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CONTEXT MATTERS: DIVERSITY'S SHORT- AND LONG-TERM EFFECTS IN FORTUNE'S "BEST COMPANIES TO WORK FOR"

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Research summary: *Previous research has examined the racial diversity-productivity relationship in corporations with an evident high commitment to minority programs,* Fortune*'s "Best Companies for Minorities." To assess generalizability, we replicate this research using a different context of high organizational-employee value congruence,* Fortune*'s "Best Companies to Work For." We are not able to find evidence for the curvilinear relationships previously found, but do uncover a linear negative relationship between racial diversity and short-run performance.*

Managerial summary: *Using* Fortune*'s "Best Companies for Minorities," previous research found that racial diversity affected both firm productivity and Tobin's q. To see if we could find these results in a different group of firms, we replicate this research using a sample drawn from* Fortune*'s "Best Companies to Work For." The former sample is distinguished by high commitment to minority programs, while the one used here stresses high congruence of values between the organization and all its employees. We are unable to replicate the relationships previously found, however, but do find that increasing racial diversity had a negative effect on firm productivity.*

INTRODUCTION

Demographic diversity has been of frequent interest to strategic management, chiefly through concerns regarding top management team diversity (Carpenter, 2002; Knight *et al.*, 1999; Simons, Pelled, and Smith, 1999). Interest has extended beyond top management to the effects of visible, firm-wide diversity (e.g., racial composition of the work force) on organizational performance (e.g., Cunningham, 2009; Richard, 2000). One research thrust has focused on how different organizational factors influence the diversity-performance link, such as the level of firm innovativeness and risk-taking (Richard *et al.*, 2003, 2004), the type of organizational structuring (managerial span of control) (Richard, Ford, and Ismail, 2006), growth versus downsizing strategies (Dwyer, Richard, and Chadwick, 2003; Richard, 2000), and organizational culture (Dwyer *et al.*, 2003; Richard, Kirby, and Chadwick, 2013).

Richard, Murthi, and Ismail (2007) (henceforth, RMI) is important in relation to this inquiry as it examined the effects of racial diversity on firm performance in the context of a high corporate *diversity focus*, one involving commitment to programs and policies directed toward minorities. Interestingly, while urging researchers to take into account different contexts, RMI did not fully consider the potential ramifications of their unique sample, *Fortune*'s "Best Companies for Minorities," either in

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their hypothesizing or discussion of findings. This raises the question of the generalizability of their theorizing and results to contexts not sharing their sample's unique features.

Accordingly, this study replicates the portion of RMI's findings on the direct effects of diversity on performance, leaving aside the moderated effects they examined to enable a more refined focus in this study. Specifically, we test the relationship between racial diversity and short- and long-run performance using *Fortune*'s "Best Companies to Work For." We use a sample that overlaps RMI's in time, but represents a distinctive context. While both lists focused on firms that treated their employees in an exemplary fashion, inclusion in RMI's sample was based on a firm's treatment of minorities alone, while ours represented corporations that emphasized value congruence and commitment in relation to all workers (Levering and Moskowitz, 2006, 2008). Though neither is a random sample, both were formed using a different criterion that could affect the relationship of interest, thus making our sample a conceptually useful one for replication.

The results of RMI's analysis revealed a U-shaped relationship in the short run and a marginally significant inverted U-shaped relationship in the long. Our analysis was unable to replicate these findings. Rather, running a model without the squared terms (which RMI did not do), we uncover in our sample tentative evidence for a negative linear diversity-performance relationship in the short run and a positive linear one in the long. We subject these results to various robustness tests, but one weakened the longer run result to nonsignificance.

Juxtaposition of this study with RMI's produces several implications. First, context can be important in understanding the diversity-performance linkage. While firms in RMI's sample with a context of strong and evident diversity support enjoy better comparative shorter run performance (in that productivity turned up at higher diversity levels), firms in our stronger value congruence sample showed some evidence, though equivocal, of superior comparative longer run performance (in that Tobin's q did not turn down at higher diversity levels). Further, even exemplary corporations, such as those in the "Best Companies for Minorities" and "Best Companies to Work For," continue to face unresolved challenges in leveraging diversity's benefits and mitigating its dysfunctional aspects. More research is clearly needed on the best ways to achieve these goals.

