Race, gender and willingness to compete*

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February 7, 2022

Abstract

This paper contributes to the growing body of work investigating differences in willingness to compete. While most existing work has focussed on gender differences, this research also investigates differences in competitiveness by race. The data show that Black respondents in South Africa are more willing to compete than White respondents, driven mostly by differences in competitiveness between Black and White females. The common finding of women being less competitive than men is also replicated, with this gender difference noted among both Black and White respondents. The analysis shows that competitiveness is associated with higher household incomes for White, but not Black respondents. Heterogeneity is also seen in the relationship between competitiveness and level of education. Competitiveness is positively associated with education level for Black respondents, while this relationship is negative for White respondents.

Key words: competitiveness; race; gender; South Africa
JEL classification: D01; D91; C9

*Conflicts of interest: none. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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1 Introduction

A growing body of recent work has considered willingness to compete as a moderator of the link between gender and various outcomes where men have historically outperformed women, including income, education and field of study. Willingness to compete has been found to explain a significant portion of the gender gap in these outcomes (e.g. Niederle and Vesterlund, 2007; Buser et al., 2014; Reuben et al., 2015; Buser et al., 2021).

Gender differences in willingness to compete are associated with gender-based cultural and social norms (e.g. Gneezy et al., 2009; Booth and Nolen, 2012; Booth et al., 2019) Differences in willingness to compete might therefore also be seen in other groups where cultural or social norms create different expectations for different groups of people. With its history of racial segregation and persistent inequality across race groups,[1] South Africa provides an interesting context to investigate the question of whether willingness to compete varies with race as well as gender.

Willingness to compete would likely impact decisions to apply for promotions, pay rises or jobs that are highly paid or involve competition with other applicants. The gender gap in willingness to compete has been shown to result in decisions that are not payoff maximising for significant numbers of high ability women, whose expected earnings in experimental tasks would be higher if they chose to compete (Niederle and Vesterlund, 2007; Niederle et al., 2013). If people from historically disadvantaged groups are less willing to compete, this could compound already high inequality. Understanding gender and race differences in willingness to compete is therefore important in selecting optimal workplace incentives to ensure equal access to promotion or career growth opportunities.[2]

Data from an online survey conducted in South Africa are used to investigate whether willingness to compete differs by gender and between Black and White ethnic groups.[3] These

[1] White headed households still have an average income 4.5 times that of black headed households (Statistics South Africa, 2019).

[2] The implications of willingness to compete for affirmative action policies are discussed at length in Niederle et al. (2013).

[3] This study focuses on Black and White Black ethnic groups since these groups represent the extremes

results replicate the common finding of men being more competitive than women. Perhaps surprisingly given the historical oppression experienced by Black South Africans, higher reported willingness to compete is found among Black respondents than White respondents. This is driven primarily by differences in competitiveness between Black female and White female respondents.

In line with previous research, higher competitiveness is associated with higher incomes for White respondents. This relationship does not hold for Black respondents. Some heterogeneity is also found in the association between competitiveness and education: although competitiveness was positively associated with education level for Black respondents, this relationship was negative for White respondents.

2 Methodology

900 respondents in South Africa completed an online survey, where the demographics of the respondent sample were aligned with population proportions in terms of race and gender. Much of the research on competitiveness has adapted the incentivised experiment design of Niederle and Vesterlund (2007). Running large scale incentivised experiments with a demographically representative sample is, however, extremely costly and logistically challenging. For this reason, Buser et al. (2021) validates a survey measure for willingness to compete. I follow these authors in using their rigorously validated survey measure of competitiveness: "How competitive do you consider yourself to be? Please choose a value on the scale below where the value 0 means 'not competitive at all' and the value 10 means 'very competitive'."

The paper first compares mean competitiveness for the gender and race groups of interest, then considers whether competitiveness predicts income and education level. Following Buser et al. (2021) and Reuben et al. (2015), risk attitudes are controlled for in estimating the relationship between willingness to compete and education and income. A validated survey

of apartheid-era discrimination in South Africa. Black South Africans experienced the most discrimination, and White South Africans experienced the most privilege.

measure was used to estimate risk tolerance (Dohmen et al., 2011): "In general, are you the kind of person who is willing to take risks, or do you avoid taking risks? Please choose your answer on a scale of 0 to 10, where 0 means 'Not at all willing to take risks' and 10 means 'Completely willing to take risks'." Respondents were also asked about their highest education level achieved. Information on race, gender and household income was included in the demographic information gathered in the survey.

