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Black vs White Owned New Venture Performance: A Study of Mediating Effects

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Abstract

Purpose – The purpose of this paper is to move beyond individual level characteristics of founders to explain the performance gap between white and black majority owned new ventures. It specifically investigates three potential mediators: demographic characteristics of venture's location, financial size of the venture and its credit riskiness.

Design/methodology/approach – The Kauffman Firm Survey, a longitudinal data set of 4,928 new ventures started in the USA in 2004, has been utilized in this paper. Pooled OLS and Logit regression models were employed for direct effects. Mediation effects were tested using two different approaches: the Baron and Kenny approach and decomposition analysis.

Findings – The paper finds that the financial size and credit riskiness mediate the relationship between majority race ownership and the performance of a venture.

Research limitations/implications – The data were collected for a single cohort (2004) of nascent firms; furthermore, the sample draws from firms based in the USA. Future studies could replicate this research utilizing samples of different cohorts and from other parts of the world.

Practical implications – The paper provides important guidance to policy makers. In general, to reduce the performance gap between black and white owned ventures, providing access to subsidized assets, capital and credit could be very helpful.

Originality/value – Past research suggests that the majority race ownership of a new venture impacts its performance and attributes these differences to heterogeneous endowments, usually of the primary owner. In this paper, analyses are conducted at multiple levels and new mechanisms through which the internal resources and capabilities of a new venture mediate the relation are discovered.

Keywords Diversity, Entrepreneurship, New ventures

Paper type Research paper

Introduction

New ventures have been touted as engines of growth for the economy. It is argued that new ventures contribute significantly to job growth. Decker *et al.* (2014) report that startups account for 20 percent of gross US jobs created annually. Research on new venture performance has spanned a few decades, one avenue of research in the "performance analysis" literature has been the study of outcomes such as survival, revenues and profits of minority-owned businesses and minority self-employment activities. Edelman *et al.* (2010) and Sullivan (2007) report that blacks have a higher propensity to start a new venture compared to whites and that black-owned ventures have a higher probability of failure or perform worse compared to white-owned ventures. Lately, the availability of census and other comprehensive data sets – such as the characteristics of business owners (CBO), the survey of minority and women owned businesses, the panel study of income dynamics has led to a number of studies analyzing the reasons for differences in outcomes between

82

white- and black-owned ventures (Fairlie and Robb, 2007; Robb, 2002). These studies are necessary since entrepreneurship is a crucial alternative to wage based employment for making a living and alleviating the socio-economic conditions of the black community (Fairlie and Robb, 2007). Studies have shown that one of the reasons for upward economic mobility of immigrant minorities has been through their ownership of small businesses (Bonacich and Modell, 1980; Light, 1972). Recent studies find that entrepreneurship aids in reducing the wealth disparity between black and white households (Bradford, 2014) and black entrepreneurs suffer lesser downward wealth mobility compared to black workers (Bradford, 2003). Business creation is being used as a tool by many state and federal governments to bridge the socio-economic gap between different races and also to get families out of welfare and unemployment insurance rolls (Fairlie and Robb, 2007). Hence, it is important to understand what mechanisms are inducing the performance gap between black- and white-owned ventures.

In this study, I focus on ventures started in 2004 – a new venture is an independent business – started or purchased or a franchisee, by a team or individual. However, any new ventures which paid state unemployment insurance, or Federal Social Security Tax or had an EIN or had schedule C income prior to or after 2004 were excluded. Thus, I study nascent ventures from their inception. I expand the scope of previous studies by exploring mechanisms at multiple levels. First, I focus on the mediating role of external factors such as the demographics of the location of the venture. Although external variables are relatively difficult to alter, entrepreneurs possess the ability to "choose" locations, which are endowed with certain characteristics. Next, I analyze factors at the venture level. Resources at the disposal of a new venture play a pivotal role in its performance. I focus on two variables – assets of a venture and the credit riskiness.

Understanding the role played by the location of a venture in the differential success of black and white ventures may have profound policy implications. The prior literature focuses on the social networks of founders, abundance of resources and consumers, and agglomeration economies at the location, and ties it to performance (Dahl and Sorenson, 2012; Figueiredo *et al.*, 2002; Florida, 1994; Marshall, 1920). Bates and Robb (2014b) report that small businesses serving minority clients face higher rates of closure and low profitability. If location is indeed a driver of success for a new venture, then it should be no surprise that more venture owners (both white and black) want to set up shop in zip codes that are more favorable to new venture performance – the white majority areas, since whites are known to possess better socio-economic status than blacks on average (Morgan, 2005; Western and Pettit, 2005)[1].

The second mechanism I investigate is the financial size of a venture and its mediating effects. The size of established firms has been linked to survival and performance (Dunne *et al.*, 1989; Evans, 1987). Although most of the studies focus on the number of employees as an indicator of size, I propose instead to analyze the impact of financial size. Financial size could be considered more fundamental than the human resource size, since the former can be utilized to attract the latter. Performance of a venture is tied to internal attributes such as its resources and capabilities (Wernerfelt, 1984). Financial size is a proxy for the resources a venture has at its disposal, it also acts as a buffer while the new venture is struggling with the liability of newness. Consumers may also prefer to deal with a business that is strong and vibrant and might be in operation down the road if the product they bought needs repair, maintenance or add-ons. Finally, a bigger resource base could lead to more service and product offerings leading to better revenues and hence performance. Thus, I explore the impact of financial size as a mediator.

The third mediator – a venture's credit riskiness – is crucial for attracting resources. It is an indicator of the ability of the venture to acquire resources in the future. The performance of a venture is dependent on access to resources (Mahoney and Pandian, 1992; Penrose,

1959; Peteraf, 1993; Wernerfelt, 1984). Suppliers, service providers and other members of the value chain might implicitly evaluate the prospects or riskiness of the venture before providing access to their resources or services to it (Stuart *et al.*, 1999). Thus, I study the mediating role of a venture's credit riskiness.

This study is based on the Kauffman Firm Survey (KFS), a confidential eight-year panel data set of new ventures representative of the new venture landscape of the US economy. Most past studies, using Census or survey data are able to observe ventures when they reach a certain size or age; however, KFS captures venture data for firms started in 2004, from the inception stage. Hence, I am able to conduct analyses on ventures from the nascent stage onwards. The data set contains geo-coded data, which makes the analyses of location feasible. The abundance of variables in the data set allows me to control for potential endogeneity issues. Since the data are exclusively based on new ventures (and do not utilize self-employment data as a proxy for entrepreneurship) and the variables capture data on the entire owner team, analysis using these fine-grained data can be conducted at the venture team level rather than restricting it to sole or primary owner.

