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BLACK ENTREPRENEURS AND FINANCIAL CONSTRAINTS[‡]

Black-Owned Firms, Financial Constraints, and the Firm Size Gap[†]

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Why are Black-owned firms in the United States smaller than those owned by Whites? In this paper, we provide new documentation of this racial gap in firm size, measured by the number of employees, and we investigate the role of financial constraints in accounting for it. We draw upon newly available firm-level data containing rich information on relevant firm and owner characteristics, for which we control in the analysis, using a regression decomposition as an accounting framework.

We build on previous research by using a much larger and more recent database to focus on how differences by owner race in measured financial access impact the mean employer-firm size. Our measure of firm size, the number of employees, is especially meaningful in a context where Black business owners are more likely than Whites to hire Black workers and the Black unemployment rate is much higher than that of Whites across all stages of the business cycle.[1]

I. Data

We analyze the 2014–2016 Annual Survey of Entrepreneurs (ASE) of the US Census Bureau. The data consist of a nationally representative random sample of the universe of nonfarm businesses with at least one paid employee and receipts of $1,000 or more (Foster and Norman 2017). For the number of employees, the firm size measure we study in this paper, we link the ASE to the Longitudinal Business Database.

Because of our focus on owner characteristics, particularly race, we analyze the data at the owner level, weighting by the owner's share in the firm in the case of multiple owners (in addition to sampling weights provided with the ASE). We define an owner as Black if they are not Hispanic and they list "Black or African American" as a race (respondents may list multiple races). We define an owner as White if they are non-Hispanic and list only "White" as their race. The sample is restricted to owners who are either Black or White with complete information on all the variables in the regression. The final sample for analysis contains 656,000 firm-owner-year observations in 197,000 firms, of which about 13,500 and 6,000 are Black, respectively. The tiny share of Black ownership in all employer firms, similar to that reported in other research (Kim et al. 2021), is an important topic outside the scope of this paper.

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[1]Bates (1973) is a seminal reference; further discussion of related work can be found in the online Appendix.

Our focus is on measures of finance sources and amounts, so we describe those variables here while leaving the description of control variables to the online Appendix. The amount of start-up capital is a categorical variable ranging from less than $5,000 to $3 million or more. Sources of start-up capital are provided as indicators for each of the following. First, there are indicators for personal savings, home equity loan, personal and business credit cards, other assets, and family loan, which we group as "Start-up Capital from Insiders" in the subsumed decomposition analysis below. Second are sources of bank loan, government loan, grants, and venture capital, which are subsumed into "Start-up Capital from Outsiders." Finally, other sources, none needed, and don't know comprise "Start-up Capital from Other Source."

Pertaining to the survey reference year, we create dummy variables for funds from the owner and for family, friends, or employees, which our decomposition subsumes into "New Funding from Insiders." A second group includes banks or other financial institutions, outside investors, and government grants, comprising "New Funding from Outsiders." The final two finance variables are more subjective. "Discouraged borrower" is an indicator for owners who report that they chose not to apply for a loan in the reference year despite needing additional funding, because they expected not to be approved by a lender. Lastly, we create a dummy variable for whether financial constraints are reported to negatively affect the profitability of the business. These two variables are subsumed into "Subjective Financial Constraints."

II. Method

We estimate unadjusted and adjusted racial gaps in employment using a linear regression:

$$E_{ij}^{r} = \alpha^{r} + X_{ij}^{r}\,\beta^{r} + \varepsilon_{ij}^{r}, \tag{1}$$

where E_{ij}^{r} is the log of the number of paid employees of owner racial group r, Black (B) or White (W), for an owner i at firm j. X_{ij} includes all the individual financial variables described in the previous section, the variables of interest in this paper. X_{ij} also includes control variables for functions of firm age, number of owners, owner age, gender, immigrant, ownership team diversity, educational attainment, prior business ownership, veteran status, motivations for ownership (income, flexibility, and couldn't find job), four-digit North American Industry Classification System industry, owner's role(s) in business, average hours per week worked in business, primary income source from business, home-based business, and survey years. For estimates with the pooled sample, X_{ij} includes a dummy variable for Black owner.[2]

Firm size and finance may be jointly determined through the interaction of demand and supply for capital. Thus, we do not interpret the coefficients as causal but simply as the partial correlation of firm size and finance when controlling for a rich set of variables that may be correlated with demand for finance: firm age, number of owners, owner education and age, and motivations for ownership, for example.