For ease of interpretation, OLS estimates of the relationship between willingness to compete and income and education levels are reported. Since income and education are surveyed using categorical measures, ordered logit estimates are included in the online appendix, supporting the OLS findings. The following simple models are estimated:

$$income_i = \alpha_0 + \beta_1 competitiveness_i + \beta_2 whitexcompetitiveness_i + \gamma \mathbf{X_i} + \epsilon_i \quad (1)$$

$$education_i = \alpha_0 + \beta_1 competitiveness_i + \beta_2 whitexcompetitiveness_i + \gamma \mathbf{X_i} + \epsilon_i \quad (2)$$

Competitiveness differs by race group in the data. This heterogeneity is investigated by including an interaction variable, *white* x *competitiveness* as well as the main *competitiveness* variable in both regressions. $\boldsymbol{X}$ is a vector of control variables for respondent i, including age, gender and risk tolerance.

3 Results

The descriptive statistics for the different groups of interest are presented in Table 1. Since a Skewness-Kurtosis test showed that willingness to compete is not normally distributed in the sample (chi2=49.56, p<0.01), Wilcoxon rank-sum tests are used to compare these means.

Table 1 replicates the common research finding of significantly greater willingness to compete among men versus women. This gender difference is found in both Black and

Table 1 – Comparisons of mean willingness to compete by gender and race

	n	Mean WTC (s.d.)	Wilcoxon rank-sum (z)
Male	437	7.47	
		(2.02)	
			2.70***
Female	463	7.14	
		(1.95)	
Black	675	7.38	
		(1.96)	
			2.41**
White	115	6.85	
		(2.06)	
Black Male	334	7.49	
		(2.05)	
			0.29
White Male	48	7.27	
		(1.83)	
Black Female	341	7.27	
		(1.87)	
			3.01***
White Female	67	6.55	
		(2.17)	
Total sample	900	7.30	
		(1.99)	

* p<0.10; ** p<0.05; ***p<0.01

White race groups (z=1.78, p=0.07 for Black men versus Black women; and z=1.94, p=0.05 for White men versus White women).

Given the oppression experienced by Black South Africans under apartheid, I anticipated that, like women, Black South Africans might be less willing to compete. However, Black respondents show higher willingness to compete than White respondents. This effect seems to be driven by Black females being significantly more willing to compete than White females.

Table 2 reports OLS regressions considering whether competitiveness predicts income and education level.[4]

Table 2 – OLS regressions of income and education on competitiveness

	(1)	(2)	(3)	(4)
	DV: Household income		DV: Education level	
competitive	0.0108	0.00265	0.0144	0.0303**
	(0.0310)	(0.0333)	(0.0133)	(0.0145)
white x competitive	0.126***	0.0628***	-0.0362***	-0.0609***
	(0.0194)	(0.0235)	(0.00981)	(0.0114)
under25		-1.058***		-0.185***
		(0.142)		(0.0579)
over45		0.473**		0.222**
		(0.196)		(0.0885)
female		0.159		0.0243
		(0.115)		(0.0516)
risk tolerance		-0.00711		-0.0340**
		(0.0320)		(0.0132)
constant	3.339***	3.628***	1.591***	1.748***
	(0.234)	(0.268)	(0.0992)	(0.124)
N	790	790	790	790
R2	0.035	0.12	0.017	0.048
F	21.18***	20.08***	7.16***	7.10***

Standard errors in parentheses
* p<0.10; ** p<0.05; ***p<0.01

Columns (1) and (2) in Table 2 consider monthly household income, ranging from 0 (no income) to 6 (income of ZAR 30,000 or more).[5] White respondents see a significantly stronger

[4] Ordered logit regressions and OLS regressions using the midpoint of each income and years of education category are included in the online appendix, and show very similar findings. The online appendix also includes logit regressions for the likelihood of being in a high income group (earning a monthly household income of ZAR 30,000 or more) and of holding a degree.