The key findings of this study are that I do not find support for the mediating role of local demography in new venture performance. However, the financial size and credit riskiness of a venture mediate the relationship between race and performance. The structure of the paper is as follows – in the next section, I discuss the theoretical underpinnings of the various relationships described above. I follow up with a description of the data, variables used and research methods. Results are presented in the section after and I close with a discussion of the results.

Theory and literature review

New venture performance has been a topic of study both theoretically and empirically over the past few decades. Availability of longitudinal data was a major constraint in studying outcomes but new panel data sets have alleviated the issue to a certain extent. Sexton and Robinson (1989) were one of the first to study demographic variables such as age, education, race of owners and their correlation with survival and performance. Cooper *et al.* (1994) utilized a panel data set which also represented a broader set of industries and, thus, was more representative of an economy, to analyze the impact of race on performance. They found that the minority-owned businesses perform worse than non-minority-owned ventures. Most previous studies account for race effects through two approaches. The older approach was to introduce a dummy variable for the race of the primary owner of the venture and interpret its coefficient. Newer studies (Fairlie, 2005a; Fairlie and Robb, 2007) conduct decomposition analyses wherein they calculate the contribution of endowments, such as education, work experience, etc., which explain the gap in performance metrics such as survival between white- vs black-owned ventures.

Multiple mechanisms were conjectured by studies for the poor performance of blacks, which included them possessing poor business contacts, poor location, more difficulty in obtaining insurance and credit, and access to "desirable" customers. In the following paragraphs, I explore the rationale of a few mechanisms that are the focus of this paper.

Race of majority owners of a venture and its performance
Using the CBO, 1992 data set, Fairlie and Robb (2007) find that black firms underperform their white counterparts in survival, employment size, sales and profits. Similar estimates are obtained by studies (Robb, 2002; Boden and Headd, 2002) using other data sources. A paper based on the Panel Study of Income Dynamics (Fairlie, 1999) also finds that black men exit self-employment at twice the rate of white men.

Most past studies focus on the primary owner of the venture even if the venture was run by a team of owners (for example, the CBO (Fairlie and Robb, 2007), 1992 had 20 percent ventures run by teams). Various criteria such as number of hours worked, which owner

NEJE
21,2

84

founded the venture, or random assignments were used to assign primary ownership. I posit that performance outcomes of primary owners and a team of owners should be similar. For example, if a venture has a majority of black owner operators, the venture could be viewed as "embodying" black characteristics. Past research shows that individuals form "same race" friendships and ties (Mollica *et al.*, 2003), even task groups are composed of individuals with similar ascriptive characteristics (Ruef *et al.*, 2003). Thus, it could be inferred that say a venture with black majority owner operators has outcomes similar to ventures which have a black individual as the primary owner. The majority of black owners and their characteristics will impart to the venture black characteristics on "average." A similar logic will also hold for new ventures which have majority white owner operators.

Therefore, the following hypothesis is proposed:

H1. Black majority owned new ventures will be associated with lower levels of performance compared to white majority owned new ventures.

External characteristics – mediating role of demographics of new venture location
The decision about where to set up a business is crucial and difficult to change. It can have significant consequences for new venture survival and performance. The phenomenon that location of a business in an area which has other similar businesses has the possibility of enhancing the focal venture's performance has been studied as far back as 1920 by Marshall (agglomeration economies). Gilbert *et al.* (2008) show that technology-based firms located in geographic clusters experience higher growth rates and levels of innovation. Similar results for survival and higher tax payments by Swedish firms located in clusters were observed by Wennberg and Lindqvist (2010). Other studies investigate the impact of output market characteristics in the decision to locate a venture. Woodward and Glickman (1991), Coughlin *et al.* (1991) and Florida (1994) show that foreign direct investment in manufacturing plants is attracted by states that have higher per capita incomes, higher density of manufacturing activity or higher concentration of upstream and downstream firms of the value chain. Park and Leigh (2017) show that location endowments of a market such as pool of educated workers, highly developed transportation systems and links to domestic and international markets attract manufacturing FDI to a region.

Studies also show that entrepreneurs prefer a location since they are socially embedded in the location and, hence, can benefit from the resources and infrastructure of the area (Dahl and Sorenson, 2012). They further posit that a pivotal question is not whether a location is "good" or "bad" for a business but rather – "given my resources, do I have the greatest odds of success." Thus, studies focus on both the resource endowments of a location and which entrepreneur is able to capitalize on those endowments.

Black dominated areas are known to possess fewer resources compared to white majority areas. Scarce availability of resources and infrastructure will adversely affect a new venture either by increasing the cost or decreasing the quality of services and products. Similarly, a shallow or lower quality talent pool will also weigh down the performance of the venture. The income levels of the consumers are also lower in black neighborhoods, further exacerbating the situation for a new venture in such areas. Given the above conditions, fewer owners would decide to locate their ventures in such areas than the ideal case. This should also lead to less opportunity for the remaining new ventures to "swap" services and fewer mentorship opportunities for the new ventures in the area, depressing performance further.

Owners may locate businesses in "hospitable" environments unless the benefits due to the synergy of endowments of "inhospitable" areas and owner characteristics to utilize those endowments outweigh the costs to locate in "inhospitable" locales. Bates and Robb (2014b) find that small businesses (mainly services and retail) located in urban minority areas

serving minority clientele have worse performance outcomes. Situating new ventures in areas which have demographics similar to the majority owners of the venture should aid in its performance. The venture will benefit from the social networks of the owners which will help in accessing resources, credit, land and infrastructure and consumers (Zaheer *et al.*, 2009; Zhou, 1996). In fact, resources available through social ties may be difficult to imitate and lead to a sustainable competitive advantage (Zaheer *et al.*, 2009). Extending the "liability of foreignness" (Hymer, 1976) to the local level, owners who set up new ventures in locales not familiar to them, may face challenges at cultural, political and economic levels. White areas are generally better than black areas on measures such as infrastructure and other economic factors, such as average house value or household income. The white business owners located in white majority areas would, thus, benefit from better resources, infrastructure as well as better networks. However, for the black business owners this should lead to an inherent tension, they may value social ties which may be in black neighborhoods but the economic pull may drive them to situate in white areas.

In light of the above arguments, I posit that the relationship between race of the majority owners of the venture and survival could be mediated through the characteristics of the location. Therefore, I posit the following hypothesis:

H2. The demographics of the area the new venture is situated in partially mediate the relationship between majority race of owner operators and new venture performance.

