanic investment patterns found in our study are also consistent with Valdez (2011) who found that blacks tend to rely more on personal savings to fund their business compared with whites and Hispanics, particularly middle-class Hispanics.

Many entrepreneurs seek favorable supplier credit arrangements to manage costs when external funds are unavailable; if this strategy is not feasible for black entrepreneurs, they may be forced to invest relatively high levels of personal capital to make business start-up possible (Winborg and Landström 2001). We examine this process in Model 3, which shows that supplier credit does significantly affect the amount of personal finances invested where the coefficient for blacks increased to 0.40, whereas Hispanics again remained nonsignificant when compared with whites. The need to increase self-financing levels in response to credit constraints does have implications as new businesses reliant primarily on owner financing are associated with lower profit margins, problems obtaining long-term financing in the future, and higher transaction costs (Winborg and Landström 2001). Research showing blacks are more likely to resort to high-interest credit cards to fund their business illustrates the high transaction costs black entrepreneurs are willing to accept when faced with limited alternatives (Fairlie and Robb 2008).

Blacks More Likely to Persist, Hispanics More Likely to Disengage

Our third hypothesis is that blacks are more likely to remain actively engaged in an immature venture after two years in operation compared with whites or Hispanics. Following a methodology similar to Parker and Belghitar (2006), we use multinomial logistic regression to examine the predictors of three outcome states: successful new firm creation, continued engagement, and disengagement. Our results are similar to theirs on most measures, but

Table 3

GLS Regression Models for Amount of Personal Finances Invested^{a,b}

	Without Supplier Credit Coeff. (S.E.)	With Supplier Credit Coeff. (S.E.)
Race/Ethnicity		
Black	0.37 (0.14)**	0.43 (0.14)**
Hispanic	-0.19 (0.17)	-0.19 (0.14)
Other	0.13 (0.18)	0.14 (0.18)
External Funding		
Supplier Credit		0.39 (0.14)**
Outside Funding Received		-0.06 (0.19)
Control Variables		
Formal Business Plan	0.33 (0.14)*	0.32 (0.14)*
Formally Registered	0.01 (0.13)	-0.01 (0.13)
Business Bank Account	0.43 (0.13)**	0.37 (0.13)**
Age	-0.02 (0.01)*	-0.02 (0.01)*
Female	-0.03 (0.11)	-0.03 (0.11)
Married	-0.04 (0.11)	-0.05 (0.11)
Education		
No High School Diploma	-0.21 (0.27)	-0.26 (0.27)
High School Diploma	0.19 (0.17)	0.17 (0.17)
Vocational/Technical Degree	-0.24 (0.25)	-0.24 (0.25)
Some College	0.10 (0.14)	0.07 (0.14)
Graduate/Professional Degree	0.39 (0.18)*	0.38 (0.18)*
Income (log U.S.)	0.40 (0.07)***	0.40 (0.07)***
Work Experience (Years)		
Industry Experience	0.01 (0.01)	0.01 (0.01)
Full-Time Experience	0.01 (0.01)	0.01 (0.01)
Employment Status		
Part-Time	0.11 (0.16)	0.10 (0.16)
Retired	0.51 (0.26)*	0.54 (0.26)*
Not Employed	0.12 (0.15)	0.14 (0.15)
Prior Occupation		
White Collar—Professional	-0.23 (0.18)	-0.21 (0.18)
White Collar—Sales/Clerical	-0.05 (0.21)	-0.04 (0.22)
Blue Collar—Craftsman/Foreman	-0.04 (0.22)	-0.04 (0.22)
Blue Collar—Semiskilled, Unskilled	-0.43 (0.26)	-0.47 (0.26)
Service	0.02 (0.25)	0.04 (0.25)
Other Occupation	-0.25 (0.10)	-0.22 (0.23)
Constant	-1.25 (0.85)***	-1.27 (0.84)***
<i>N</i> = 845		
χ^2	116.71	124.53

^aGLS, generalized least squares; S.E., standard error.

^bDependent variable measured in log \$U.S. Reference categories for independent variables include white (for race/ethnicity), college degree (for education), full-time (for employment status), and white collar-managerial (for prior occupation).