To quantify the role of finance, we employ a standard Blinder-Oaxaca-type decomposition as an accounting framework, as follows:

$$\begin{aligned}\overline{E}^{W} - \overline{E}^{B} = {} & \left[\left(\overline{X}^{W} - \overline{X}^{B}\right)'\hat{\beta}^{*}\right] \\ & + \left[\left(\overline{X}^{W}\right)'\left(\hat{\beta}^{W} - \hat{\beta}^{*}\right) + \left(\overline{X}^{B}\right)'\left(\hat{\beta}^{*} - \hat{\beta}^{B}\right)\right],\end{aligned} \tag{2}$$

where $\overline{E}^{r}$ is the average employment for race r, $\overline{X}^{r}$ is a vector of the means of covariates, $\hat{\beta}^{r}$ is a vector of the estimated coefficients from race-specific regressions, and $\hat{\beta}^{*}$ is the vector of coefficients from the pooled regression. The first term in this two-fold decomposition is the composition ("explained") component resulting from Black–White differences in observed owner and firm characteristics using the estimated coefficient ($\hat{\beta}^{*}$) from the pooled regression. The second term is the structure ("unexplained") component resulting from differences in returns to characteristics by owner race. Because some firms have multiple owners and appear in more than one year of the ASE, the standard errors are clustered at the firm level. We subsume a large number of finance variables into seven groups and report subsumed components and standard errors.

[2] In Kim et al. (2021), we report a number of alternative specifications of this equation.

Table 1—Descriptive Statistics and Regression: Employment and Finance by Race of Owner

	Pooled		Black		White	
	Mean	Coefficient	Mean	Coefficient	Mean	Coefficient
Employment						
Number of employees	11.99		10.76		12.02	
	(124.1)		(80.81)		(124.9)	
Ln(number of employees)	1.43		1.32		1.43	
	(1.21)		(1.20)		(1.21)	
Selected finance variables						
Start-up capital amount $\geq$ \$100,000	0.193	0.306	0.149	0.265	0.194	0.306
Start-up capital source: savings	0.647	0.048	0.706	−0.007	0.645	0.049
Start-up capital source: bank	0.192	0.112	0.150	0.106	0.193	0.112
New funding source: bank	0.349	0.238	0.373	0.229	0.348	0.238
Discouraged borrower	0.033	−0.102	0.111	−0.127	0.032	−0.098
Lack of capital reduces profits	0.127	−0.007	0.269	−0.013	0.124	−0.008

Notes: The number of employees and the log number of employees are continuous variables, while financial measures are dummy variables, as explained in the text. The numbers of owner-firm-year observations and firms in the sample are approximately 656,000 and 197,000 in total, 643,000 and 192,000 for White owners, and 13,500 and 6,000 for Black owners, respectively. Owners are weighted by their ownership share in the firm and by the ASE sampling weights, so the sample is representative of all employer-firms in the US nonfarm private sector. Coefficients are from the pooled regression and separate regressions for Black and White. The data presented in this table are approved for dissemination by the DRB (CBDRB-FY21-CES014-010).

III. Results

Table 1 contains summary statistics for the number of employees and selected financial variables in the total sample and for Black and White owners separately. Employment has a large standard deviation (coefficient of variation over ten in the full sample) because of high skewness, but much less so for the natural logarithm, our dependent variable. The raw gap in firm size by this measure is 11.3 log points.[3]

The table also shows the means of selected financial variables and their estimated coefficients based on equation (1). Black-owned firms are less likely than White-owned firms to report start-up capital of at least \$100,000: 14.9 versus 19.4 percent. The estimated impact on firm employment is also slightly larger for Whites: 0.306 versus 0.265. Black owners are somewhat more likely to use personal savings in starting their firms, at 70.6 versus 64.5 percent for Whites, but the difference in coefficients is stark: essentially 0 for Blacks, it is 0.049 for Whites. Whites also have an advantage in receiving a bank loan at start-up, while Black owners are slightly more likely to have received a bank loan during the reference year. But the two subjective indicators imply much tougher financial constraints for Blacks, with significantly higher rates for both variables.

Panel A of Table 2 shows the aggregate decomposition of the firm employment size gap by race. The raw gap of 11.3 log points is almost entirely accounted for (97 percent) by differences in observable characteristics, the composition effect.[4] The structure effect, based on differences in the intercept and in coefficients, is only about 3 percent. The appropriate interpretation of this result is decidedly not that there is little discrimination affecting firm size. The underlying regression contains a number of variables that may themselves reflect discrimination in particular.