Internal characteristics as mediators

Financial size of the venture. Strategy scholars have long posited that internal capabilities and characteristics of a venture are a source of competitive advantage and, hence, better performance (Penrose, 1959; Wernerfelt, 1984). One important internal characteristic studied at length is firm size. Gibrat's law was proposed in 1931, which stated that firm growth and size are not related. However, contrary to Gibrat' Law, Dunne *et al.* (1989), Evans (1987) and other studies found that survival increases and growth decreases with business age and (employment) size. Size has been operationalized using different variables in the literature. Some common implementations include use of net worth, home ownership, and inheritance levels of the entrepreneur which measure static levels prior to venture starting and find that incorporating these variables does lead to an attenuation in the coefficient of race. Thornhill and Amit (2003) use assets of the firm as a proxy for size. Similar results are also obtained with decomposition analysis (Fairlie and Robb, 2007) – startup capital explains 30 percent to 40 percent of the explained gap in performance between black- and white-owned ventures. I propose to analyze the mediating role using a dynamic measure of financial size. This is especially pertinent in the context of a startup since the financial size of a venture changes over time and utilizing the initial conditions may not present a full picture of the impact of a time-varying variable such as financial size on new venture performance. I propose to explore the mediating role of financial size on the race ownership and performance relationship, while controlling for employee size.

In many prior studies, it has been shown that the race of the majority of owner-operators impacts performance. However, I theorize that the above relationship is partially mediated by the financial size of the firm. The assets of a firm are one dynamic indicator of the size of a venture (Thornhill and Amit, 2003) and they can be thought of as a proxy for the resources that are accessible to the venture. New ventures suffer from the liability of newness, size provides a buffer for entrepreneurs to learn and navigate problems (Cooper *et al.*, 1994). Firms with bigger size will have resources to attract experts to provide advice on issues (Cooper *et al.*, 1989). The size of a new venture may also represent more options to the consumer leading to more revenues and profits hence better performance. Finally, a small

size may inhibit product development, product launch and access to markets which will all hamper performance and survival of a firm. Previous studies incorporate size by either using a financial measure or a human resource measure, I study the impact of financial size while controlling for employee size. Furthermore, for external resource providers financial size may be a clearer signal of vitality of a new venture compared to the number of employees. The various assets of a venture could be used as collateral and also provide relatively more confidence to the suppliers, vendors and other stakeholders, that in the event of a venture going out of business, they could hopefully recoup their investments partially through the sale of the financial assets. On the other hand, given the mobility potential of the employees, the human resource base of a new venture may not inspire similar confidence amongst the resource providers.

Black-owned ventures usually are smaller in size compared to white-owned ventures (Edelman *et al.*, 2010; Fairlie and Robb, 2007; Robb, 2002). This may be due to multiple factors as shown in previous literature – blacks may not be able to get similar amounts of loans as the whites, due to discrimination, thus leading to undercapitalization of businesses leading to smaller asset bases (Bates and Robb, 2014a, 2016). Furthermore, blacks on average have lower net worth than whites. Thus, they would have fewer possessions to serve as collateral for loans which would again lead to a smaller asset base (Fairlie and Robb, 2007). This smaller size of the black ventures compared to the white ventures should lead to bleaker prospects for the black-owned ventures *vis-a-vis* the white-owned ventures.

Given the above arguments, I propose the following hypothesis is proposed:

H3. The financial size of a venture partially mediates the relationship between race ownership and performance for black-owned ventures with respect to white-owned ventures.

Credit riskiness of a venture. Young and small ventures face a liability of newness (Stinchcombe and March, 1965). New ventures usually have short track records and are fraught with risk, hence it is difficult for resource providers to assess their quality and provide resources to them (Stuart *et al.*, 1999). Resource providers implicitly apply a "credit riskiness" score (what is the probability of venture failure, what is the probability that the resource provided will not deliver the anticipated rent since the new venture may go out of business) to such new ventures. If certain sub populations get discriminated against on the assessment and others get favorable treatment in credit ratings, the net impact will be a systematic heterogeneous gap in the availability of financial and other resources based on the majority race ownership of the venture. The importance of credit scores in attaining resources is apparent, but the mechanism by which the scores are assessed is nebulous (Henderson *et al.*, 2015; Spader, 2010). Discrimination in credit scores based on race, gender and other such "immutable" characteristics has been outlawed. The Federal Reserve Board did find that the credit scores are different for different races but are not biased against any race (Braunstein, 2010). Blanchflower *et al.* (2003) show that discrimination against black-owned ventures exists in the small business credit market. Henderson *et al.* (2015) find that black-owned ventures receive more adverse ratings compared to what they deserve whereas white-owned ventures receive a more favorable rating. Finally, Bates and Robb (2016) find subtle unfavorable "nudges and shoves" for minority loan seekers.

Fraser (2009) finds that even though there is no discrimination in small business credit markets in the UK along ethnic lines, the black businesses have adverse credit outcomes compared to whites and Indians. These adverse outcomes are a result of less than sterling financial practices such as missed loan repayments and overdraft excesses associated with black-owned businesses. Bates (1973) also found erratic repayments and higher delinquency rates amongst black business owners in the New York, Boston and Chicago areas.

Accumulation of resources is a pivotal activity for a new venture. Resources play an important role in enabling the entire value chain of the product in a firm. This point becomes especially salient in the context of new ventures which are generally "resource sparse." Resources can be of multiple kinds, for example, credit lines, supplier credit, provision of service by employees, credit by consumers, provision of valued or critical equipment, etc. The provision of these resources to a new venture by the resource providers is a business decision. Resource providers need to evaluate the "riskiness" and opportunity costs before deciding which ventures will receive the use of their assets. It is logical to infer that ceteris paribus resource providers will invest time, resources and effort in new ventures from which they expect to recoup their investment and a profit. Thus, they will invest in less risky ventures all else being equal.

Barter or "quid pro quo" type arrangements are also common in general business situations (Winborg and Landström, 2001) and more so in new ventures. I argue that even in such arrangements amongst other aspects a key analysis partners are conducting is whether a particular counterparty (venture) will be a "going concern" and actually exist when the time comes to collect on the favors it is owed.

Thus, I study the mediating role of credit riskiness of a venture on the majority race ownership and venture performance relationship. I predict that credit riskiness, which is a proxy for the ability of a venture to access resources in future, is most likely mediating the relationship between majority race ownership of the venture and performance.

I proposed the following hypothesis:

> *H4.* The credit riskiness of a venture partially mediates the relationship between race ownership and differential performance between black- and white-owned ventures.