**p* < .05

***p* < .01

****p* < .001

because they aggregate all nonwhites into a single category, separation of blacks and Hispanics in our study allows us to examine the heterogeneity that exists between these racial/ethnic groups. The results of our last model, shown in Table 4, support our hypothesis that blacks would be more likely to persist compared with either white or Hispanic net of controls. Before exploring the determinants of continued engagement, it is useful to examine the factors predicting new firm creation as success is regularly the focus of entrepreneurial studies. Consistent with prior research, the results of Model 4 show that human and financial capitals are the primary predictors of success, whereas race/ethnicity was not a significant factor (Bates 1985; Parker 2009). The predictors of new firm creation include those who invested more capital into their business, had a graduate/professional degree, had a business bank account, and who had more years of industry experience. Higher income itself reduced the likelihood of new firm creation, but this is likely due to the control for personal investment, suggesting that higher income itself does not predict new firm creation but whether that income was invested into the business. Consistent with Parker and Belghitar (2006) who found nascent entrepreneurs were more likely to transition to start-up status if they had established supplier credit lines, we find that obtaining supplier credit more than doubled the likelihood of new firm creation with an odds ratio of 2.09.

Examining only success might lead to the conclusion that race/ethnicity does not affect entrepreneurial outcomes but by examining the determinants of alternative outcomes including continued engagement and disengagement, we find significant racial/ethnic difference not only between whites and blacks but also between blacks and Hispanics. Whereas blacks were more than twice as likely to remain actively engaged compared with whites, Hispanics were three times as likely to disengage if success was not achieved after two years. These findings are consistent with Parker and Belghitar (2006) who found nonwhites are more likely remain nascent entrepreneurs but elaborates by examining the heterogeneity between black and Hispanic entrepreneurs. One factor in this difference is that increased personal investments were found to increase both persistence and new firm creation. In addition, because blacks are more likely to live

in geographically isolated areas of racial segregation and poverty, they are less likely to equate success with profitability and instead frame it in non-pecuniary terms from the outset compared with Hispanics or whites who tend to define success in financial terms (Valdez 2011). Our findings are consistent with the idea that black entrepreneurs give less weight to profitability in deciding to persist or disengage. Though we do not directly examine the causes underlying the tendency for Hispanics to disengage rather than persist, our results are consistent with research that finds Hispanic-owned start-ups to be younger on average than black-owned ventures (Valdez 2011).

Similar to new firm creation, human capital significantly affected the likelihood of continued engagement with those possessing lower educational credentials more likely to persist relative to those with a bachelor's degree. Entrepreneurs with high school diplomas and vocational degrees were twice as likely as college graduates to remain engaged, and those with some college were similar with an odds ratio of 1.75. These results are not surprising as lower educational attainment reduces paid employment opportunities, which in turn makes self-employment more relatively attractive (Le 1999). Increased industry experience predicted both new firm creation and persistence, suggesting that its role in conditioning entrepreneurial outcomes is complex. On one hand, industry experience not only makes success more likely but also makes reentry into paid employment easier, suggesting that if success was unlikely, those with more paid employment opportunities would find it easier to disengage (Ahn 2011). On the other hand, greater specific human capital would enable them to more accurately judge the long-term viability of their venture and be more willing to undertake start-ups requiring longer gestation periods (Parker and Belghitar 2006). Because we find greater industry experience to increase the likelihood of persisting, this suggests the latter and supports Headd's (2003) assertion that many entrepreneurs are disengaging prematurely because more experienced entrepreneurs are choosing to remain engaged for longer periods.

Last, we find that supplier credit does not have a direct effect on persistence but instead affects continued engagement indirectly by increasing the need for higher levels of personal investment. This finding differs from