Table 1. Results from Richard *et al.* (2007)[a]

Variable	Productivity Model 1 *b*	Tobin's q Model 2 *b*
Intercept	1,475***	−0.12
	(209)	(0.74)
Firm size	0.0002	−1.83E-6*
	(0.0001)	(8.14E-7)
R&D expense	−25,478	295**
	(13600)	(95)
Net income	–	75***
		(9.86)
COGS	–	−27***
		(7.67)
Power	357***	0.39
	(90)	(0.42)
Racial diversity	−5,424***	7.71*
	(896)	(3.36)
Racial squared	4,927***	−7.51
	(978)	(4)
Annual dummies	Included	Included
# of cross-sections	145	145
N	841	857

[a] Standard errors are in the parentheses.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.0001$.

REPLICATING RMI

Drawing on the knowledge-based view of the firm (Grant, 1996; Yli-Renko, Autio, and Sapienza, 2001) and Blau's theory of heterogeneity (Blau, 1977), RMI examined the diversity-performance relationship in the context of *Fortune*'s "Best Companies for Minorities." These corporations emphasized and publicly committed to minority-related programs. RMI's sample was based on firms that "went through an extensive, rigorous evaluation process that measured the firm's commitment to diversity issues" (1221).

RMI used a pooled time series from 1997 to 2002 to test the relationship between racial diversity and both shorter and longer term performance. RMI's results (reproduced in Table 1) revealed a U-shaped curvilinear ($p = 0.0001$) relationship between diversity and shorter term performance (firm productivity), declining to approximately the 82nd percentile of racial diversity and increasing after that. They also revealed a curvilinear (inverted U-shaped) relationship at a marginal level of significance ($p = 0.061$) between diversity and longer term firm performance (Tobin's q), increasing to approximately the 73rd percentile and decreasing thereafter.

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RMI directed future researchers to explore the relationships between diversity and performance in contexts beyond the one chosen for their study. Yet, RMI did not take explicit account of the unique characteristics of their sample in either their hypothesizing or interpretation of results. These corporations specifically focused on minority representation at several levels in their workforce, the percentage of minorities hired in the last year, the number of diversity programs, the percentage purchased from minority firms, and the amount of charitable donations benefiting minorities (Hickman, 2002). Such firms are distinctive in placing singular emphasis on diversity issues, and therefore, could positively leverage diversity in comparison with firms lacking such characteristics. While these conditions may make RMI's sample firms a potential "gold standard" for contextual comparison, their results may not generalize to firms having a different level of diversity emphasis given that focus on minority issues may represent a boundary condition. It is through replication, a hallmark of scientific inquiry (Bettis, 2012; Hubbard, Vetter, and Little, 1998), that we can understand the extent to which findings in one context may apply in another, thus building more robust and encompassing theory.

To make such an assessment, we replicate RMI by using another exemplary, though conceptually distinct, sample, one emphasizing value congruence for all employees: *Fortune*'s "Best Companies to Work For." Flowing from the person-organization fit literature, value congruence is the degree of alignment between employee values and the culture of an organization (Chatman, 1989; O'Reilly, Chatman, and Caldwell, 1991). Selection for this list was based on high organization-employee value congruence and focus on the extent to which the policies and culture of each company emphasized credibility (communication to employees), respect (opportunities and benefits), fairness (communication and diversity), and pride/camaraderie (philanthropy, celebrations) (Levering *et al.*, 2003). Studies demonstrate that such factors are highly desired by employees and that organizations providing them tend to have high levels of organizational-employee value congruence (e.g., Edwards and Cable, 2009; Jehn, Chadwick, and Thatcher, 1997; Ostroff, Shin, and Kinicki, 2005). While employees completed the Great Place to Work and Trust index to assess these factors, firms also had to complete a questionnaire assessing HR policies, benefits, and practices as well as workplace culture. Two thirds of a company's score was based on the employee survey. Results from the firm questionnaire were assessed along seven separate criteria, one of which was diversity (Levering and Moskowitz, 2006). Thus, in contrast to RMI's sample, consideration involving explicitly minority-related activities and considerations was about 1/20 of the weighting for "Best Companies to Work For."