Data, measures and methods

Data source and sample
The KFS is a confidential data set that has been used in prior studies, such as Robb and Robinson (2012). It is a longitudinal data set of approximately 5,000 new ventures started in 2004. The KFS started with an initial sample of 250,000 firms, provided by D&B. A business was defined as started in 2004, if it was a new independent business created by an individual or team, or purchase of an existing business or the purchase of a franchise. Businesses that paid state unemployment insurance, or Federal Social Security tax or had an EIN or had schedule C income prior to or after 2004 were excluded. Out of this sample, 4,928 firms were admitted into the survey with an oversampling of high-tech firms; weights have been provided by KFS in order to make the sample representative of all new ventures in the economy. These firms were surveyed annually in detail from 2004 to 2011, creating an eight-year panel. The KFS has a balanced panel of 3,140 firms, but since the focus of the current study was on majority ownership, hence I restricted the study to ventures which had 50 percent or more of the owner team belonging to one race. I focused on ventures owned by whites, blacks and Asians since venture ownership by other races represented no more than 1 percent of ventures. This led to a sample size of 2,918 ventures. Furthermore, various variables such as profits or credit classification scores were not available for some ventures in some years. Hence, the number of observations in regressions may vary across models of survival, revenues and profits. The sample has information on up to 10 owners, initially and later 15 owners, including age, gender, race, ethnicity, education and previous work experience. Detailed financial information about the ventures, location, revenues, expenses, number of employees and profit/loss, among many other firm-level variables are also available in the data set. The KFS data set was merged with data at the zip code level from the Census, to develop measures of demographics.

88

Measures

Dependent variables. Survival – a venture was recorded as surviving each year it was in business as an independent entity. If the venture survived till the end of the survey period (year 2011) it was censored. In the data, failure is coded as 1 (to signify an event) and survival (status quo as 0).

Log total revenues are the logarithm of leading total revenues of a venture. For computational purposes $1 was added to the raw revenue numbers and then a log taken.

Log net profits are the logarithm of leading net profits of a venture. $1 is added to the absolute value of net profits (as net profits can be zero), and then logarithms were taken. Finally, if the profits were negative, the log values were multiplied by –1.

Independent variables. Majority race owners of firm: similar to Bitler *et al.* (2001), a venture was deemed as belonging to a particular race if the number of active owner operators of a particular race in the venture were greater than or equal to 50 percent and all other races individually had representation that was less than 50 percent. Ventures which were owned equally by two or more races were dropped from analyses.

Demographics of a location: in order to capture the characteristics of a zip code, I use dummy variables indicating whether a zip code is white, black or other race majority. A location is deemed as white majority if the population of whites in the zip code is greater than 50 percent, similarly for black and other races.

Financial size of the firm: I operationalize financial size as the log of assets of a venture. This is a time varying measure as KFS collected various components of the assets of a venture annually. These mainly comprised: cash, accounts receivables, equipment, inventory, land and buildings, vehicles, etc., which were added up to arrive at the total tangible assets of a venture. Logs of assets were used to control for skewness and high standard deviation.

Credit risk classification score of a venture: the credit riskiness of a venture is captured by the credit score classification of the venture. This is a categorical variable with a score of 1 indicating minimal risk and 5 representing high risk. Data were imputed for some missing values for which logical imputation was possible[2]. Similar scores have been used by the Federal Reserve and in past studies (Henderson *et al.*, 2015).

Control variables. I controlled for a number of factors that might impact survival and performance.

Education: previous research shows education impacts survival (Cooper *et al.*, 1994) and performance, thus variables indicating the proportions of various levels of education in the owner operator team were introduced. However, education had minimal explanatory power in explaining the gap in performance between black and white ventures (Fairlie and Robb, 2007).

Work experience in the same industry: prior work experience in an industry provides networks and knowledge about customers and suppliers (Cooper *et al.*, 1994; Delmar and Shane, 2004). I measure work experience in the same industry as the average number of years of such experience of the venture founding team. Similar to education, this variable too has been found to have minimal explanatory power for the gap in performance (Fairlie and Robb, 2007).

Age: the average age of owner operators was used in models since it will be correlated with higher levels of industry experience.

Number of active owner operators: the active owner operators of a new venture are human capital that could be crucial for the survival and performance of the venture. More owner operators will bring in more resources, human, social and financial capital and improve performance. Thus, I controlled for number of active owner operators.

Number of employees: I use a time varying measure to account for the employee-based size of a venture. Previous research has shown that survival increases with number of employees since more employees implies more resources and scale (Bruderl and Schussler, 1990; Carroll and Hannan, 2000). I corrected for skewness by taking the log transformation.

Legal form: Bruderl and Schussler (1990) show that the hazard of failure of German new ventures when the ventures were incorporated is lower. Thus, I control for the legal form of a venture with a dummy variable equal to 1 if the venture is a sole proprietorship rather than a limited liability company.

Other controls: the "average" gender of the venture was controlled for, since female led ventures may have a difference in performance compared to male led ventures. The technology type of a venture – whether it was high, medium or low – may lead to different rates of survival and performance, and hence was controlled for. Controls for provision of service and product by the venture were also included. Average hours worked by the owner operators were also controlled for since this represents the effort put in by the founders in making the venture a viable enterprise. Proportion of US citizens – Oyelere and Belton (2013) found that intragroup heterogeneity based on country of citizenship of the entrepreneur or of her parents could impact survival of the venture. Hence, I control for citizenship by including a variable of the proportion of US citizens amongst the owner operators.

Model choice
The three key indicators of performance I study are survival, total revenues and net profits. Pooled models with clustered standard errors and time dummies, and accounting for the survey nature of the data were used for revenue and net profits. The pooled OLS model was employed for total revenues and net profits since panel data models with fixed effects would drop out the time invariant variable coefficients such as majority race ownership, which is of primary interest in the current study. Survival models were assessed using pooled Logit models (with time dummies). Alternatively, Cox Proportional Hazard models could also have been used but Logit was preferred since most of the mediation analyses such as Fairlie, and Baron and Kenny use pooled Logit in the analyses. Hence, a comparison of coefficients across models is feasible with Logit models for survival. However, survival and Probit models were utilized for the base regression for robustness checks.

Mediation effects were tested with two broad class of models: the decomposition approach (Blinder, 1973; Oaxaca, 1973) and its nonlinear extension (Fairlie, 1999, 2005b), and the Baron and Kenny (1986) mediation analysis approach. Oaxaca decomposition with time dummies was utilized for decomposition analyses of total revenues and net profits, in addition to the Baron and Kenny approach. I applied the Fairlie approach for survival decomposition. In order to test for mediation effects using the Baron and Kenny (1986) approach, I followed the standard four step process.

Results
I begin the analyses with simple cross tabulations and *t*-tests, which are aimed at an intuitive understanding of the differences in performance between white- and black-owned ventures.