[5] To align with the education level estimates, and because the top income category in the survey had no upper bound, categories from 0 to 6 were used for these regressions. Repeating the regressions using the midpoints of each income category gives similar results, included in the online appendix.

positive relationship than Black respondents between competitiveness and household income. This heterogeneity persists after controlling for age, gender and risk tolerance in column (2).[6]

Columns (3) and (4) consider education level, ranging from 0 (did not finish high school) to 3 (post-graduate degree). White respondents see an overall negative relationship between competitiveness and education level, while this is not the case for Black respondents. After controlling for demographics and risk tolerance, the relationship between competitiveness and holding a degree is positive for Black respondents, but negative for White respondents.[7] Risk tolerance has a significant negative relationship with education level.

Table 3 replicates columns (2) and (4) from Table 2 separately for women and men. While the education regressions show similar results for men and women, the income regressions show some variation. For Black respondents (the reference group), column (1) shows a positive (although not significant) relationship between competitiveness and income for women, while column (3) shows a negative (again not significant) relationship between competitiveness and income for men. For White respondents, there is a positive and significant relationship between competitiveness and income, but this is not true for men.

Although small business ownership is not one of the outcome variables typically considered in the literature on willingness to compete, it is interesting to note that small business owners report higher willingness to compete (mean=7.54; s.d.=1.95) than those who do not own small businesses (mean=7.20, s.d.=2.00). A Wilcoxon rank-sum test shows that this difference is statistically significant (z=2.49; p=0.013)

[6] Ordered logit regressions with similar findings are included in the online appendix.

[7] This finding of heterogeneity by race in the relationship between education level and competitiveness is replicated in an ordered logit regression and in a logistic regression predicting the likelihood of holding a degree. These results are included in the online appendix.

Table 3 – OLS regressions of income and education on competitiveness by gender

	Female Respondents		Male Respondents	
	(1)	(2)	(3)	(4)
	HH income	Education	HH income	Education
competitive	0.0516	0.0304	-0.0496	0.0292
	(0.0506)	(0.0213)	(0.0447)	(0.0201)
white x competitive	0.0796**	-0.0669***	-0.0471	-0.0541***
	(0.0313)	(0.0164)	(0.0347)	(0.0161)
under25	-1.028***	-0.237***	-1.084***	-0.133
	0.198	(0.0796)	0.205	(0.0846)
over45	0.217	0.176	0.758***	0.269**
	0.266	(0.134)	0.289	(0.117)
risk tolerance	-0.0179	-0.0374**	-0.00185	-0.0310*
	0.0456	(0.0186)	0.0463	(0.0186)
constant	3.521***	1.822***	3.959***	1.709***
	(0.352)	(0.150)	(0.382)	(0.180)
N	408	408	382	382
R2	0.12	0.058	0.13	0.041
F	11.93***	5.01***	12.11***	3.86***

Standard errors in parentheses
* p<0.10; ** p<0.05; ***p<0.01

4 Discussion

This study replicates the commonly found link between gender and willingness to compete, with men reporting being more competitive than women. Willingness to compete among Black and White respondents is also investigated. Black respondents report greater willingness to compete than White respondents. This difference is mostly due to differences between Black and White female respondents: White female respondents report the lowest willingness to compete of the race and gender groups considered.

For White respondents, willingness to compete is found to predict higher household in-

comes. There is, however, no significant relationship between competitiveness and household income for Black respondents. Where male and female respondents are considered separately, a positive (but not significant) relationship between competitiveness and income is seen for Black female respondents, while a negative (but not significant) relationship is seen for Black male respondents.

The link between willingness to compete and education shows heterogeneity by race: for Black respondents, a positive relationship between competitiveness and education level is seen. For White respondents, the overall relationship between competitiveness and education level is negative.

This research presents a first look at how willingness to compete differs by race group. South Africa's apartheid history makes this an interesting country to investigate racial differences. Given the importance of willingness to compete in labour market outcomes, these early findings suggest that this is an area worthy of more detailed exploration in future research.

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