Table 4
Multinomial Logistic Regression Models of
Entrepreneurial Outcomes^{a,b}

	New Firm Odds Ratio (S.E.)	Actively Engaged Odds Ratio (S.E.)
Race/Ethnicity		
Black	1.12 (0.33)	2.04 (0.21)***
Hispanic	1.17 (0.34)	0.32 (0.32)***
Other	1.51 (0.38)	1.54 (0.28)
Personal Financial Investment (log \$U.S.)	1.18 (0.08)*	1.12 (0.05)*
External Credit		
Supplier Credit	2.09 (0.28)**	1.32 (0.22)
Outside Funding Received	0.69 (0.40)	1.34 (0.29)
Control Variables		
Formal Business Plan	1.11 (0.29)	0.67 (0.23)
Formally Registered	1.42 (0.28)	1.25 (0.21)
Business Bank Account	2.32 (0.27)**	0.97 (0.21)
Age	0.98 (0.02)	1.05 (0.01)***
Female	1.07 (0.24)	1.13 (0.18)
Married	1.01 (0.24)	0.83 (0.17)
Education		
No High School Diploma	0.13 (1.14)	1.49 (0.41)
High School Diploma	1.46 (0.37)	2.13 (0.27)**
Vocational/Technical Degree	1.09 (0.61)	2.25 (0.39)*
Some College	1.51 (0.31)	1.75 (0.23)*
Graduate/Professional Degree	2.13 (0.36)*	1.17 (0.29)
Income (log \$U.S.)	0.71 (0.15)*	1.22 (0.11)
Work Experience (Years)		
Industry Experience	1.04 (0.01)**	1.04 (0.01)***
Full-Time Experience	1.01 (0.02)	0.96 (0.01)**
Employment Status		
Part-Time	1.00 (0.35)	0.99 (0.25)
Retired	0.34 (0.62)	0.63 (0.36)
Not Employed	0.74 (0.32)	0.50 (0.25)**
Prior Occupation		
White Collar—Professional	0.92 (0.36)	1.10 (0.29)
White Collar—Sales/Clerical	0.68 (0.47)	1.25 (0.34)
Blue Collar—Craftsman/Foreman	0.70 (0.46)	1.01 (0.36)
Blue Collar—Semiskilled, Unskilled	0.42 (0.65)	0.83 (0.41)
Service	0.37 (0.59)	0.50 (0.43)
Other Occupation	1.11 (0.47)	1.44 (0.37)
<i>N</i> = 847		
χ^2	176.6***	

^aS.E., standard error.

^bReference category for dependent variable is disengaged businesses. Reference categories for independent variables include white (for race/ethnicity), college degree (for education), full-time (for employment status), and white collar-managerial (for prior occupation).

**p* < .05

***p* < .01

****p* < .001

Parker and Belghitar's (2006) study where access to supplier credit lines directly increased persistence and is likely accounted for by methodological differences. First, because blacks and Hispanics differ on measures of supplier credit and levels of personal investment, aggregating blacks and Hispanics into a single, non-white category may be conflating the dynamics of supplier credit with racial/ethnic differences. Second, though they use a binary measure of investing personal money, our continuous measure allows greater granularity regarding how supplier credit and personal investments interact to affect persistence. Despite differences in our results, it should be noted that both sets of results show that supplier credit plays an important role in both success and persistence albeit in slightly different ways.

Conclusion and Discussion

The aim of this study was to examine how persistence and factors influencing decisions to remain engaged in an immature business vary by race/ethnicity after two years in operation. The results of our study suggest that the effect of race/ethnicity on entrepreneurial outcomes is complex. Focusing solely on success, our results are consistent with Bates (1985) who argues that entrepreneurial outcomes are primarily a function of human and financial capital rather than race/ethnicity, but by examining alternative outcomes including persistence, we find considerable racial and ethnic differences. In exploring the determinants of entrepreneurial outcomes, race/ethnicity was not a significant predictor of creating a new firm, but if success was not achieved after two years in operation, blacks were more likely to persist, whereas Hispanics were more likely to disengage when compared with white net of demographic and business controls. These results highlight not only the need to examine alternative outcomes but also to look beyond the black/white dichotomy and examine the heterogeneous experiences that exist between racial and ethnic groups.

Drawing on ideas from Wilson's (1987, 1991, 1997) theory of social dislocation that theorizes that macro-level processes including migration patterns and deindustrialization have isolated blacks from mainstream social institutions, we examine how differences in one important institution, the credit market, affects self-financing levels, which in turn affects decisions to persist or disengage. We first explore how