Summary statistics of the variables in the data set are provided in Table 1 (due to disclosure constraints maxima, minima and correlation values have been omitted). Ventures were started by an individual or a team with average work experience in the same industry of 11.5 and 45 years of age. This points to the fact that businesses are usually started by mature and experienced individuals. Only 2 percent of the ventures are categorized as high technology, whereas 85 percent are low technology, that is, most of the business ventures are non-innovative businesses. In total, 86 percent of the ventures provide services, which seem reasonable given that USA is a service economy. A super majority (89 percent) of the new ventures were started by whites, followed by blacks (9 percent), which approximately reflects the demography of the USA. Finally, the new ventures are small with 1.4 active owner operators.

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90

	Mean	SD	*n*
Log revenues	8.24	5.16	2,548
Log net profits	1.64	9.10	2,411
White owned	0.89	0.32	2,918
Black owned	0.09	0.28	2,918
Asian owned	0.03	0.16	2,918
Log firm assets	8.94	3.68	2,911
Credit risk	3.38	0.73	2,898
White Majority zipcode	0.90	0.31	2,918
Black majority zipcode	0.05	0.22	2,918
Other race majority zipcode	0.06	0.23	2,918
Avg same Ind work ex	11.45	9.99	2,916
Av. Ed. (yrs)	14.84	2.55	2,883
Edu., HS or less	0.15	0.34	2,917
Edu., technical	0.07	0.24	2,917
Edu., some Clg	0.22	0.38	2,917
Edu., associate	0.09	0.27	2,917
Edu., bachelors	0.26	0.41	2,917
Edu., some grad	0.05	0.21	2,917
Edu., masters	0.12	0.31	2,917
Edu., PhDs/Prof.	0.04	0.19	2,917
Avg age	44.98	10.31	2,915
Hi tech	0.02	0.13	2,918
Med. tech	0.13	0.34	2,918
Low tech	0.85	0.36	2,918
Sole proprietor	0.36	0.48	2,918
Provides product	0.51	0.50	2,918
Provides service	0.86	0.35	2,918
Prop. US Cit.	0.97	0.15	2,917
Prop. male	0.68	0.42	2,918
Tot. active fndrs	1.37	0.71	2,918
Log total employees	0.70	0.79	2,854

Table I.
Descriptive statistics
of variables in
econometric models
(2004 values used)

Notes: Figures may not add up to 100 percent due to rounding. Data of ventures owned by black, white and Asian races included, hence the number of observations drops from 3,140 to 2,918. Furthermore, number of observations vary since some ventures did not report various variables, for example, survival status of all 2,918 ventures was known but revenue and net profits were not reported by some ventures in certain years

Table II shows endowment and other differences between white-owned and black-owned new ventures for the year 2004 (note revenues and profits are leading hence are from 2005). I observe significant differences between the two groups, with whites performing better on all measures and possessing more endowments. White-owned businesses have average revenues of $5,200 whereas black-owned ventures $100. Furthermore, variables such as assets, credit risk classification score, age and work experience show differences between the two groups and hence as discussed earlier are worth investigating. Table III explains that businesses have a higher proclivity of situating in white majority zip codes (97.5 percent of white-owned and 61.3 percent of the black-owned ventures are situated in white majority zip codes). Table IV confirms my assertion that ventures in white majority zip code areas perform better than ventures in black majority zip codes (the significance in *t*-tests for net profits and survival is at 10.7 percent and 10.8 percent, respectively). Finally, Table IV illustrates that for the areas in which KFS ventures are located, there are significant differences in the average household income and average house values in the white vs black majority zip codes, with black majority zip codes being less affluent.

	White owned	Black owned	Difference	SE	t-stat
Revenues (USD)	5,271.13	102.51	5,168.62	0.471	8.35
Net profits (USD)	6.42	−2.54	8.96	0.799	3.50
Life	5.596	5.126	0.471	0.292	1.61
Log firm assets	9.093	7.007	2.086	0.345	6.05
Credit risk	3.372	3.513	−0.141	0.062	−2.29
Average age owners	45.272	43.360	1.912	0.797	2.40
Avg same Ind work ex	11.661	10.014	1.646	0.714	2.30
Avg education	6.050	5.920	0.130	0.158	0.82
Provides product	0.527	0.406	0.121	0.041	2.95
Provides service	0.851	0.903	−0.052	0.024	−2.13
Sole proprietor	0.350	0.447	−0.097	0.041	−2.36
Avg Hrs worked	40.301	41.616	−1.315	2.005	−0.66
Total active founders	1.383	1.224	0.160	0.045	3.57
Log total employees	0.711	0.562	0.150	0.053	2.82

Study of mediating effects

91

Notes: 2004 values except for revenues and net profits (for which 2005 values). The number of observations for revenues and net profits were 2,364 and 2,235, respectively. Survival observations were 2,702, and all other variables range from 2,702 to 2,630 observations. The observations are lesser compared to the 2,918 observations shown in Table I since this table focuses on only black and white majority businesses and discards the rest of the observations (other race majority owned ventures)

Table II. Difference in mean endowments between white and black owned ventures

	White owned	Black owned	Total
White majority zip code	2,435	125	2,560
Black majority zip code	61	82	143
Total	2,496	207	2,702

Note: Figures may not add up due to rounding

Table III. Location of ventures by majority race ownership

	White majority zip code	Black majority zip code	Difference	SE	t-stat
Revenues (USD)	4,129.87	266.94	3,862.93	0.651	4.21
Net profits (USD)	5.38	−1.06	6.44	1.081	1.61
Life	5.596	5.126	0.471	0.292	1.61
Avg household income (USD)	49,551	36,470	13,081	1,751	7.06
Avg house value (USD)	155,873	92,619	63,254	5,126	11.83

Source: US census for avg household income and avg house value

Table IV. White majority vs black majority zip code

Table V tabulates the differences in some key variables between white- and black-owned ventures in white and black majority zip codes. In most cases, the white-owned ventures in white areas possess the most favorable attributes, and black ventures in black majority zip codes are the worst off. A similar pattern is observed in the outcome variables such as revenues and profits. However, survival seems to be comparable across race and location, except for black-owned businesses in black majority zipcodes.