Panel B contains the partially subsumed contributions of the finance variables (the fully detailed decomposition for the financial

[3] In an analysis of the probability that start-ups have employment in the top 5 percent of the size distribution, Brown et al. (2019) report a raw gap of 50 percent on entry and 22 percent at firm age 7.

[4] Thus, the estimated coefficient on Black in equation (1) is approximately zero when all the control variables are included.

TABLE 2—DECOMPOSITION OF THE BLACK-WHITE GAP IN LOG FIRM SIZE AND CONTRIBUTION OF FINANCE

	Composition effect	Structure effect
Panel A		
Aggregate decomposition	0.110	0.003
	(0.013)	(0.016)
Panel B. Detailed decomposition of contributions from finance		
Finance total	0.066	0.118
	(0.004)	(0.049)
Of which:		
Start-up capital amount	0.013	0.026
	(0.002)	(0.017)
Start-up capital from insiders	0.003	0.043
	(0.001)	(0.029)
Start-up capital from outsiders	0.004	−0.006
	(0.001)	(0.008)
Start-up capital from other source	0.009	0.031
	(0.002)	(0.009)
New funding from insiders	0.034	0.014
	(0.002)	(0.022)
New funding from outsiders	−0.006	0.006
	(0.002)	(0.011)
Subjective financial constraints	0.009	0.004
	(0.001)	(0.009)

Notes: Panel A provides the aggregate decomposition, and panel B shows the detailed decomposition for the financial variables, partially subsumed within the categories, as described in the text. "Finance total" is the sum of the categories. The overall racial gap in log firm size is 0.113 (0.020). Standard errors clustered on firm are in parentheses. See Table 1 notes for the number of observations. The data presented in this table are approved for dissemination by the DRB (CBDRB-FY21-CES014-010).

variables is provided in the online Appendix). Overall, the composition effect resulting from finance is 0.066, implying that nearly 60 percent of the gap is accounted for by differences in these observed variables. The structure effect from finance is even larger, at 0.118, more than 100 percent of the total gap, implying that additional finance increases Black-owned firm employment benefits much less than at White-owned firms, although the large standard error implies considerable uncertainty in this estimate. Taken together at the mean, the total contribution of the financial measures "overexplains" the total gap by about 63 percent.

The more detailed decomposition based on the various types of capital provides imprecisely estimated structure effects. With that caveat, the start-up capital amount contributes 1.3 percentage points to the composition and 2.6 points to the structure effect. Insider Start-up Capital contributes only 0.3 percentage points to the composition effect, and the unexplained component for this source is 4.3 points. Blacks tend to rely on these sources somewhat more than Whites (for instance, 71 percent of Blacks use personal savings at start-up, compared with 65 percent of Whites), but the return to this source is 0 for Blacks and a statistically significant 4.9 points for Whites. For Blacks, greater use of internal finance may result from greater difficulty in obtaining capital from outsiders, so it is associated with smaller firm size, while Whites' personal investments are complemented by outside capital, resulting in larger firms. A similar interpretation may apply to the new funds (during the reference year) from insiders, which contributes 3.4 percentage points to the composition effect and 1.4 to the structure effect. Finally, the subjective constraint measures contribute 0.9 and 0.4 points to the two components, respectively.

IV. Conclusion

This paper has focused on the role of observable financial variables in accounting for the employment size gap between Black- and White-owned employer firms. We use a standard regression decomposition not to infer the presence of discrimination from the "unexplained" component but as an accounting framework with respect to observed variables. Applying the decomposition to a newly available large firm-level database rich in firm and owner characteristics, we find that the racial firm size gap is nearly fully accounted for (97 percent) by differences in observables. Changing the financial variables alone so that they have the same values across races would close 60 percent of the size gap. Although much less precisely estimated, even more of the gap, 104 percent, is accounted for by the unexplained components, differences in the impacts of the financial variables on firm size. The results imply that if Black-owned firms had the same access to finance along the measured dimensions and had the same return to finance, they would have 18.4 percent more employees than they actually have, on average. Moreover,

rather than being 11.3 percent smaller than White-owned firms, at the mean, they would be 7.1 percent larger.

We hasten to add that this analysis is limited in that only a few crude measures of finance are observable in our data. Financial information is generally scant in large US datasets including non-publicly-traded firms, and our data are the most appropriate for this study that we know of. Perhaps richer measures might show an even larger role for finance in accounting for the firm size gap, although this is only speculation.

Nonfinancial variables also play important roles in the firm size gap. In particular, characteristics of the entrepreneur such as education and motivations for business ownership are negatively associated with the gap in similar decompositions. Space constraints prevent us from elaborating, so we leave this as a teaser to our planned future research on this topic.

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