METHOD

To maximize comparability with RMI, we closely followed their methods and model specification. Data for calendar years 1997–2007 was obtained from *Fortune*'s survey that annually identifies the 100 best corporate workplaces. Any firm with more than 1,000 U.S. employees and at least seven years old was eligible. For example, in the "100 Best Companies to Work For" in 2006, about 1,500 companies were either invited to participate or directly contacted *Fortune* to be considered, and the 100 companies were chosen out of the 466 that met all the requirements (Levering and Moskowitz, 2006). Although the survey has continued past 2007, that was the last year that *Fortune* published data on minority levels. We removed from our sample corporations from the "Best Companies for Minorities" lists given that our purpose is to contrast such firms with those from the "Best Companies" list. Usable sample size was reduced by the unavailability of long-term firm performance data for privately owned firms as well as other missing data. The resulting usable sample consisted of 414 observations for the longer term analysis and 357 observations for the shorter term. This data was from a total of 117 different firms, resulting in an unbalanced panel.

Dependent variables

RMI measured both short- and long-term performance using *productivity* and *Tobin's q*, respectively. Accordingly, we generated firm productivity by dividing total annual revenue by number of employees, as did RMI. This measure indicates current employee performance varying independently of both product and capital markets, making it an appropriately focused indicator of

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the short-term effects of diversity. Data for this measure was drawn from the "Best Companies" lists. We also followed RMI in using the measure of Tobin's q proposed by Lee and Tompkins (1999): Q = (MKTVAL + PSVAL + DEBT)/TA. MKTVAL = the number of common shares outstanding multiplied by the share price, PSVAL = the liquidating value of the firm's outstanding preferred stock, DEBT is (Long-Term Debt) + (Short-Term Liabilities – Short-Term Assets), and TA = the book value of the total assets of the firm. Tobin's q is a common measure of performance and was calculated using data drawn from Compustat.

Independent variable

RMI drew their *racial diversity* measure from the "Best Companies for Minorities" data, which provided the percentage of the workforce comprised of whites, blacks, Hispanics, Asians and American Indians. We followed their approach and used what data was available from *Fortune*'s "Best Companies to Work For" lists: percentage of the workforce comprised of whites and minorities. This included the total population of the company's U.S. employees as well as part-timers at the time of the survey. Following RMI, we transformed this measure using Blau's index of heterogeneity. The index formula is Diversity = $(1-\Sigma P_i^2)$, where P_i is the proportion of workers in category i. With two groups this index can vary from 0 to 0.50, with 0.50 representing equal representation of each group.

Control variables

To maximize comparability, we followed RMI in the choice of control variables, drawing on Compustat where appropriate. To represent general economic conditions as well as changing employment opportunities, RMI included *year dummies* in all models. RMI measured *firm size*, which can influence the performance variables and may also be related to diversity through higher visibility, by total assets, as did we. Firm *R&D expense*, which can boost productivity and can also influence Tobin's q, was measured by R&D expenditures, following RMI. As did RMI, in our long-run models we also controlled for *Net Income* and *Cost of Goods Sold*, in keeping with research on factors influencing Tobin's q. RMI also controlled in all models the market *Power* in an industry by means of the four-firm concentration ratio, as we did also.

RESULTS

RMI used random effects panel regression, and we follow their approach. Descriptive statistics and correlations are presented in Table 1. The correlation between R&D expense and net income was somewhat high (r = 0.78), and so we tested for possible multicollinearity. Variance inflation factors were the highest for these two variables: net income VIF = 3.47; R&D expense = 2.72 (others were below 2). Thus, all values were substantially below the common cutoff of VIF = 10. Table 2 presents the regression results. The odd-numbered models present the linear form of our statistical models, and directly replicating RMI, our even-numbered models present their curvilinear forms.