Table VI shows the results of decomposition analyses. I find support for *H1* since on all three outcomes: survival, revenues and net profits, there is a difference between the white majority and black majority owned ventures. Assets and credit riskiness are consistently significant and their coefficients indicate that these variables are sizeable contributors

**NEJE
21,2**

92

	White owned		Black owned	
	White majority zipcode	Black majority zipcode	White majority zipcode	Black majority zipcode
Log total revenues	8.58	6.48	5.05	4.66
Log net profits	1.86	1.72	−0.85	−1.25
Survival	5.61	5.68	5.68	4.80
Log total assets	9.10	7.68	6.99	6.89
Credit risk classification score	3.38	3.39	3.46	3.50
Avg age owners	45.22	44.50	43.73	42.10
Avg same Ind work ex	11.69	11.40	9.53	10.45
Avg education	6.04	5.94	6.21	5.69
Provides product	0.53	0.47	0.43	0.37
Provides service	0.85	0.88	0.88	0.91
Sole proprietorship	0.35	0.36	0.43	0.41
Avg Hrs worked – owners	40.38	40.67	39.66	44.06
Log total size – employees	0.71	0.78	0.57	0.57
Number of owner operators	1.39	1.31	1.25	1.24

Note: 2004 values except for log total revenues and log net profits (2005 values)

Table V.
White owned vs black owned ventures by location

	Fairlie – Survival		Oaxaca – Revenues		Oaxaca – Net profits	
Black owned	0.0822		6.2076		−0.6676	
White owned	0.0655		9.4535		2.7621	
Difference	0.0167		−3.2459		−3.4297	
Explained	n/a		−1.3868		−1.0065	
Unexplained	n/a		−1.8591		−2.4232	
n[a]	15,820		12,736		12,423	
	Coeff	*t*-stat	Coeff	*t*-stat	Coeff	*t*-stat
Log firm assets	0.0135	5.61	−0.7295	−6.75	−0.6597	−5.34
Credit risk	0.0088	4.81	−0.1306	−3.84	−0.3466	−4.22
Race location	0.0037	0.84	−0.1914	−1.52	−0.3796	−1.42
Avg same Ind work ex	0.0016	3.31	−0.0263	−1.46	−0.0942	−1.80
Education	0.0000	−0.04	−0.0513	−1.29	−0.1300	−1.82
Average age owners	−0.0010	−1.59	0.0340	1.52	0.1079	1.61
Provides product	0.0001	0.12	−0.0321	−1.67	0.1626	2.16
Provides service	−0.0005	−1.09	0.0075	0.86	0.0282	1.09
Sole proprietor	−0.0021	−2.51	−0.1057	−2.38	0.1944	2.30
Avg hrs worked	0.0001	0.10	−0.0020	−0.04	−0.0029	−0.07
Technology	0.0000	−0.28	0.0098	0.63	0.0403	1.21
Prop. US Cit.	0.0001	0.77	0.0000	0.01	−0.0003	−0.11
Prop. male	0.0000	−0.08	0.0001	0.02	−0.0032	−0.16
Total active founders	0.0009	1.43	−0.0044	−0.24	0.0341	0.77
Log total employees	−0.0003	−0.38	−0.1349	−2.66	0.0403	0.99
Time	−0.0007	−1.15	−0.0301	−1.35	0.0023	0.21
Total	0.0242		−1.3868		−1.0065	

Notes: [a]The number of observations are different between the decomposition analysis and the pooled regressions since, decomposition analysis is conducted between black and white majority owned ventures, whereas pooled regressions also include Asian majority owned ventures

Table VI.
Decomposition analyses for survival, revenues and net profits

to the gap, across all three models: survival, revenues and net profits. Contributions of the location variable is ambivalent, either coefficients are small or not statistically significant. Thus, *H3* and *H4* are supported but *H2* is not supported. Finally, individual level characteristics such as industry work experience, education and age are relatively small contributors or insignificant, echoing results similar to Fairlie and Robb (2007). It is worth

noting that the Fairlie decomposition over explains the gap between black- and white-owned ventures, which may indicate that if the endowments of white ventures were to be allocated to the black-owned ventures they would be more successful than the white ventures.

Partial mediation by assets and credit riskiness was also supported by the Baron and Kenny approach. Table VII shows that white majority owned ventures outperform black majority owned ventures (black being the omitted category). Table AIV also utilizes the Probit and Cox models to validate the results of survival of ventures in the logit models. I do find, broad support for the results. Tables VIII and IX analyze the crucial steps for supporting Baron and Kenny's (1986) mediation approach by showing that majority race ownership effects are partially mediated by assets or credit riskiness. When assets or credit riskiness are included in the same model as majority race ownership, the coefficient of the majority race ownership for all three regressions: survival, total revenues and net profits decreases, thus supporting *H3* and *H4*. A negative coefficient in survival regressions implies a reduction in the hazard of death (since failure is coded as 1 and survival as 0 in the data). The interpretation for revenue and net profit regressions are obvious. The other steps of the Baron, Kenny mediation analysis are covered in Tables AI–AIII.

Discussion and conclusion

Past research suggests that performance of new ventures is related to the race of the primary owner(s). It is important to understand how these differences in performance occur above and beyond the characteristics of a primary owner and at the level of a venture, so that policy intervention can be addressed correctly. Given that the black community faces numerous obstacles to social and economic mobility, starting and successfully running one's own venture could be a ticket out of low socio-economic status for many a black household. White-owned ventures have been shown to possess better performance prospects than black-owned ventures (Edelman *et al.*, 2010; Robb, 2002; Sullivan, 2007). Decomposition analyses use individual characteristic endowments of primary owners to explain the performance gap between the white and black ventures. However, more venture level studies are required which focus on the mechanisms of how the survival gap between black and white ventures is induced due to the external environment and internal venture level characteristics. In this research, I investigated mediators at multiple levels to understand their role on majority race ownership and performance relationship. I assessed how the demographics of the area where a venture is located, how the financial size of a new venture and the credit riskiness mediate the above relationship.

I did not find support for the mediation by demography of the location of a venture. It seems entrepreneurs are savvy enough to understand and either tailor or open ventures which are demanded by an area. This points to the fact that the policy should be focused on the internal characteristics of the venture which is a more micro-level approach rather than following a more macro approach of ameliorating an area. The aforementioned implication is in the context of reducing the performance gap between white- and black-owned ventures. There could be many other policy reasons for which underdeveloped areas need to be developed, which the author does not preclude. Black-owned ventures are financially smaller than the white-owned ventures and this difference is path dependent, it does not decrease over time. The difference in financial size has a profound impact on the outcomes of white vs black ventures, thus developing innovative and subsidized approaches so that black ventures get access to a similar level of asset base as the white-owned ventures should be helpful in reducing the performance gap.