race/ethnicity affects the likelihood of obtaining external funding including supplier credit and outside funding. We find that even after controlling for business and demographic characteristics, blacks are five times less likely to obtain supplier credit compared with whites, whereas Hispanics did not statistically differ from their white counterparts. These findings are consistent with prior research documenting the difficulties blacks face in obtaining credit (Blanchflower, Levine, and Zimmerman 2003). We hypothesized that the lack of external funding would result in additional self-funding to compensate. The results from our second set of models support this hypothesis as blacks invested significantly more of their personal finances into the business compared with either white or Hispanic net of controls. Similar to our analysis of supplier credit, whites and Hispanics did not significantly differ. The amount of personal financial capital invested was modeled with and without controls for external funding to examine how credit affects self-funding levels. We then integrate this finding to explore how personal investments, supplier credit, and other demographic and business characteristics affect the likelihood of persisting, succeeding, or disengaging after two years in operation. Results find that although race/ethnicity did not predict successful new firm creation, blacks were twice as likely as whites to persist, whereas Hispanics were three times as likely to disengage if success was not achieved in this timeframe.

By exploring how persistence varies by race/ethnicity, we make several contributions to the literature on entrepreneurship. First, by showing that race/ethnicity affects persistence but not new firm creation, this study suggests that race/ethnicity has a greater influence on entrepreneurial outcomes than the success/failure dichotomy would suggest, highlighting the need to explore not only racial and ethnic differences but also alternative outcome states. Second, by drawing on a structural theory of racial stratification, this study examines how individual-level decisions to persist are influenced by macro-level conditions. Fostering entrepreneurship has been offered as a policy strategy to help racial minorities overcome disadvantage in the traditional labor market and achieve upward mobility (Alba and Nee 2003; Bates 1997; Butler and Kozmetsky 2004; Heilman and Chen 2003; Porter 1997), yet research finds stark racial/ethnic differences in

entrepreneurial outcomes (Fairlie and Meyer 1996; Fairlie and Robb 2008; Parker 2009). Southern (2011) argues that previous policies of encouraging a culture of entrepreneurship have proven inadequate because structural disadvantage excludes some motivated individuals from full participation in business opportunities. By exploring the structural features and processes that influence differential outcomes, this study can help policy-makers develop more targeted programs. The approach of examining and addressing structural barriers to remedy inequality is similar to the European approach to social exclusion (Blackburn and Ram 2006). Furthermore, similarities and differences between racial/ethnic entrepreneurs in the United States and in other nations suggest that cross-national comparisons would be a fruitful direction for future research. For example, structural differences may help explain why Indian entrepreneurs in the United Kingdom more often list financial reasons for starting their business, whereas Māori entrepreneurs in New Zealand, who face similar issues of urban dislocation, crime, and poverty as blacks in America, view entrepreneurship as more of an opportunity to extend kin and social networks rather than as a means for pecuniary gains (Haar and Delaney 2009; Wood, Davidson, and Fielden 2012; Zapalska, Perry, and Dabb 2003).

This study does have several limitations. Though we examined the effect of credit and investment on persistence, these factors do not fully explain differential outcomes, suggesting that other processes are involved in differentiating outcomes. One particularly salient possibility is the growing research on perseverance that looks at the tendency of some entrepreneurs to continue despite adversity (Van Gelderen 2012). Though we do not examine personality traits including perseverance, it is possible that cultural differences in perseverance could explain as much, if not more, of the variance in outcomes than structural conditions. Also, though we document that outcomes vary significantly by race/ethnicity, we are not able to explore why Hispanics are similar to whites in many ways including access to credit, yet are more likely to disengage if success is not achieved. We speculate that this difference may be due in part to the types of businesses started by Hispanic entrepreneurs. Lofstrom and Wang (2007) found that Hispanic-owned businesses were concentrated in industries

with low educational and financial entry requirements such as construction, retail sales, repair services, and landscaping. Construction (33 percent) and repair services (14 percent) accounted for nearly half (47 percent) of all Hispanic-owned businesses, whereas only 24 percent of white-owned businesses were in these industries (Lofstrom and Wang 2007, p. 40). In contrast, the largest proportion of white-owned businesses (17 percent) was in professional services compared with only 4 percent of Hispanic-owned businesses. These differences could affect exit rates in a number of ways. First, lower entry costs for Hispanic businesses would make disengagement loss costly. Another possibility is that the human capital gained through the process of business creation in industries with low entry costs may be more transferrable to opportunities within paid employment. To test this hypothesis, future research should examine how race/ethnicity affects the types of jobs entrepreneurs obtain after exiting self-employment.

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