In Model 1 we find a negative linear association between racial diversity and productivity: β = -979,251 (p = 0.060). Given that RMI did not test a linear-only model, we are not able to make any direct comparisons. RMI did, however, test for and find a U-shaped relationship between diversity and productivity (p = 0.0001). In our direct replication of RMI in Model 2, the quadratic term is not significant: β = -104,438 (p = 0.975). Given that a significant quadratic term is a necessary condition to establish curvilinearity (Haans, Pieters, and He, 2016), our results are inconsistent with RMI's. Thus, we do not replicate RMI's U-shaped relationship. Rather, using a simpler model specification, we identify a marginally significant linear negative one: for our sample, as racial diversity increases productivity generally declines. Assessing the practical effect, a one standard deviation increase in our diversity index is associated with a productivity change = -97,925, approximately 11.5 percent of the standard deviation of firm productivity.[1]

Moving to our second dependent variable, in Model 3, we find a positive linear association between racial diversity and Tobin's q: β = 2.70 (p = 0.070). We are again unable to make any direct comparison here with RMI given that they did not test a linear-only model for longer run performance. RMI's results did indicate, however, a marginally significant inverted-U relationship (p = 0.061) between racial diversity and Tobin's q.

[1] This calculation involved multiplying the coefficient estimate by the standard deviation of racial diversity: -979,251 * 0.10 = -97,925. This same approach was used below.

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Table 2. Descriptive statistics

	Mean	s.d.	1.	2.	3.	4.	5.	6.	7.	8.
1. Firm size	27,765	105,633								
2. R&D expense	540	1,324	0.07 (0.127)							
3. Net income	1,030	2,237	0.44 (0.000)	0.71 (0.000)						
4. COGS	4,745	12,147	0.23 (0.000)	0.08 (0.094)	0.22 (0.000)					
5. Power	0.62	0.22	−0.08 (0.104)	−0.12 (0.011)	−0.17 (0.000)	−0.11 (0.025)				
6. Racial diversity	0.36	0.10	0.05 (0.257)	0.03 (0.524)	0.07 (0.156)	0.07 (0.169)	−0.08 (0.120)			
7. Productivity	470,516	849,983	0.52 (0.000)	0.09 (0.076)	0.32 (0.000)	0.48 (0.000)	−0.12 (0.028)	−0.00 (0.933)		
8. Tobin's q	2.70	2.57	−0.16 (0.001)	0.16 (0.001)	0.13 (0.008)	−0.13 (0.006)	−0.09 (0.061)	−0.13 (0.015)	−0.09 (0.070)	

P-values are contained in parentheses.

In our direct replication of RMI in Model 4, our results are inconsistent with RMI's given that we do not find evidence to support a curvilinear relationship between racial diversity and Tobin's q: $\beta = 3.24$ ($p = 0.741$). Thus, we also fail to replicate RMI's inverted-U relationship. Rather, using a simpler model specification, we find a marginally significant positive one: as racial diversity increases for our sample Tobin's q generally improves. Assessing the practical effect, a one standard deviation increase in our diversity index is associated with a Tobin's q change = 0.27, approximately 10.5 percent of the standard deviation of Tobin's q.

To address possible concerns about outliers we also ran our models using data Winsorized at the two percent level. Our results using Winsorized data were nearly identical, though slightly less statistically significant. In Model 1, the linear relationship between racial diversity and productivity was again negative: β = -649,722 ($p = 0.067$). In Model 2, the curvilinear relationship was, as before, not significant: β = -570,706 ($p = 0.776$). In Model 3, the linear relationship between racial diversity and Tobin's q was again positive: $\beta = 2.51$ ($p = 0.082$). In Model 4, the curvilinear relationship between racial diversity and Tobin's q was, also as before, not significant: $\beta = 4.01$ ($p = 0.670$). Thus, our findings are robust to correction for extreme values in the dependent variables.

As an additional robustness test, to address possible concerns with error nonsphericity we used Huber-White-Sandwich robust standard errors as an additional analytic variant. These results were somewhat higher in statistical significance. In Model 1, the linear relationship between racial diversity and productivity was again negative: β = -979,251 ($p = 0.024$). In Model 2, the curvilinear relationship between racial diversity and productivity was, as before, not significant: β = -104,438 ($p = 0.971$). In Model 3, the linear relationship between racial diversity and Tobin's q was again positive: $\beta = 2.70$ ($p = 0.041$). In Model 4, the curvilinear relationship between racial diversity and Tobin's q was, also as before, not significant: $\beta = 3.24$ ($p = 0.694$). These results provide fairly strong confirmation of our initial findings and once again fail to replicate the curvilinear findings of RMI.