Finally, I found that credit riskiness of a new venture is an important mechanism in determining the difference between performances of black and white ventures. Black-owned ventures will have a lower probability of obtaining resources at a level similar to white-owned ventures, due to the difference in credit ratings. I also find that these lower credit ratings in turn negatively impact the performance of black-owned ventures compared to

NEJE
21,2

94

Table VII.
Pooled regressions for new ventures

	Model 1: Survival (coef/SE)	Model 2: Revenues (coef/SE)	Model 3: Profits (coef/SE)	Model 4: Survival (coef/SE)	Model 5: Revenues (coef/SE)	Model 6: Profits (coef/SE)
White owned				−0.333* (0.14)	2.728*** (0.30)	3.527*** (0.52)
Asian owned				−1.049*** (0.34)	2.993*** (0.49)	4.248*** (1.05)
Avg same Ind work ex	−0.014** (0.00)	0.017* (0.01)	0.063*** (0.02)	−0.015** (0.00)	0.015 (0.01)	0.060*** (0.02)
Edu, technical	−0.304 (0.20)	−0.690 (0.41)	−1.746* (0.73)	−0.298 (0.20)	−0.529 (0.38)	−1.507* (0.70)
Edu, some Clg	−0.368** (0.14)	−0.263 (0.31)	−0.927 (0.61)	−0.338* (0.14)	−0.182 (0.31)	−0.811 (0.60)
Edu, associate	−0.383* (0.18)	−0.528 (0.37)	−2.147*** (0.74)	−0.367* (0.18)	−0.339 (0.36)	−1.892*** (0.73)
Edu, bachelors	−0.506*** (0.13)	0.581* (0.29)	0.182 (0.57)	−0.436*** (0.14)	0.565* (0.28)	0.162 (0.56)
Edu, some grad	−0.800*** (0.22)	0.040 (0.38)	−1.818* (0.80)	−0.775*** (0.22)	0.219 (0.37)	−1.601* (0.79)
Edu, masters	−0.656*** (0.16)	0.428 (0.31)	−0.099 (0.65)	−0.604*** (0.16)	0.516 (0.31)	0.018 (0.65)
Edu, PhDs/Prof.	−1.032*** (0.24)	0.063 (0.45)	0.827 (0.87)	−0.926*** (0.24)	0.015 (0.45)	0.738 (0.86)
Avg age	−0.005 (0.00)	−0.010 (0.01)	−0.058*** (0.02)	−0.003 (0.00)	−0.012 (0.01)	−0.060*** (0.02)
Provides product	−0.116 (0.09)	0.580*** (0.15)	−1.331*** (0.31)	−0.082 (0.09)	0.510*** (0.14)	−1.415*** (0.30)
Provides service	−0.281* (0.11)	0.240 (0.23)	0.916 (0.47)	−0.231* (0.12)	0.252 (0.21)	0.928* (0.47)
Sole proprietor	−0.288*** (0.09)	−1.187*** (0.19)	1.138*** (0.35)	−0.269*** (0.09)	−1.103*** (0.18)	1.246*** (0.34)
Avg Hrs wrkd owner/s	−0.009*** (0.00)	0.044*** (0.00)	0.035*** (0.01)	−0.009*** (0.00)	0.044*** (0.00)	0.035*** (0.01)
Hi tech	−0.231 (0.12)	0.712*** (0.20)	0.104 (0.50)	−0.239* (0.12)	0.669*** (0.20)	0.056 (0.50)
Med. tech	−0.240* (0.09)	0.282 (0.16)	0.862* (0.35)	−0.231* (0.09)	0.328* (0.16)	0.927*** (0.35)
Prop. US Cit.	−0.700*** (0.18)	0.876 (0.65)	0.562 (1.22)	−0.701*** (0.20)	1.003 (0.65)	0.830 (1.23)
Prop. Male	−0.134 (0.10)	0.125 (0.21)	0.503 (0.39)	−0.105 (0.10)	0.138 (0.20)	0.528 (0.39)
Tot. Active Fndrs	−0.182* (0.08)	0.141 (0.11)	−0.032 (0.23)	−0.147 (0.08)	0.103 (0.11)	−0.082 (0.23)
Log total employees	−0.073 (0.06)	1.078*** (0.09)	0.111 (0.23)	−0.068 (0.06)	1.069*** (0.09)	0.104 (0.23)
Time dummies?	Yes	Yes	Yes	Yes	Yes	Yes
Intercept		4.598*** (0.84)	1.106 (1.57)		2.062* (0.88)	−2.340 (1.65)
Number of observations	16,284	13,117	12,799	16,284	13,117	12,799
R^2 or X^2	5358.73	0.1903	0.0426	5416.43	0.2118	0.0530

Notes: Black owned is the omitted category. $*p < 0.05$; $**p < 0.01$; $***p < 0.001$

	Model 1: Survival (coef/SE)	Model 2: Survival (coef/SE)	Model 3: Revenues (coef/SE)	Model 4: Revenues (coef/SE)	Model 5: Profits (coef/SE)	Model 6: Profits (coef/SE)	Study of mediating effects
White owned	−0.333* (0.14)	−0.131 (0.14)	2.728*** (0.30)	2.143*** (0.28)	3.527*** (0.52)	2.987*** (0.52)	
Asian owned	−1.049** (0.34)	−0.825* (0.35)	2.993*** (0.49)	2.351*** (0.44)	4.248*** (1.05)	3.653*** (1.03)	
Log firm assets		−0.086*** (0.01)		0.357*** (0.03)		0.336*** (0.04)	
Controls included?	Yes	Yes	Yes	Yes	Yes	Yes	**95**
Time dummies?	Yes	Yes	Yes	Yes	Yes	Yes	
Number of observations	16,284	16,284	13,117	13,117	12,799	12,799	
R^2 or X^2	5416.43	5404.62	0.2118	0.2566	0.0530	0.0641	**Table VIII.** Assets mediation pooled regressions

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

	Model 1: Survival (coef/SE)	Model 2: Survival (coef/SE)	Model 3: Revenues (coef/SE)	Model 4: Revenues (coef/SE)	Model 5: Profits (coef/SE)	Model 6: Profits (coef/SE)	
White owned	−0.333* (0.14)	−0.167 (0.14)	2.728*** (0.30)	2.588*** (0.30)	3.527*** (0.52)	3.215*** (0.52)	
Asian owned	−1.049** (0.34)	−0.859* (0.35)	2.993*** (0.49)	2.922*** (0.48)	4.248*** (1.05)	4.052*** (1.04)	
Credit risk = 1		−1.579*** (0.36)		1.460*** (0.34)		3.454*** (0.87)	
Credit risk = 2		−1.023*** (0.16)		0.766** (0.26)		2.430*** (0.60)	
Credit risk = 3		−0.697*** (0.13)		0.220 (0.25)		1.314* (0.55)	
Credit risk = 4		−0.514*** (0.14)		−0.319 (0.29)		0.774 (0.59)	
Controls included?	Yes	Yes	Yes	Yes	Yes	Yes	
Time dummies?	Yes	Yes	Yes	Yes	Yes	Yes	
Number of observations	16,284	16,284	13,117	13,117	12,799	12,799	**Table IX.** Credit risk mediation pooled regressions
R^2 or X^2	5416.43	5402.83	0.2118	0.2180	0.0530	0.0593	

Notes: Credit risk = 5 is the omitted category. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

white-owned ventures. Thus, policies which bolster the credit scores of black ventures either through provision of training to better manage their business or temporary boost to their credit scores to make them equivalent to white ventures' scores should alleviate some of the performance differences.