As industry is commonly recognized as having important effects on firm activity and performance (Dess, Ireland, and Hitt, 1990), we included industry (1-digit SIC) as an additional control, while dropping the four-firm concentration ratio. Given that individual firms are nested within industries, we performed this analysis with a two-level multilevel regression (xtmixed in Stata). These results are included in Table 3, Models 5–8. In the shorter term model (Model 5), doing so weakened the statistical significance of the linear term back to marginal significance: β = -943,649 ($p = 0.059$). As before, the quadratic term in the curvilinear model was not significant: β = 1,338,257 ($p = 0.675$) (Model 6). These results are similar to our initial models. In the longer term, however, the linear term fell

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Table 3. Effects of racial diversity[a]

	Productivity		Tobin's q		Productivity		Tobin's q	
Variable	Model 1 *b*	Model 2 *b*	Model 3 *b*	Model 4 *b*	Model 5 *b*	Model 6 *b*	Model 7 *b*	Model 8 *b*
Intercept	865,694	858,855	2.37	2.63	1,437,831	1,689,845	0.28	0.53
	(241,921)	(349,577)	(0.70)	(1.03)	(242,286)	(347,588)	(0.71)	(1.02)
Firm size	5.79	5.79	−3.65e-06	−3.57e-06	5.97	6.02	−1.60e-06	−1.52e-06
	(0.51)	(0.51)	(1.74e-06)	(1.76e-06)	(3.61)	(3.64)	(1.13e-06)	(1.13e-06)
R&D expense	19.49	19.38	−2.76e-04	−2.74e-04	21.27	21.68	−3.63e-04	−3.61e-04
	(41.86)	(42.00)	(1.40e-04)	1.40e-04	(60.09)	(59.86)	(1.48e-04)	(1.49e-04)
Net income			2.05e-04	2.02e-04			1.99e-04	1.99e-04
			(1.02e-04)	(1.03e-04)			(8.99e-05)	(8.99e-05)
COGS			−1.71e-05	−1.74e-05			−1.24e-05	−1.28e-05
			(1.24e-05)	(1.25e-05)			(6.16e-06)	(6.11e-06)
Power	−403,369	−404,304	−1.11	−1.10				
	(257,438)	(258,775)	(0.73)	(0.73)				
Racial diversity	−979,251	−917,576	2.70	0.72	−782,174	−2,426,812	0.89	−0.96
	(521,230)	(2,110,928)	(1.49)	(6.16)	(443,869)	(1,773,855)	(1.30)	(5.29)
	p = 0.060	p = 0.664	p = 0.070	p = 0.907	p = 0.078	p = 0.171	p = 0.494	p = 0.856
Racial squared		−104438		3.24		2706,281		3.01
		(3384069)		(9.80)		(2,727,807)		(8.36)
		p = 0.975		p = 0.741		p = 0.321		p = 0.718
Annual dummies	Included	Included	Included	Included	Included	Included	Included	Included
Industry dummies	Not included	Not included	Not included	Not included	Included	Included	Included	Included
Wald X^2	159.98	159.71	37.51	37.59	66.62	67.73	164.98	163.35
	p = 0.000	p = 0.000	p = 0.002	p = 0.003	p = 0.000	p = 0.000	p = 0.000	p = 0.000
# of cross-sections	115	115	117	117	120	120	122	122
N	357	357	414	414	378	378	441	441

[a] All standard errors are in the parentheses.
P-values and significance tests are shown only for variables of interest.

to statistical non significance, $\beta = 1.09$ ($p = 0.474$) (Model 7), while the quadratic term in the curvilinear model remained insignificant, as before: $\beta = 4.47$ ($p = 0.639$) (Model 8). Thus, while our finding of a negative linear relationship between racial diversity and shorter term performance was robust to this test, our finding of a positive relationship with longer term performance was not.

Finally, we note that RMI did not include the net income or COGS controls in their firm productivity models. Including them did not substantially alter the results: The negative linear effect of racial diversity on firm productivity became somewhat statistically more significant than originally ($p = 0.026$), but the curvilinear effect was still not close to statistical significance ($p = 0.737$).