Limitations
The study has a few limitations. The analysis has been conducted on new ventures started in 2004. To the author's knowledge no major economic, political or other shocks occurred in that year, yet if cohorts of ventures from various vintage years could be analyzed it would further bolster the robustness of the results. Second, the study is based on new ventures started in the USA, a broader study which incorporates ventures from other regions of the world may further bolster the external validity of the results.

Future research
In this study, one of the mediators I explored was financial size. Future studies could explore what types of assets, for example, tangible vs intangible are more relevant to reducing the performance gap. Studies and analyses on whether financial size could lead to the acquisition of human resource size in a short span of time and how that impacts performance could further our knowledge on "time compression diseconomies" (Dierickx and Cool, 1989) as well.

With the study, I draw attention to the need of understanding the mechanisms involved in the differential performance of black- vs white-owned ventures. More studies are required

**NEJE
21,2**

96

to understand what other social or economic constructs may be at play. Another fruitful avenue of research could be related to exploring under what conditions the performance differences between the two groups exacerbate or reduce for example in high technology ventures or ventures in certain industries.

Notes

1. There are exceptions to this approach, for example, some small businesses "choose" to locate in high crime areas since surviving in such areas is one of their core capabilities (Bates and Robb, 2008).

2. Credit risk classification scores were back or forward filled using the scores available for the nearest year. For example, if credit classification score data were not available for a new venture for the year 2006, but was available for 2005 or 2007, then the 2006 score was imputed using the 2005 and/or 2007 scores.

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97

98

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Appendix

	Model 1: Survival (coef/SE)	Model 2: Revenues (coef/SE)	Model 3: Profits (coef/SE)	Model 4: Survival (coef/SE)	Model 5: Revenues (coef/SE)	Model 6: Profits (coef/SE)
White owned				0.059 (0.17)	1.966*** (0.29)	2.543*** (0.57)
Asian owned				−0.545 (0.36)	2.152*** (0.44)	3.268** (1.04)
Log firm assets	−0.077*** (0.01)	0.364*** (0.02)	0.339*** (0.04)	−0.078*** (0.01)	0.345*** (0.03)	0.312*** (0.04)
Credit risk = 1	−1.425*** (0.36)	1.169*** (0.33)	3.242*** (0.86)	−1.436*** (0.36)	0.991** (0.32)	3.024*** (0.86)
Credit risk = 2	−0.930*** (0.16)	0.639** (0.24)	2.356*** (0.59)	−0.931*** (0.17)	0.471 (0.24)	2.152*** (0.59)
Credit risk = 3	−0.650*** (0.13)	0.165 (0.24)	1.287* (0.54)	−0.642*** (0.13)	0.059 (0.24)	1.150* (0.54)
Credit risk = 4	−0.485*** (0.15)	−0.271 (0.27)	0.826 (0.58)	−0.478** (0.15)	−0.346 (0.26)	0.731 (0.58)
White maj. zip code	−0.237 (0.17)	1.415*** (0.41)	1.975* (0.80)	−0.234 (0.19)	0.561 (0.42)	0.887 (0.85)
Othr race maj. zip code	−0.500 (0.26)	1.475** (0.48)	1.777 (1.02)	−0.445 (0.27)	0.949* (0.47)	1.078 (1.03)
Controls included?	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies?	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	16,284	13,117	12,799	16,284	13,117	12,799
R^2 or X^2	5361.75	0.2515	0.0646	5390.53	0.2609	0.0693

Notes: When all proposed mediators – assets, credit riskiness and location of the venture are put in one regression model. We repeatedly observe that assets and credit riskiness are statistically significant but location not so. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table AI.
Assets, credit risk and race location based pooled regressions

	Model 1: Survival (coef/SE)	Model 2: Revenues (coef/SE)	Model 3: Profits (coef/SE)	Model 4: Survival (coef/SE)	Model 5: Revenues (coef/SE)	Model 6: Profits (coef/SE)
Log firm assets	−0.089*** (0.01)	0.385*** (0.03)	0.376*** (0.04)			
Credit risk = 1				−1.607*** (0.36)	1.814*** (0.35)	3.878*** (0.87)
Credit risk = 2				−1.064*** (0.16)	1.089*** (0.27)	2.813*** (0.60)
Credit risk = 3				−0.740*** (0.12)	0.441 (0.26)	1.585** (0.56)
credit risk = 4				−0.552*** (0.14)	−0.160 (0.30)	0.967 (0.60)
Controls included?	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies?	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	16,284	13,117	12,799	16,284	13,117	12,799
R^2 or X^2	5364.05	0.2436	0.0567	5358.89	0.1988	0.0506

Notes: These regressions establish the correlation between the dependent variables (survival, revenues and profits) and the mediators – assets and credit risk. This is one of the four steps for Baron and Kenny mediation. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table AII.
Assets and credit risk based pooled regressions

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Table AIII.
Assets and credit risk
mediation pooled
regressions

	Model 1: assets (coef/SE)	Model 2: assets with controls (coef/SE)	Model 3: credit risk (coef/SE)	Model 4: credit risk with controls (coef/SE)
White owned	2.098*** (0.26)	1.678*** (0.21)	−0.463*** (0.06)	−0.405*** (0.06)
Asian owned	2.609*** (0.43)	1.731*** (0.38)	−0.475*** (0.10)	−0.357*** (0.10)
Controls included?	No	Yes	No	Yes
Time dummies?	No	Yes	No	Yes
Number of observations	16,581	16,284	16,581	16,284
R^2	0.0273	0.2351	0.0180	0.0798

Notes: Another step in the Baron and Kenny mediation analysis. These regressions establish a correlation between the independent variables and the mediators. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table AIV.
Alternative models for
new venture survival

	Model 1: Survival – logit (coef/SE)	Model 2: Survival – probit (coef/SE)	Model 3: Survival – cox (coef/SE)
White owned	−0.333* (0.14)	−0.187** (0.07)	−0.220*** (0.13)
Asian owned	−1.049** (0.34)	−0.554** (0.16)	−0.715* (0.32)
Controls included?	Yes	Yes	Yes
Time dummies?	Yes	Yes	No
Number of observations	16,284	16,284	16,390

Notes: *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

About the author
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