As a *post hoc* test, we also analyzed the smaller sample made up of corporations appearing in both the "Best Companies for Minorities" and "Best Companies to Work For" lists (which we had earlier excluded). With 28 groups and 101 observations, we find the same U-shaped curvilinear relationship between racial diversity and productivity ($p = 0.010$) as did RMI. This strongly suggests that, although our diversity measure has only two categories (majority/minority) instead of RMI's five, it has sufficient sensitivity to detect curvilinear effects where previous results suggest they should exist.

IMPLICATIONS

Richard *et al.* (2007) analyzed the effect of racial diversity on short- and long-run firm performance in firms associated with *Fortune*'s "Best Companies for Minorities" lists, firms with an evidently strong focus on diversity programs. Their analysis revealed a highly significant curvilinear (U-shaped) diversity-productivity relationship in the short run and a marginally significant curvilinear (inverted U-shaped) relationship in the long. In this replication, we drew firms from *Fortune*'s "Best Companies to Work For" lists, ones that feature evident focus on firm-employee value congruence. In contrast to RMI, we found no evidence for these curvilinear relationships in our sample, using either shorter or longer term performance indicators. Thus, we were unable to replicate RMI's findings.

However, using a linear model specification, we did find marginally significant evidence for a negative linear relationship in the short run, and possible marginally significant evidence for a positive linear relationship in the long. Yet, several caveats must attend these findings. First, we are unable to directly compare linear results to RMI's since they did not test a linear model; all their models included squared racial diversity terms. Thus, since we do not know what RMI would have found in linearly specified regressions that excluded these terms, these results neither confirm nor fail to confirm RMI. Second, while our positive linear longer term result (using Tobin's q) was robust to several additional model specifications, it was not robust to the inclusion of industry effects. Thus, the longer term result should be treated with caution.

With these concerns in mind, in relation to our short-run findings, the focus on strong value congruence (e.g., Chatman *et al.*, 1998; Ely and Thomas, 2001; Ofori-Dankwa and Julian, 2002) among firms in our sample was apparently insufficient for them to reap short-run gains from increases in racial diversity. On the other hand, we are unable to say anything with confidence about the positive linear relationship with Tobin's q given the test, including the industry effects. While some research implies that the high value congruence nature of our sample would exert a compensating longer term effect at higher diversity levels (e.g., Ofori-Dankwa and Julian, 2004, 2014; Taggar, 2002; Watson, Kumar, and Michaelson, 1993), the linear positive result did not prove robust. The lack of consistency in these findings suggests that clarity regarding the longer run implications of racial diversity requires further research.

From a more practical perspective, our results coupled with RMI's suggest that even the best-run organizations (such as those on *Fortune*'s "Best Companies for Minorities" and "Best Companies to Work For") appear to have room for improvement. It may be that such firms can benefit from a "diversimilarity" perspective, characterized by a strong, strategic and integrated emphasis on both diversity and organization-employee value congruence (Chatman *et al.*, 1998; Ely and Thomas, 2001; Ofori-Dankwa and Julian, 2002, 2014). This implies that though corporate policies could emphasize diversity over value congruence to address changing workforce demographics, a dual emphasis may offer more consistently positive benefits in the long run. Likewise, concentration on value congruence, particularly in the short run, may also be incomplete as it could pay insufficient attention to the distinctives of employees from diverse groups. Across these two studies, evidence exists that both

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demographic diversity and value similarity can be useful and should both be emphasized. If this may be the case in even the very best firms, how much more so in average ones?

In conclusion, we note that fuller answers are likely to require more broadly-based samples. While there is inherent value in focusing on exemplary firms, either pertaining to a diversity or a value congruence emphasis, most firms are not exemplary along these dimensions. A more complete understanding of the firm-level effects of racial diversity thus requires samples that include such firms, as well. We also note that the levels of racial diversity in the two samples considered appear to be somewhat different. Future research should seek samples of different levels of diversity than those considered here to explore an additional potential boundary condition. Further, future researchers should pay particular attention to issues of endogeneity to better disentangle causal priority. Such attention may permit our understanding to grow beyond inferring association toward establishing whether, and to what degree, it is diversity that is affecting performance rather than the other way around, or whether other factors are driving both.

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